**User Manual UMAX032101**
**Version 1.2**
**Firmware 1.01**

# USER MANUAL

## 2 Bipolar, 8 Universal Signal Input Controller, CAN (CANopen®), Ethernet (Modbus TCP/IP), Two +5V References, DIN Rail Mount

**P/N: AX032101**


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## ACRONYMS

| | |
|---|---|
| ARP | Address Resolution Protocol |
| ASCII | American Standard Code for Information Interchange |
| AWG | American wire gauge |
| CAN | Controller Area Network |
| CE | Conformité Européenne (European Conformity) |
| CMOS | Complementary metal-oxide-semiconductor |
| DC | Direct Current |
| DIN | German Institute for Standardization |
| DM | Diagnostic message. Defined in J1939/73 standard |
| EA | Axiomatic Electronic Assistant. PC application software from Axiomatic |
| ECU | Electronic control unit |
| EEPROM | Electrically Erasable Programmable Read-Only Memory |
| EMI | Electromagnetic Interference |
| EN | European Standard |
| GPL | General Public License |
| ICMP | Internet Control Message Protocol |
| ID | Identifier |
| IEC | International Electrotechnical Commission |
| IEEE | Institute of Electrical and Electronics Engineers |
| IP | Internet Protocol or Ingress Protection (for housing) |
| ISO | International Organization for Standardization |
| LAN | Local Area Network |
| LED | Light-emitting diode |
| LoZ | Low resistance |
| LSB | Less Significant Byte |
| MAC | Media Access Control (address) |
| MDIX | Medium Dependent Interface Crossover (MDI-X) |
| PC | Personal Computer |
| PGN | Parameter Group Number. Defined in J1939/73 standard |
| PHY | Physical Layer Transceiver (Ethernet chip) |
| P/N | Part Number |
| PWM | Pulse-width modulation |
| RoHS | Restriction of Hazardous Substances |
| RTOS | Real-Time Operating System |
| SAE J1939 | CAN-based higher-level protocol designed and supported by the Society of automobile Engineers (SAE) |
| S/N | Serial Number |
| TBD | To be determined |
| TCP | Transmission Control Protocol |
| UDP | User Datagram Protocol |
| UL | Underwriters Laboratories (safety organization) |
| USB | Universal Serial Bus |
| VDC | Volt Direct Current |
| UTP | Unshielded twisted pair |

## TABLE OF CONTENTS

# 1 INTRODUCTION

The following user manual describes architecture, functionality, configuration parameters and flashing instructions for the 2 Bipolar, 8 Universal Signal Input Controller with CANopen® CAN and Modbus TCP/IP Ethernet communication links. It also contains controller technical specifications and installation instructions to help users build a custom solution on the base of this controller.

The user should check whether the application firmware installed in the controller is covered by this user manual. It can be done through CAN bus using Axiomatic Electronic Assistant (EA) software or using Ethernet Modbus TCP/IP link.

The user manual is valid for application firmware with the same major version number as the user manual. For example, this user manual is valid for any converter application firmware V1.xx. Updates specific to the user manual are done by adding letters: A, B, …, Z to the user manual version number.

It is assumed, that the user is familiar with Modbus and CANopen® groups of standards. The terminology from these standards is widely used in this manual.

## 2 CONTROLLER DESCRIPTION

The controller is designed to convert physical signals from bipolar and universal inputs into CANopen® signals and input register data for the Modbus TCP interface. The bipolar and universal inputs accept voltage, current, resistance (only universal inputs), frequency, PWM duty cycle, and discrete voltage levels. Two independent +5V reference voltage outputs can be used to power user equipment.

The CANopen® network can operate at standard 125kbit/s and supports the following baud rates: 10, 20, 50, 250, 500, 800, and 1000kbit/s. The required baud rate can be set by setting writing the object 5B50.

The Modbus TCP/IP interface runs on a standard 10/100 Mbit/s Ethernet link providing up to 5 simultaneous client connections.

The controller can be configured through a set of configuration parameters over CAN or Ethernet interface to fit the user-specific application requirements.

### *2.1 Hardware Block Diagram*

The controller contains 2 bipolar, 8 universal signal inputs, one CAN and one Ethernet port, two +5V reference voltage outputs, and a protected power supply. An embedded 32-bit microcontroller provides necessary processing power to the controller.

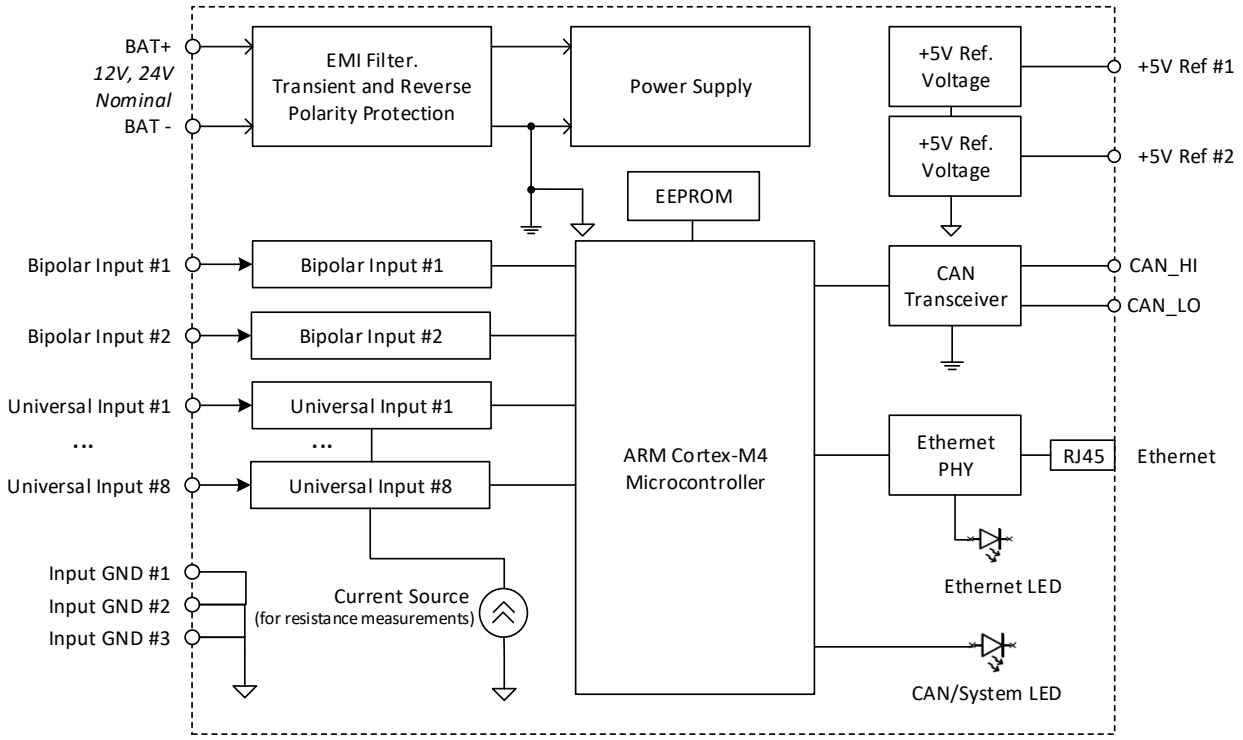


*Figure 1. The Controller Hardware Block Diagram*

The controller has a wide range of protection features including a transient and reverse polarity protection, see TECHNICAL SPECIFICATIONS section.

## *2.2 Software Organization*

The controller belongs to a family of Axiomatic smart controllers with configurable internal architecture. This architecture allows building of a signal converting algorithm based on a set of predefined internal configurable function blocks without the need of a custom software.

All CANopen® objects supported by the AX032101 are user configurable using standard commercially available tools that can interact with a CANopen® Object Dictionary via an .EDS file.

## *2.3 Modbus TCP Interface*

The Modbus TCP/IP interface[1] runs over a standard 10/100 Mbit/s Ethernet link. The controller is presented as a slave device (a server) on the Modbus network. It supports with up to 8 simultaneous client connections from master devices.

[1]The interface is compliant with:

- MODBUS Messaging on TCP/IP Implementation Guide V1.0b. Modbus Organization. October 24, 2006, 46p.
- MODBUS Application Protocol Specification V1.1b3. Modbus Organization. April 26, 2012, 50p.

The following Modbus functions are supported by the controller.

*Table 1. Modbus Functions Supported by the Controller*

| Name | Function Code/Subcode | Description |
|---|---|---|
| Read Discrete Inputs | 2 | Reads values of the universal inputs when they are in the discrete voltage level mode |
| Read Input Registers | 4 | Reads values of the universal inputs |
| Read Holding Registers | 3 | Reads one or several configuration parameters |
| Write Single Register | 6 | Writes a configuration parameter |
| Write Multiple Registers | 16 | Writes one or several configuration parameters |
| Read/Write Multiple Registers | 23 | Writes and then reads configuration parameters |
| Encapsulated Interface Transport | 43/14 | Reads Device Identification |

The Modbus addresses are presented in the MODBUS ADDRESS MAP section.

The Unit Identifier in the Modbus TCP header is ignored.

Floating-point variables are presented in a standard IEEE 754 single-precision 32-bit format, most significant word first. Double-word 32-bit integers are also presented with the most significant word first.

Reading and writing operations on variables occupying more than one word (a 16-bit Modbus register) are buffered. The buffering is made transparent to the user. However, it should be taken into consideration that writing to a non-volatile memory is not performed until all registers assigned to the variable are written. The writing operation should be performed without

overlapping (writing to the same register twice) and without breaking the writing operation sequence with a reading operation or a writing operation to a different variable.

The Modbus functions “Write Multiple Registers” and “Read/Write Multiple Registers”, when they include all registers assigned to a variable in one function call, meet the abovementioned writing requirements.

The Modbus writing operations are subject to a validity check. If a configuration parameter value is not in a valid range, the Modbus operation will succeed, but the configuration parameter will not be written.

The following device identification information can be read using the Encapsulated Interface Transport 43/14 function.

*Table 2. Modbus Device Identification*

| Object ID | Object Name | Description |
|---|---|---|
| 0x00 | VendorName | “Axiomatic” |
| 0x01 | ProductCode | Controller P/N. “AX032101” |
| 0x02 | MajorMinorRevision | Current firmware version. For example, “V1.00” |
| 0x03 | VendorUrl | “www.axiomatic.com” |
| 0x04 | ProductName | “IO Controller” |
| 0x05 | ModelName | Same as ProductCode. Controller P/N. “AX032101” |
| 0x06 | UserApplicationName | Firmware description. Depends on the firmware version. For V1.xx: “2 Bipolar, 8 Universal Signal Input Controller, CANopen®, Ethernet” |
| 0x80 | SerialNumber | Private Object. Controller S/N. For example, “0012020016” |

All device identification objects are presented in ASCII strings.

### *2.4 Discovery Protocol*

The controller supports an Axiomatic proprietary protocol that allows the discovery of Axiomatic controllers on a LAN by sending a global UDP request on port 35100[1].

[1] O. Bogush, "Ethernet to CAN Converter Discovery Protocol. CAN-ENET, AX140900, Project 15129. Document version: 1," Axiomatic Technologies Corporation, October 26, 2016.

Axiomatic provides a Windows console application `AxioDisc.exe` that can be used to discover the controller. The application shows the controller MAC address, IP address, web server port (not used), device port (Modbus port), device port type (TCP), the controller part number and serial number, see Figure 2.

The `AxioDisc.exe`. application is available upon request.

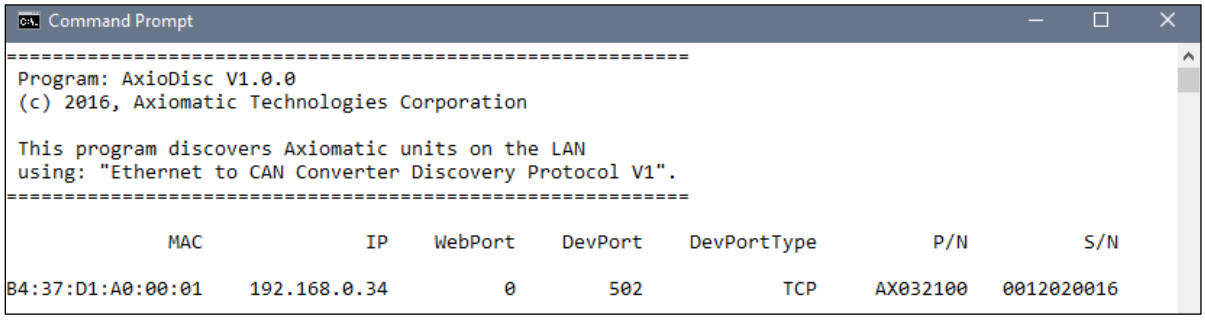


*Figure 2. Discovery of the Controller on LAN Using `AxioDisc.exe` Application*

## *2.5 LED Indicators*

The controller has two LED Indicators: Ethernet and CAN/System LEDs.

### 2.5.1 Ethernet LED

The Ethernet LED is a bi-color green-yellow indicator that shows Ethernet link and speed status. The green color presents the Ethernet link status and the yellow color – the Ethernet speed, see the table below.

*Table 3. Ethernet LED*

| LED | Description |
|---|---|
| Off | No Link |
| Green | Link On. Speed 10Mbit/s |
| Blinking Green | Activity. Speed 10Mbit/s |
| Green and Yellow | Link On. Speed 100Mbit/s |
| Blinking Green and Yellow | Activity. Speed 100Mbit/s |

The Ethernet bi-color LED is hard wired to the Ethernet PHY.

### 2.5.2 CAN/System LED

The CAN/System LED is a bi-color green-red indicator that shows CAN bus status and some global system conditions, see the table below.

*Table 4. CAN/System LED*

| LED | Status | Description |
|---|---|---|
| Constant Green | CAN | CAN link is established |
| Blinking Green | | CAN activity. CAN communication is running |
| Constant Red | | CAN error |
| Flashing Red | System | Unrecoverable system error. Device failure |
| Flashing Green/Red | | Device is in the bootloader mode |

## *2.6 Default Settings*

The controller *Bipolar* and *Universal Inputs* are configured to input voltages in the 0…5V voltage range by default. These voltages can be read through Modbus interface.

The ECU Starts in PRE-OPERATIONAL mode. All objects can be configured to accommodate user-specific application requirements, see **Error! Reference source not found.** in C ommunication, Manufacturer, or Application Objects section.

## 3 CONTROLLER LOGICAL STRUCTURE

The controller is internally organized as a set of function blocks, which can be individually configured and arbitrarily connected together to achieve the required system functionality, see Figure 3.

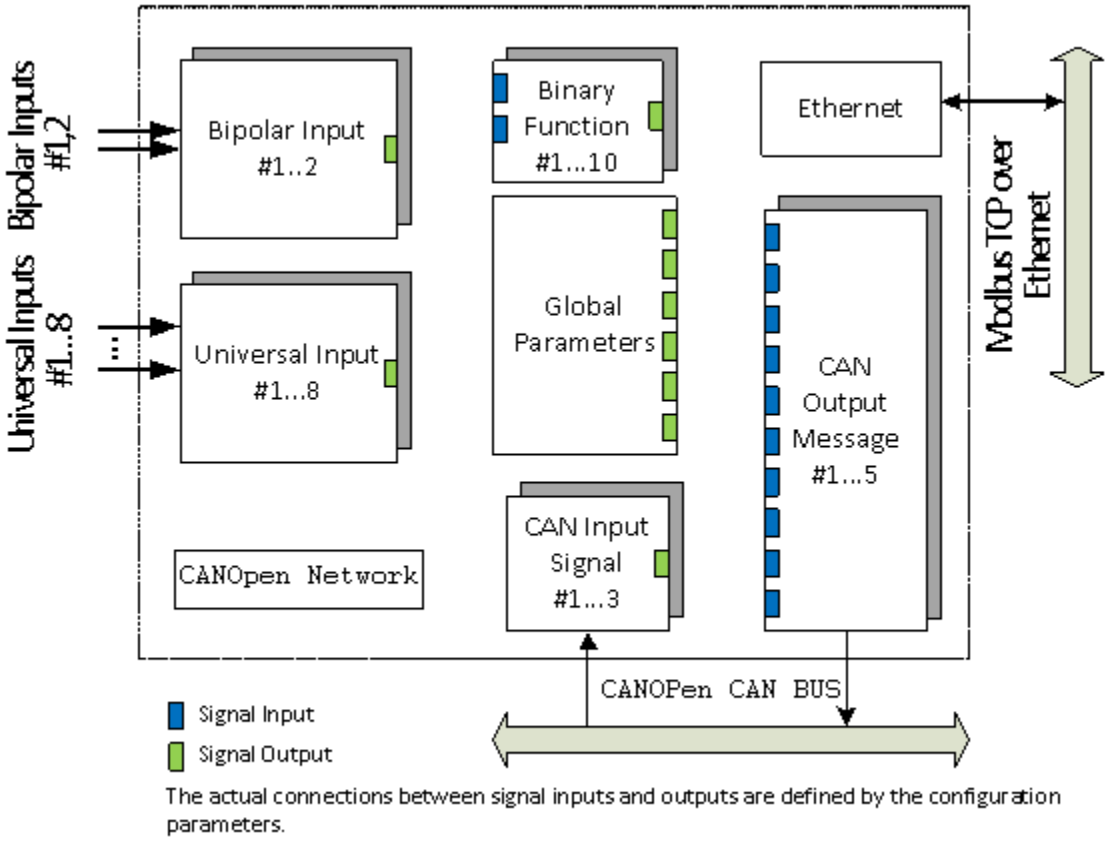


*Figure 3. The Controller Logical Block Diagram*

Each function block is absolutely independent and has its own set of communication, application, and manufacturer objects. The configuration parameters can be viewed and changed through CAN bus by using standard commercially available tools that can interact with a CANopen® Object Dictionary via an .EDS file or over Modbus interface.

The *Bipolar* and *Universal Input* function blocks present the controller physical input channels. Both function blocks can measure multiple physical parameters. The difference between them is in voltage and resistance measurements, see the table below.

*Table 5. Bipolar vs Universal Function Blocks*

| Function Block | Voltage Measurements | Resistance Measurements |
|---|---|---|
| Bipolar | Bipolar | Absent |
| Universal | Unipolar, only positive voltages | Present |

The Modbus interface is presented by the *Ethernet* function block that contains Modbus TCP/IP network settings.

For data processing, when required, there are ten *Binary Function* blocks. They can take two input signals and combine them together in one output signal using different functions.

The converter also has a *Global Parameters* function block containing four constant output signals and other auxiliary outputs.

### *3.1 Internal Signals*

The controller objects can communicate with each other through internal signal inputs and outputs. Each signal input of one function block can be connected to any signal output of another function block using an appropriate configuration parameter. There is no limitation on the number of signal inputs connected to one signal output.

When a signal input is connected to a signal output, data from the signal output of one function block is available on the signal input of another function block.

Function block signals can be “Undefined”, “Discrete” or “Continuous”. The “Undefined” signal type is reserved for a disconnected signal source or a no-signal transient condition. The “Discrete” and “Continuous” signal types are used to communicate discrete and continuous signals, respectively.

Discrete signals present data with a finite number of states. They are stored in four-byte unsigned integer variables that can present any state in the 0…0xFFFFFFFF range.

Continuous signals present continuous data, usually physical parameters. They are stored in single-precision floating-point variables. The continuous signals are not normalized and usually present data in physical units.

When a discrete signal output is connected to a continuous signal input, the discrete signal is converted into a positive continuous signal of the same value.

When a continuous signal output is connected to a discrete signal input, the following rules apply. A positive continuous signal is converted into the same value discrete signal. A fractional part of the continuous signal is truncated. If the continuous signal is above the maximum discrete signal value, it is saturated to the maximum discrete signal value: 0xFFFFFFFF. All negative continuous signals are converted into zeros.

### *3.2 Output Signal Sources*

The controller output signal sources of all function blocks are presented in the table below.

*Table 6. Controller Signal Sources*

| Signal Source Number | Signal Name | Signal Type |
|---|---|---|
| 0 | Not Connected | Undefined |
| 1 | Bipolar Input #1 | Discrete or Continuous[1] |

| Signal Source Number | Signal Name | Signal Type |
|---|---|---|
| 2 | Bipolar Input #2 | Discrete or Continuous[1] |
| 3 | Unipolar Input #1 | Discrete or Continuous[1] |
| 4 | Unipolar Input #2 | Discrete or Continuous[1] |
| 5 | Unipolar Input #3 | Discrete or Continuous[1] |
| 6 | Unipolar Input #4 | Discrete or Continuous[1] |
| 7 | Unipolar Input #5 | Discrete or Continuous[1] |
| 8 | Unipolar Input #6 | Discrete or Continuous[1] |
| 9 | Unipolar Input #7 | Discrete or Continuous[1] |
| 10 | Unipolar Input #8 | Discrete or Continuous[1] |
| 11 | Binary Function #1 | Continuous |
| 12 | Binary Function #2 | Continuous |
| 13 | Binary Function #3 | Continuous |
| 14 | Binary Function #4 | Continuous |
| 15 | Binary Function #5 | Continuous |
| 16 | Binary Function #6 | Continuous |
| 17 | Binary Function #7 | Continuous |
| 18 | Binary Function #8 | Continuous |
| 19 | Binary Function #9 | Continuous |
| 20 | Binary Function #10 | Continuous |
| 21 | CAN Input Signal #1 | Any[2] |
| 22 | CAN Input Signal #2 | Any[2] |
| 23 | CAN Input Signal #3 | Any[2] |
| 24 | Global Discrete Constant Signal | Discrete |
| 25 | Global Continuous Constant Signal | Continuous |
| 26 | Global Constant Signal = 0 | Continuous |
| 27 | Global Constant Signal = 1 | Continuous |
| 28 | Supply Voltage | Continuous |
| 29 | Microcontroller Temperature | Continuous |

[1] Depends on the *Input Parameter*.
[2] Depends on the *Signal Type* configuration parameter.

### *3.3 Universal Inputs*

The unit has overall 10 inputs, 2 of which are bipolar (inputs 1 and 2) and 8 are unipolar (inputs 3…10). All the differences will be mentioned later in this section. The bipolar and unipolar input types are shown on the Figure 4.

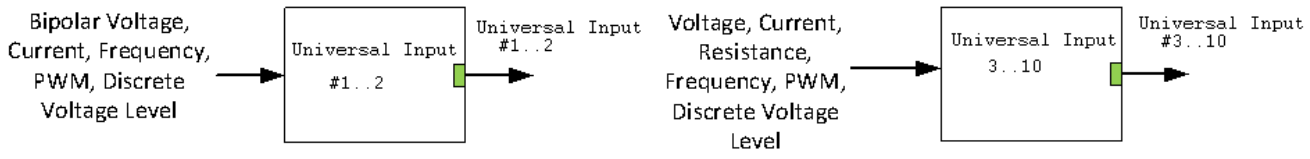


*Figure 4. Universal and Bipolar Input Types*

### 3.3.1 Digital Input Modes

The digital input (DI) function block only becomes applicable on the input when object 6112h **AI Operation**, is set to a digital input response.

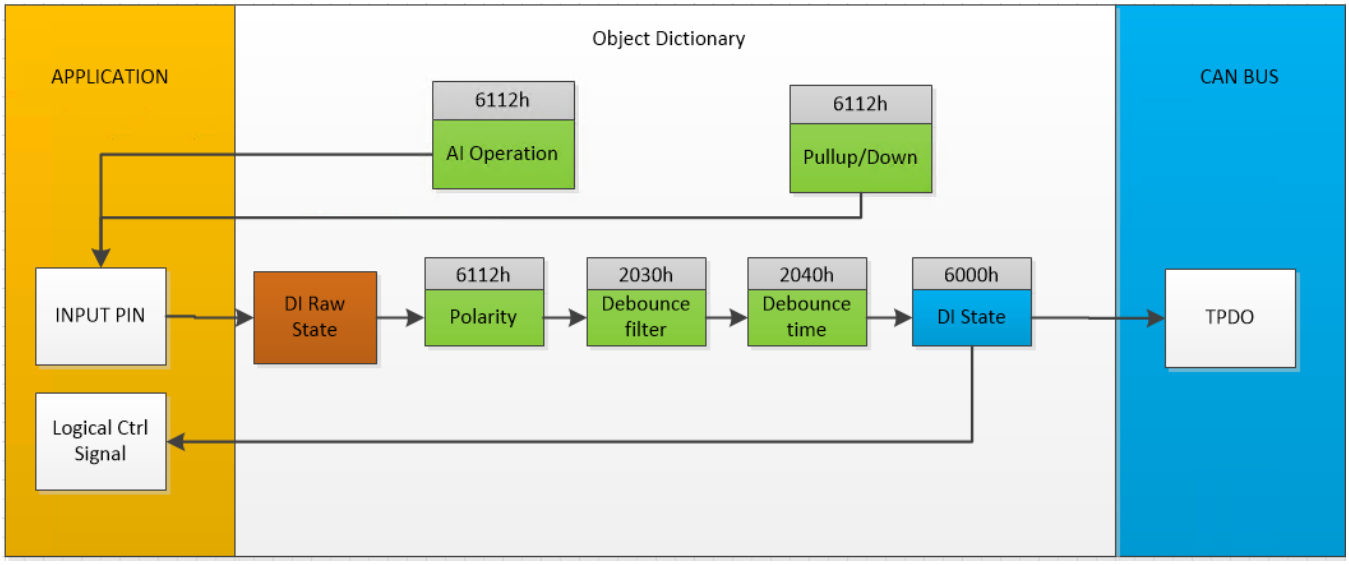


*Figure 5 – Digital Input Objects*

When object 6112h is set to 10 = *Digital Input*, object 2020h **DI Pull-up/Pull-down Mode** will determine the configuration of the internal Pull-up/Pull-down resistors. The options for object 2020h are shown in Table 7, with the default bolded.

*Table 7 – DI Pullup/Down Options*

| Value | Meaning |
|---|---|
| **0** | **Pullup/Down Disabled (high impedance input)** |
| 1 | 10kΩ Pullup Resistor Enabled |
| 2 | 10kΩ Pulldown Resistor Enabled |

Figure 6 shows the hysteresis on the input when switching a discrete signal. A digital input can be switched up to +Vcc

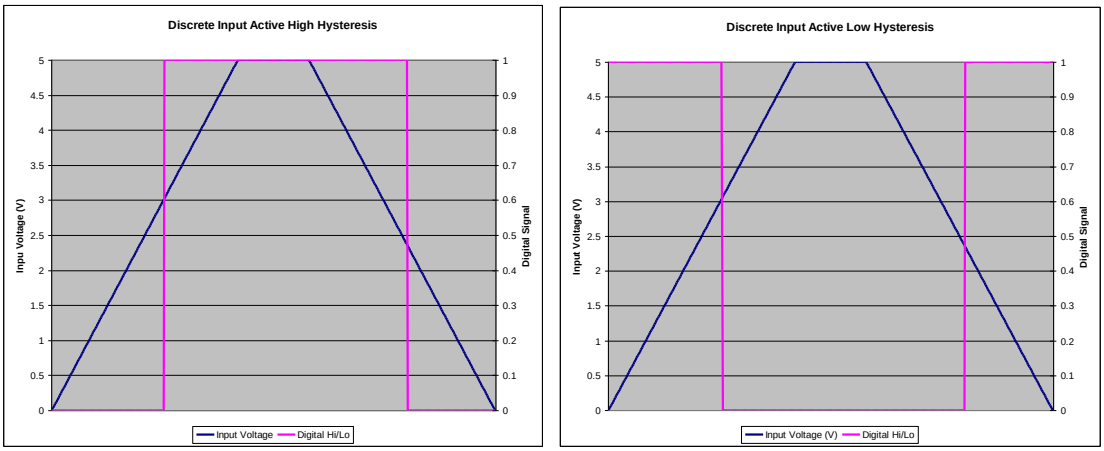


*Figure 6 – Discrete Input Hysteresis*

Once the raw state has been evaluated, the logical state of the input is determined by object 6002h **DI Polarity 8 Input Lines**. The options for object 6002h are shown in Table 8. The state of the DI will be written to read-only object 6000h **DI Read State 8 Input Lines**. By default, normal on/off logic is used.

*Table 8 – Object 6002h DI Polarity 8 Input Lines Options*

| Value | Meaning |
|---|---|
| **0** | **Normal On/Off** |
| 1 | Inverse On/Off |

The format to write to object 6002h is as follows:

Sub-index 1 will determine the following inputs polarities

| Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|---|---|---|---|---|---|---|---|
| UI8 | UI7 | UI6 | UI5 | UI4 | UI3 | UI2 | UI1 |
| - | - | - | - | - | - | UI10 | UI9 |

As per the format of object 6002h, the bits in object 6000h **DI Read State 8 Input Lines** will be written to represent the same inputs' states.

There is another type of 'digital' input that can be selected when 6112h is set to 20 = Analog On/Off. However, in this case, the input is still configured as an analog input, and therefore the objects from the Analog Input (AI) block are applied instead of those discussed above. Here, objects 2020h, 2030h and 6030h are ignored, and 6000h is written as per the logic shown in Figure 7. In this case, the MIN parameter is set by object 7120h **AI Scaling 1 FV**, and the MAX is set by 7122h **AI Scaling 2 FV**. For all other operating modes, object 6000h will always be zero.

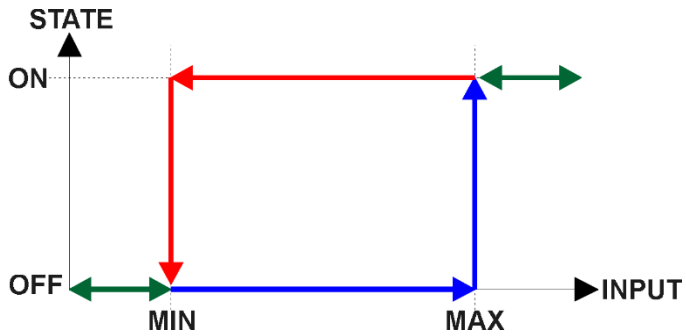


*Figure 7 – Analog Input Reads as Digital*

The *Universal Inputs* can accept discrete voltage levels. The user should specify the input polarity and define whether the pull-up/pull-down resistor is necessary on the input.

When the “10kOhm Pull-Up” is selected, the pull-up resistor is connected to the internal +14V power supply.

The input states are sampled every 1ms. If debouncing is required, it is set by the *Discrete Input Debounce Time* configuration object 2040h. If the *Discrete Input Debounce Time* is zero, the discrete voltage level input is not debounced.

The *Universal Input* function block translates physical input signals into the internal function block output signal that can be used by other function blocks of the controller. In comparison with *Bipolar Inputs*, *Unipolar Inputs* can measure resistance, but the voltage measurements are limited to unipolar positive voltages.

### 3.3.2 Analog Input Modes

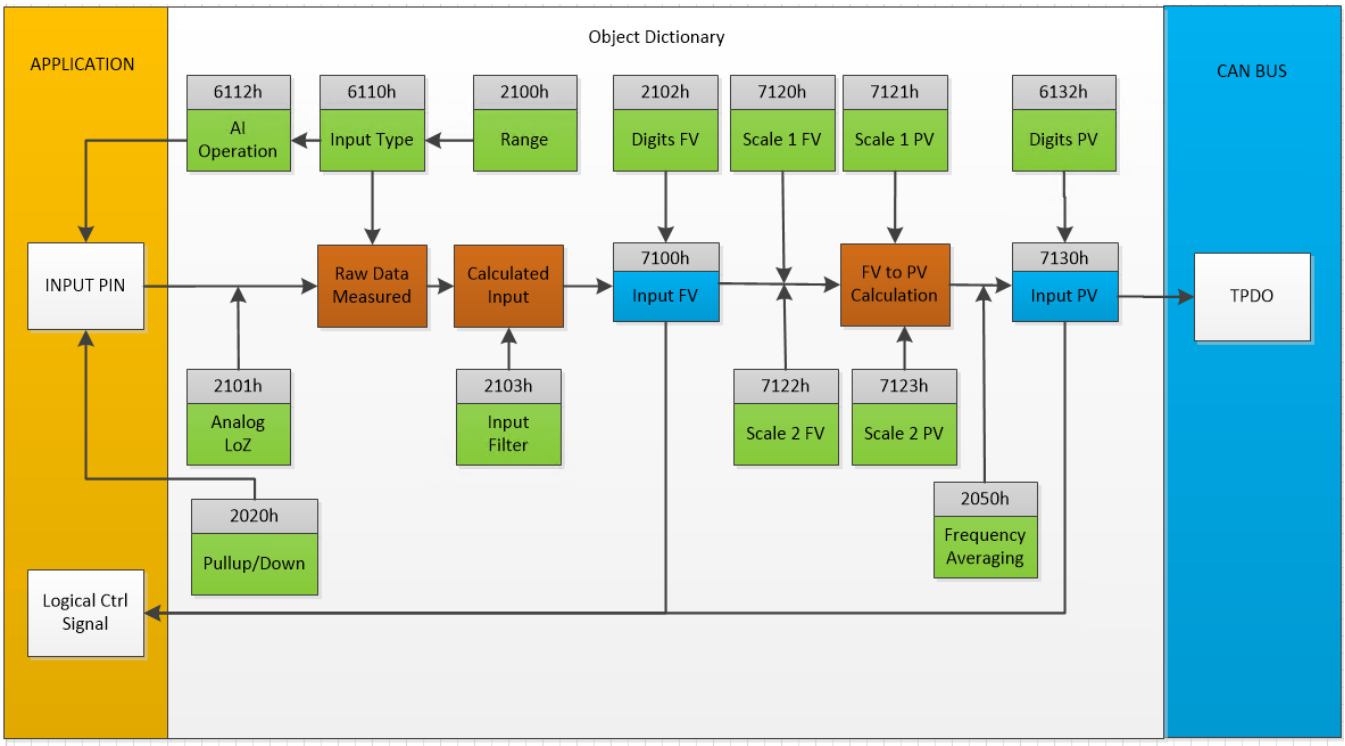


*Figure 8 – Analog Input Objects*

Object 6112h **AI Operating Mode** determines whether the AI or DI block is associated with an input. The options for object 6112h are shown in Table 9. No values other than what are shown here will be accepted.

*Table 9 – Object 6112h - AI Operating Mode Options*

| Value | Meaning |
|---|---|
| 0 | Channel Off |
| **1** | **Normal Operation (analog)** |
| 10 | Digital Input (on/off) |
| 20 | Analog and On/Off |

The most important object associate with the AI function block is object 6110h **AI Sensor Type**. By changing this value, and associated with its object 2100h **AI Input Range**, other objects will be automatically updated by the controller. The options for object 6110h are shown in Table 10, and no values other than what are shown here will be accepted. The inputs are setup to measure voltage by default.

*Note: The resistive input works only for unipolar inputs, and the ECU will not accept 100 in case of bipolar inputs.*

*Table 10 – Object 6110h - AI Sensor Type Options*

| Value | Meaning |
|---|---|
| **40** | **Voltage Input** |
| 50 | Current Input |
| 60 | Frequency Input (or RPM) |
| 120 | Resistive |
| 10000 | PWM Input |

The allowable ranges will depend on the input sensor type selected. Table 11 shows the relationship between the sensor type, and the associated range options. The default value for each range is bolded, and object 2100h **AI Range** will automatically be updated with this value when 6110h is changed. The grayed cells mean that the associate value is not allowed for the range object when that sensor type has been selected.

*Table 11 – AI Input Range Options Depending on Sensor Type*

| Value | Voltage | Current | Frequency | Resistive |
|---|---|---|---|---|
| 0 | **0 to 5V** | **0 to 20mA** | **100Hz to 10kHz**[1] | **Auto Range**[3] |
| 1 | 0 to 10V | 4 to 20mA | 10Hz to 1kHz | 0Ohm to 250Ohm[3] |
| 2 | -5 to +5V[2] | | 1Hz to 100Hz | 250Ohm to 2.5kOhm[3] |
| 3 | -10 to +10V[2] | | | 2.5kOhm to 25kOhm[3] |
| 4 | | | | 25kOhm to 250kOhm[3] |

1. For bipolar input 1 (Universal Input 1) There is only one range 1Hz…10kHz that is set by default.
2. Available only for bipolar inputs
3. Available only for unipolar inputs

The unipolar inputs can measure slowly changing input resistance, for example, a signal coming from a resistive temperature sensor.

The resistance measurements can be done in an auto-range or a predefined range mode set by the *Resistance Range* configuration parameter.

When the object 2100h **AI Input Range** is set to 0, and object 6110h **AI Sensor Type** is set to 100, the auto-range is enabled. It is a special algorithm is used to dynamically switch between resistance ranges to ensure that the resistance value is measured with the best accuracy and resolution, see the table below.

*Table 12. Resistance Ranges as a Function of Input Resistance in the Auto Range Mode*

| Input Resistance | Resistance Range | |
|---|---|---|
| | Low-to-High Resistance Change | High-to-Low Resistance Change |
| < 225 Ohm | 0…250Ohm | |
| 225…275Ohm | 0…250Ohm | 0…2.5kOhm |
| 275Ohm…2.25kOhm | 0…2.5kOhm | |
| 2.25kOhm…2.75kOhm | 0…2.5kOhm | 0…25kOhm |
| 2.75kOhm…22.5kOhm | 0…25kOhm | |
| 22.5kOhm…27.5kOhm | 0…25kOhm | 0…250kOhm |
| >27.5kOhm | 0…250kOhm | |

If switching between the measurement ranges is not desirable or it is necessary to reduce the measurement time, the *Resistance Range* can be set to one of the predefined measurement ranges.

The *Analog Input Filter* configuration parameter can be used to reduce the measurement noise. However, it can also add a delay that can be significant when several universal inputs are used to measure resistance.

There is only one current source shared with all *Universal Inputs* for resistance measurements, see Figure 1. When more then one *Universal Input* is used to measure resistance, the current source is switched between inputs dramatically increasing the measurement time, see the table below.

*Table 13. Universal Input Resistance Measurement Delay*

| Resistance Measurement | Measurement Delay |
|---|---|
| No channel or range switching | $0\ - No\ delay$ |
| Range switching only | $\begin{cases} T_{sw} + T_s, & during\ range\ switching\ only \\ 0, & all\ other\ time - no\ delay \end{cases}$<br>$T_{sw} = 30ms\ - switching\ time, T_s - analog\ filter\ settling\ time$ |
| Channel switching (with or without range switching) | $\sum_{n=1}^{N} (T_{sw} + T_{s_n}), \quad N > 1, \quad N - number\ of\ channels$<br>$n - channel\ number$ |

For example, if 5 universal inputs are used to measure resistance and *Analog Input Filter* is set to “Both: 60Hz and 50Hz Noise Rejection” in all universal inputs, the total delay between consequent measurements will be $\mathbf{5} * (\mathbf{30} + \mathbf{396.7}) = \mathbf{2133.5}\ \boldsymbol{ms}$ or more than 2 seconds.

Objects 2020h **DI Pull-up/Pull-down Mode** is used with frequency and PWM sensor types.

Object 2020h **DI Pull-up/Pull-down Mode** will determine the configuration of the internal Pull-up/Pull-down resistors. The options for object 2020h are shown in Table 7, with the default bolded.

When a frequency or PWM signal presents a slowly changing parameter, setting an additional moving average filter using the *Frequency/PWM Averaging* configuration parameter can be helpful in smoothing the results of the input measurements. Object 2050h **AI Frequency Averaging** has the parameters shown in the table below.

*Table 14 – Object 2050h - AI Frequency Averaging*

| Value | Meaning |
|---|---|
| **0** | **Averaging OFF** |
| 1 | Averaging 3 Readings |
| 2 | Averaging 5 Readings |
| 3 | Averaging 10 Readings |

The user can set the object 2102h **AI Analog Input Filter** to reduce noise in voltage and other analog signal measurements. The filter is designed to suppress noise from industrial offline voltages. Even when the analog input filter is disabled, the minimum signal filtering is performed by the function block. The parameters of the analog input filter are presented below.

*Table 15. Universal Input Analog Input Filter Parameters*

| Analog Input Filter | Cut-off Frequency (at -3dB) | Settling Time (to 100% of Final Value) | Output Signal Update Rate |
|---|---|---|---|
| Disabled[1] | 70Hz | 10ms | 1.67ms |
| 50Hz Noise Rejection | 12Hz | 76.7ms | 3.33ms |
| 60Hz Noise Rejection | 14Hz | 63.3ms | 3.33ms |
| Both: 60Hz and 50Hz Noise Rejection | 2.3Hz | 396.7ms | 16.67ms |

[1] Minimum filtering is still performed.

The options for object 2102h **AI Analog Input Filter** are shown in the Table 16.

*Table 16 – Object 2050h - AI Analog Input Filter*

| Value | Meaning |
|---|---|
| **0** | **Input Filter OFF** |
| 1 | Input Filter 50Hz |
| 2 | Input Filter 60Hz |
| 3 | Input Filter 50-60Hz |

To avoid an influence of ghost voltages, the *Voltage LoZ Input* configuration parameter can be activated. This will reduce the accuracy of voltage measurements due to the influence of the 10kOhm pull-down shunt resistor and should be used only after careful consideration of the shunt resistor influence on the measured circuit. The object 2101h **AI Analog LoZ Input** will determine the state of pull-down resistor. If the value if this object is set to 0, then the pull-down resistor is disabled; to enable it, the 1 should be written in this object.

### 3.3.3 Special Conditions

Frequencies below the Minimum Frequency value will be measured as zero and frequencies above the Maximum Frequency value will saturate at the Maximum Frequency based on the values stored in object 6110h **AI Sensor Type** and 2100h **AI Input Range**, see Table 17 and Table 18.

*Table 17. Maximum, Minimum Frequencies and Maximum Recovery Time for Universal Inputs*

| Frequency Range | Counter | Minimum Frequency | Maximum Frequency | Maximum Recovery Time |
|---|---|---|---|---|
| 100Hz…10kHz | 16-bit | 91.55Hz | 12.5kHz | 10.9ms |
| 10Hz…1kHz | | 9.155Hz | 1.25kHz | 109ms |
| 1Hz…100Hz | | 0.9155Hz | 125Hz | 1.09s |

Frequencies above the Maximum Frequency value will switch the input to the Recovery state. The input will stay in the Recovery state until the upcoming counter saturation event when the frequency will be measured again. The input will leave the Recovery state if the measured frequency value is below the Maximum Frequency.

*Table 18. Frequency and PWM Measurements for Universal Inputs. Special Conditions*

| Input Mode | Signal Frequency ($F_s$) | | | |
|---|---|---|---|---|
| | $F_s = 0$ Zero Frequency (DC) | $0 < F_s < F_{min}$ Below Minimum Frequency $F_{min}$ | $F_{min} \le F_s \le F_{max}$ Working Frequency | $F_s > F_{max}$ Above Maximum Frequency $F_{max}$ |
| Measured Frequency $F_m$ | $F_m = 0$ | $F_m = 0$ | $F_m = F_s$ | $F_m = F_{max}$ Recovery state |
| Measured PWM Duty Cycle $D_m$ | $D_m = \{0, 100\}$ | Undefined (not allowed) | $D_m = D_s$, $D_s$ – signal duty cycle | $D_m = 0$ Recovery state |

The time between two consequent counter saturation events defines the Maximum Recovery Time, see Table 17. This time is the maximum transient time when the measured frequency will stay equal to the Maximum Frequency value.

When the PWM signal is absent, the duty cycle is measured as 0 or 100% based on the voltage level on the input and the selected polarity in object 6002h **DI Polarity 8 Input Lines**. The voltage level is sampled on the counter saturation events until the PWM signal is back on the input.

The transient time between the PWM signal duty cycle and the duty cycle of the DC level when the signal disappears can be up to the Maximum Recovery Time. During the transient time, the measured value will stay equal to the last measured value of the PWM signal duty cycle.

The PWM input signal with a frequency above zero but below the Minimum Frequency value is not allowed. The duty cycle will not be measured, instead, it will be jumping between 0% and 100% depending on the voltage level at the input on the counter saturation events.

When the PWM input signal frequency exceeds the Maximum Frequency value, the input goes into the Recovery state and the PWM duty cycle is measured as 0%. Similar to frequency measurements, the input will stay in the Recovery state for up to the Maximum Recovery Time before the duty cycle is measured again.

### *3.4 Binary Functions*

There are ten *Binary Function* blocks available to the user for performing simple data conversions. Each *Binary Function* block has two signal inputs and one signal output.

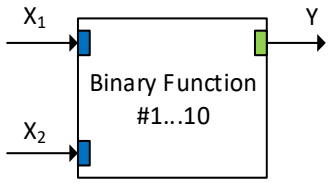


*Figure 9. Binary Function Block*

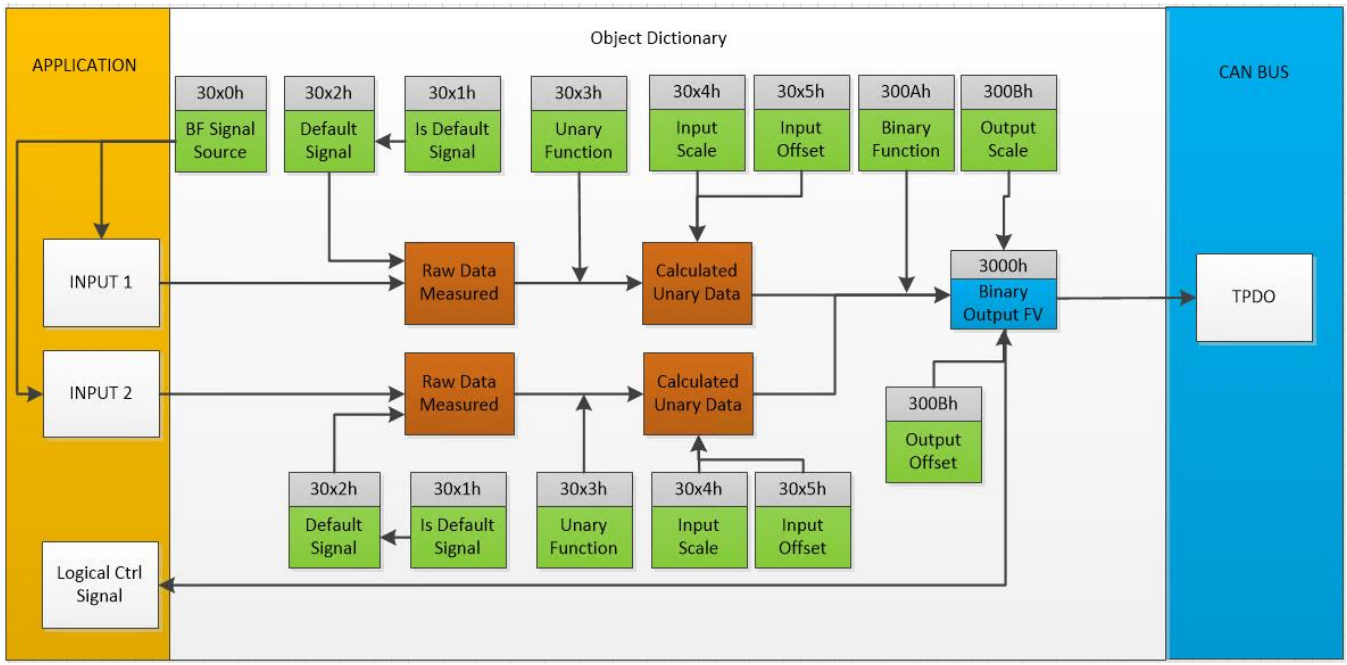


*Figure 10 – Binary Function Objects*

The *Binary Function* block performs the following data conversion:

$$Y = A \cdot F[a_1 \cdot f_1(X_1) + b_1; a_2 \cdot f_2(X_2) + b_2] + B,\ n = 1,2; \qquad (1)$$

where: $X_n$ – Input signal;
$f_n(X_n)$ – Unary function;
$a_n$ – Scale;
$b_n$ – Offset;
$F[x; y]$ – Binary Function;
$A$ – Output Scale;
$B$ – Output Offset.

The function block input signals can be undefined. The user can specify a default signal value that will be used when the signal is not defined. If the default signal value is not specified, the output signal of the function block will become undefined too. The object 30x2h **BF Unary**

**Function Name** is used to set the unary function name. The options for the object 30x2 are listed in Table 19.

The following unary functions can be used to process the input signals.

*Table 19. Unary Functions*

| Function Number | Function Name | Description | Comment |
|---|---|---|---|
| 0 | Undefined | f(x) = x | Signal is not processed |
| 1 | ! Logical Not | f(x) = !x | x is converted into 4-byte unsigned integer before function is applied |
| 2 | ~ Bitwise Not | f(x) = ~x | x is converted into 4-byte unsigned integer before function is applied |
| 3 | abs(x) Absolute | f(x) = x, if x≥0<br>f(x) = -x, if x<0 | |

The object 300Ah **BF Binary Function** holds the parameters to set the binary function. The options for object 300Ah are shown in Table 20.

*Table 20. Binary Functions*

| Function Number | Function Name | Description | Comment |
|---|---|---|---|
| 0 | Undefined | F[x;y] = Undefined | Output signal is undefined |
| 1 | + Addition | F[x;y] = x + y | |
| 2 | - Subtraction | F[x;y] = x - y | |
| 3 | * Multiplication | F[x;y] = x * y | |
| 4 | / Division | F[x;y] = x / y | Division by 0 gives 0 |
| 5 | % Modulus | F[x;y] = x % y | x and y are converted into 4-byte unsigned integers before function is applied |
| 6 | max(x,y)<br>Maximum | F[x;y] = x, if x≥y<br>F[x;y] = y, if x<y | |
| 7 | min(x,y)<br>Minimum | F[x;y] = x, if x≤y<br>F[x;y] = y, if x>y | |
| 8 | == Equal | F[x;y] = 1, if x=y<br>F[x;y] = 0, if x≠y | |
| 9 | != Not Equal | F[x;y] = 1, if x≠y<br>F[x;y] = 0, if x=y | |
| 10 | > Great | F[x;y] = 1, if x>y<br>F[x;y] = 0, if x≤y | |
| 11 | >= Great Equal | F[x;y] = 1, if x≥y<br>F[x;y] = 0, if x<y | |
| 12 | < Less | F[x;y] = 1, if x<y<br>F[x;y] = 0, if x≥y | |
| 13 | <= Less Equal | F[x;y] = 1, if x≤y<br>F[x;y] = 0, if x>y | |
| 14 | \|\| Logical OR | F[x;y] = x ∨ y | x and y are converted into 4-byte unsigned integers before function is applied |
| 15 | && Logical AND | F[x;y] = x ∧ y | x and y are converted into 4-byte unsigned integers before function is applied |

| Function Number | Function Name | Description | Comment |
|---|---|---|---|
| 16 | \| Bitwise OR | F[x;y] = x \| y | x and y are converted into 4-byte unsigned integers before function is applied |
| 17 | & Bitwise AND | F[x;y] = x & y | x and y are converted into 4-byte unsigned integers before function is applied |
| 18 | ^ Bitwise XOR | F[x;y] = x ^ y | x and y are converted into 4-byte unsigned integers before function is applied |
| 19 | << Left Shift | F[x;y] = x << y | x and y are converted into 4-byte unsigned integers before function is applied |
| 20 | >> Right Shift | F[x;y] = x >> y | x and y are converted into 4-byte unsigned integers before function is applied |

The *Binary Function* has the following set of configuration parameters.

*Table 21. Binary Function Block Configuration Parameters*

| Name | Default Value | Range | Description | Configuration object |
|---|---|---|---|---|
| Binary Function | 0 - Undefined | See Binary Function table | F[x;y] – Binary function | 300Ah |
| Output Scale | 1 | Any value | A – Output Scale | 300Bh |
| Output Offset | 0 | Any value | B – Output Offset | 300Ch |
| Input #1 Signal Source | 0 - Not Connected | Any signal output of any function block or “Not Connected". See Signal Source table. | $X_1$ – Input Signal #1 | 30x0h |
| Input #1 Signal Default | 0 - No | 0 - No,<br>1 - Yes | Defines whether the default signal value for $X_1$ is defined. | 30x1h |
| Input #1 Signal Default Value | 0 | Any value | $X_1$ default value, if *Input #1 Signal Default* is *Yes*. | 30x2h |
| Unary Function #1 | 0 - Undefined | See Unary Function table | $f_1(x)$ – Unary function #1 | 30x3h |
| Scale #1 | 1 | Any value | $a_1$ – Scale #1 | 30x4h |
| Offset #1 | 0 | Any value | $b_1$ – Offset #1 | 30x5h |
| Input #2 Signal Source | 0 - Not Connected | Any signal output of any function block or “Not Connected". See Signal Source table. | $X_2$ – Input Signal #2 | 30x0h |
| Input #2 Signal Default | 1 - Yes | 0 - No,<br>1 - Yes | Defines whether the default signal value for $X_2$ is defined. | 30x1h |
| Input #2 Signal Default Value | 1 | Any value | $X_2$ default value, if *Input #2 Signal Default* is *Yes*. | 30x2h |
| Unary Function #2 | 0 - Undefined | See Unary Function table | $f_2(x)$ – Unary function #2 | 30x3h |

| Name | Default Value | Range | Description | Configuration object |
|---|---|---|---|---|
| Scale #2 | 1 | Any value | $a_2$ – Scale #2 | 30x4h |
| Offset #2 | 0 | Any value | $b_2$ – Offset #2 | 30x5h |

Objects 30x0h…30x5h holds values for both inputs. To set a specific binary function, the 'x' in the object address should be replaced with values 1…Ah, where 1 will represent Binary Function 1, and Ah will represent Binary Function 10.

## *3.5 Miscellaneous Function Block*

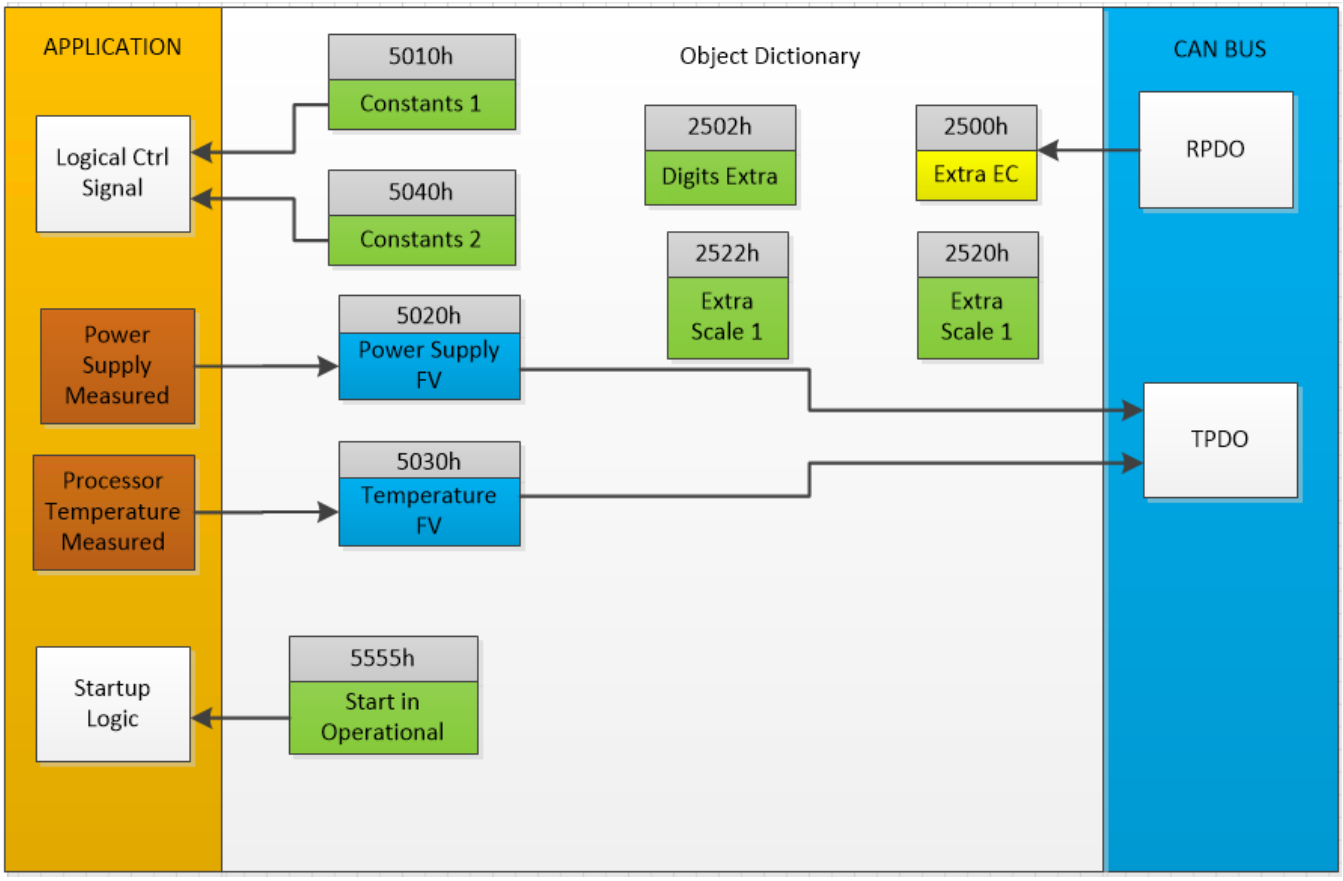


*Figure 11 – Miscellaneous Objects*

### 3.5.1 Extra RPDO Messages

Objects 2500h **Extra Control Received PV**, 2502h **EC Decimal Digits PV**, 2502h **EC Scaling 1 PV** and **EC Scaling 2 PV** allow for additional data received on a CANopen® RPDO to be mapped independently to various function blocks as a control source. The scaling objects are provided to define the limits of the data when it is used by another function block, as shown in Figure 11.

### 3.5.2 Startup

The last object 5555h **Start in Operational** is provided as a ‘cheat’ when the unit is not intended to work with a CANopen® network (i.e. a stand-alone control) or is working on a network comprised solely as slaves so the OPERATION command will never be received from a master. By default, this object is disabled (FALSE).

When using the AX100261 as a stand-alone controller where 5555h is set to TRUE, it is recommended to disable all TPDOs (set the Event Timer to zero) so that it does not run with a continuous CAN error when not connected to a bus.

### 3.5.3 Global Parameters

The *Global Parameters* objects give the user access to a set of global constants, unit supply voltage and the microcontroller internal temperature.

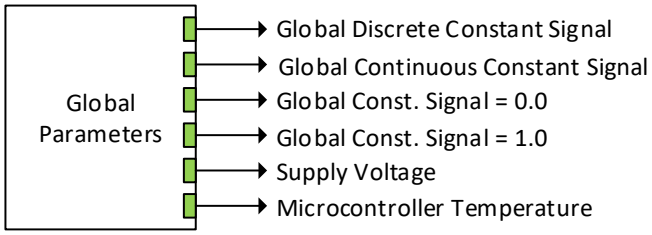


*Figure 12. Global Parameters Function Block*

Object 5010h **Constant Field Value** is provided to give the user the option for a fixed value that can be used by other function blocks. Sub-index 1 is fixed as FALSE (0) and sub-index 2 is always TRUE (1). There are 13 other sub-indexes provided for user selectable values.

The constants are read as 32-bit real (float) data, so no decimal digit object is provided. When setting up the constant, make sure to do it with the resolution of the object that will be compared with it.

The False/True constants are mappable, so the ECU is capable to use it as a control source for Binary Function and CAN Output.

The ECU also provides the “Supply Voltage” signal presenting the controller supply voltage in [V] and the “Microcontroller Temperature” signal presenting the internal microcontroller temperature in [°C]. Object 5040h **FD Temperature Field Value** holds the temperature measurements. Voltage level is stored in object 5041h **FD Voltage Field Value**.

Please note, that the “Supply Voltage” signal does not present the voltage on the controller power supply connector pins. It shows an internal voltage measured after the EMI filter, reverse polarity, and transient protection circuit. It is always less than the actual power supply voltage by approximately 0.4 V.

Additionally, object 5020h **Constant Field Value 2** holds the configurable constants. Parameters that stored in this object are listed in Table 22.

*Table 22. Global Parameters Function Block Configuration Parameters*

| Name | Default Value | Range | Units | Description |
|---|---|---|---|---|
| Global Continuous Constant Signal | 0 | Any value | – | Signal value of the *Global Continuous Constant Signal.* |
| Global Discrete Constant Signal | 0 | 0… 4294967295 (0xFFFFFFFF) | – | Signal value of the *Global Discrete Constant Signal.* |

### *3.6 Ethernet*

The *Ethernet* function block defines the Modbus TCP interface settings. It does not have signal inputs and outputs.

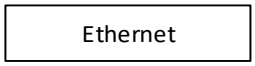


*Figure 13. Ethernet Function Block*

Configuration parameters of the *Ethernet* function block and respective objects are presented below.

*Table 23. Ethernet Function Block Configuration Parameters*

| Name | Default Value | Range | Units | Description | Object description |
|---|---|---|---|---|---|
| MAC Address | Set at the factory | Any valid MAC address | – | Ethernet MAC Address. Set at the factory. Read-only parameter. | 4000h **ENET MAC Address** |
| IP Address | 192.168.0.34 | Any IP address | – | The device IP address | 4001h **ENET IP Address** |
| Subnet Mask | 255.255.255.0 | Any IP address | – | The device subnet mask | 4002h **ENET Subnet Mask** |
| Gateway | 192.168.0.1 | Any IP address | – | The device default gateway | 4003h **ENET Gateway Address** |
| Modbus Port | 502 | Any port value except the Discovery Port (35100) | – | The Modbus listening port | 4004h **ENET Modbus Port** |
| Modbus Timeout | 1000 | 1…10000 | ms | The Modbus communication timeout. Not used in the current firmware. | 4005h **ENET Modbus Timeout** |

Any updates to the function block configuration parameters will require a manual reset of the controller to apply the new Ethernet settings.

## 4 Communication Objects (DS-301)

The communication objects supported by the AX032101 Controller are listed in the following table. A more detailed description of some of the objects is given in the following subchapters. Only those objects that have device-profile specific information are described. For more information on the other objects, refer to the generic CANopen® protocol specification DS-301.

| ***Index (hex)*** | ***Object*** | ***Object Type*** | ***Data Type*** | ***Access*** | ***PDO Mapping*** |
|---|---|---|---|---|---|
| 1000 | Device Type | VAR | UNSIGNED32 | RO | No |
| 1001 | Error Register | VAR | UNSIGNED8 | RO | No |
| 1002 | Manufacturer Status Register | VAR | UNSIGNED32 | RO | No |
| 1003 | Pre-Defined Error Field | ARRAY | UNSIGNED32 | RO | No |
| 100C | Guard Time | VAR | UNSIGNED16 | RW | No |
| 100D | Life Time Factor | VAR | UNSIGNED8 | RW | No |
| 1010 | Store Parameters | ARRAY | UNSIGNED32 | RW | No |
| 1011 | Restore Default Parameters | ARRAY | UNSIGNED32 | RW | No |
| 1016 | Consumer Heartbeat Time | ARRAY | UNSIGNED32 | RW | No |
| 1017 | Producer Heartbeat Time | VAR | UNSIGNED16 | RW | No |
| 1018 | Identity Object | RECORD | | RO | No |
| 1020 | Verify Configuration | ARRAY | UNSIGNED32 | RO | No |
| 1029 | Error Behavior | ARRAY | UNSIGNED8 | RW | No |
| 1400 | RPDO1 Communication Parameter | RECORD | | RW | No |
| 1401 | RPDO2 Communication Parameter | RECORD | | RW | No |
| 1402 | RPDO3 Communication Parameter | RECORD | | RW | No |
| 1600 | RPDO1 Mapping Parameter | RECORD | | RO | No |
| 1601 | RPDO2 Mapping Parameter | RECORD | | RO | No |
| 1602 | RPDO3 Mapping Parameter | RECORD | | RO | No |
| 1800 | TPDO1 Communication Parameter | RECORD | | RW | No |
| 1801 | TPDO2 Communication Parameter | RECORD | | RW | No |
| 1802 | TPDO3 Communication Parameter | RECORD | | RW | No |
| 1803 | TPDO4 Communication Parameter | RECORD | | RW | No |
| 1805 | TPDO5 Communication Parameter | RECORD | | RW | No |
| 1A00 | TPDO1 Mapping Parameter | RECORD | | RW | No |
| 1A01 | TPDO2 Mapping Parameter | RECORD | | RW | No |
| 1A02 | TPDO3 Mapping Parameter | RECORD | | RW | No |
| 1A03 | TPDO4 Mapping Parameter | RECORD | | RW | No |
| 1A04 | TPDO5 Mapping Parameter | RECORD | | RW | No |

## 4.1 1000h Device Type

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1000 | 0 | UINT32 | RO | No | 0x194 | 0x194 | DS-404 |

## 4.2 1001h Error Register

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1001 | 0 | UINT8 | RO | No | 0, 1 | 0 | Error register |

## 4.3 1002h Manufacturer Status Object

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1002 | 0 | UINT32 | RO | No | UINT32 | 0 | Manufacturer debug information |

## 4.4 1003h Pre-Defined Error Field

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1003 | 0 | UINT8 | RW | No | 15 | 15 | Number of subindexes / reset error codes |
| | 1 | UINT32 | RO | | UINT32 | 0 | EMCY error code #1 |
| | 2 | | | | | | EMCY error code #2 |
| | 3 | | | | | | EMCY error code #3 |
| | 4 | | | | | | EMCY error code #4 |
| | 5 | | | | | | EMCY error code #5 |

## 4.5 100Ch Guard Time

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 100C | 0 | UINT16 | RW | No | UINT16 | 0 | The guard time in milliseconds. The access is RO, if it is not supported |

## 4.6 100Dh Life Time Factor

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 100D | 0 | UINT8 | RW | No | UINT8 | 0 | The life time factor multiplied with the guard time gives the life time for the node guarding protocol. It is 0 if not used. |

## 4.7 1010h Store Parameters

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1010 | 0 | UINT8 | RO | No | 4 | 4 | Number of subindexes |
| | 1 | UINT32 | RW | | save | 1 | Write 0x65766173 (‘e’, ‘v’, ‘a’, ‘s’) for storing ALL parameters |
| | 2 | | | | | | Write 0x65766173 (‘e’, ‘v’, ‘a’, ‘s’) for storing Communication parameters |
| | 3 | | | | | | Write 0x65766173 (‘e’, ‘v’, ‘a’, ‘s’) for storing Application parameters |
| | 4 | | | | | | Write 0x65766173 (‘e’, ‘v’, ‘a’, ‘s’) for storing Manufacturer parameters |
| | 5 | | | | | | Write 0x65766173 (‘e’, ‘v’, ‘a’, ‘s’) for storing Manufacturer parameters 2 |

## 4.8 1011h Restore Parameters

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1011 | 0 | UINT8 | RO | No | 4 | 4 | Number of subindexes |
| | 1 | UINT32 | RW | | load | 1 | Write 0x4616F6C (‘d’, ‘a’, ‘o’, ‘l’) for restoring ALL parameters |
| | 2 | | | | | | Write 0x4616F6C (‘d’, ‘a’, ‘o’, ‘l’) for restoring Communication parameters |
| | 3 | | | | | | Write 0x4616F6C (‘d’, ‘a’, ‘o’, ‘l’) for restoring Application parameters |
| | 4 | | | | | | Write 0x4616F6C (‘d’, ‘a’, ‘o’, ‘l’) for restoring Manufacturer parameters |
| | 5 | | | | | | Write 0x4616F6C (‘d’, ‘a’, ‘o’, ‘l’) for restoring Manufacturer parameters 2 |

## 4.9 1016h Consumer Heartbeat Time

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1016 | 0 | UINT8 | RO | No | 4 | 4 | Number of subindexes |
| | 1 | UINT32 | RW | | UINT32 | 0 | Consumer heartbeat time<br>bits 31-24: reserved<br>bits 23-16: Node ID<br>bits 15-0: heartbeat time in milliseconds |
| | 2 | | | | | | |
| | 3 | | | | | | |
| | 4 | | | | | | |

## 4.10 1017h Producer Heartbeat Time

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1017 | 0 | UINT16 | RW | No | 10-65000 | 0 | Producer heartbeat time in milliseconds |

## 4.11 1018h Identity Object

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1018 | 0 | UINT8 | RO | No | 4 | 4 | Number of subindexes |
| | 1 | UINT32 | | | UINT32 | 0x55 | Vendor ID (Axiomatic Technologies) |
| | 2 | | | | | 0xAA100261 | Product Code |
| | 3 | | | | | | Revision Number |
| | 4 | | | | | | Serial Number |

## 4.12 1020h Verify Configuration

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1020 | 0 | UINT8 | RO | No | 4 | 4 | Number of subindexes |
| | 1 | UINT32 | | | UINT32 | | Configuration date: DD-MM-YYYY |
| | 2 | | | | | | Configuration time: HH-MM |

## 4.13 1029h Error Behavior

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1029 | 0 | UINT8 | RO | No | 6 | 4 | Number of subindexes |
| | 1 | | RW | | 0-2 | 1 (no change) | State transition on Comm. fault |
| | 2 | | | | | | State transition on DI fault |
| | 3 | | | | | | State transition on AI fault |
| | 4 | | | | | | State transition on DO fault |
| | 5 | | | | | | State transition on AO fault |
| | 6 | | | | | | State transition on other faults |

## 4.14 1400h RPDO 1 Communication Parameters

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1400 | 0 | UINT8 | RO | No | 5 | 5 | Number of subindexes |
| | 1 | UINT32 | RW | | UINT32 | 0x4000027F | COB-ID |
| | 2 | UINT8 | | | UINT8 | 0xFF | Transmission type |
| | 3 | UINT16 | | | UINT16 | 0 | Inhibit time |
| | 4 | UINT8 | | | UINT8 | 0 | Compatibility entry |
| | 5 | UINT16 | | | UINT16 | 0 | Event timer |

## 4.15 1401h RPDO 2 Communication Parameters

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1401 | 0 | UINT8 | RO | No | 5 | 5 | Number of subindexes |
| | 1 | UINT32 | RW | | UINT32 | 0x4000037F | COB-ID |
| | 2 | UINT8 | | | UINT8 | 0xFF | Transmission type |
| | 3 | UINT16 | | | UINT16 | 0 | Inhibit time |
| | 4 | UINT8 | | | UINT8 | 0 | Compatibility entry |
| | 5 | UINT16 | | | UINT16 | 0 | Event timer |

## 4.16 1402h RPDO 3 Communication Parameters

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1402 | 0 | UINT8 | RO | No | 5 | 5 | Number of subindexes |
| | 1 | UINT32 | RW | | UINT32 | 0x4000047F | COB-ID |
| | 2 | UINT8 | | | UINT8 | 0xFF | Transmission type |
| | 3 | UINT16 | | | UINT16 | 0 | Inhibit time |
| | 4 | UINT8 | | | UINT8 | 0 | Compatibility entry |
| | 5 | UINT16 | | | UINT16 | 0 | Event timer |

## 4.17 1600h RPDO 1 Mapping Parameters

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1600 | 0 | UINT8 | RW | No | 0-4 | 4 | Not used by default |
| | 1 | UINT32 | | | UINT32 | 0x25000110 | EC Extra Received PV #1 |
| | 2 | | | | | 0x25000210 | EC Extra Received PV #2 |
| | 3 | | | | | 0x25000310 | EC Extra Received PV #3 |
| | 4 | | | | | 0x25000410 | EC Extra Received PV #4 |

## 4.18 1601h RPDO 2 Mapping Parameters

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1601 | 0 | UINT8 | RW | No | 0-4 | 4 | Number of subindexes |
| | 1 | UINT32 | | | UINT32 | 0x25000510 | EC Extra Received PV #5 |
| | 2 | | | | | 0x25000610 | EC Extra Received PV #6 |
| | 3 | | | | | 0x25000710 | EC Extra Received PV #7 |
| | 4 | | | | | 0x25000810 | EC Extra Received PV #8 |

## 4.19 1602h RPDO 3 Mapping Parameters

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1602 | 0 | UINT8 | RW | No | 0-4 | 4 | Number of subindexes |
| | 1 | UINT32 | | | UINT32 | 0x25000910 | EC Extra Received PV #9 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2 | | | | | 0x25000A10 | EC Extra Received PV #10 |
| | 3 | | | | | 0x25000B10 | EC Extra Received PV #11 |
| | 4 | | | | | 0x25000C10 | EC Extra Received PV #12 |

## *4.20 1800h TPDO 1 Communication Parameters*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1800 | 0 | UINT8 | RO | No | 5 | 5 | Number of subindexes |
| | 1 | UINT32 | RW | | UINT32 | 0x400001FF | COB-ID |
| | 2 | UINT8 | | | UINT8 | 0xFE | Transmission type |
| | 3 | UINT16 | | | UINT16 | 0 | Inhibit time |
| | 4 | UINT8 | | | UINT8 | 0 | Compatibility entry |
| | 5 | UINT16 | | | UINT16 | 0xFA | Event timer |

## *4.21 1801h TPDO 2 Communication Parameters*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1801 | 0 | UINT8 | RO | No | 5 | 5 | Number of subindexes |
| | 1 | UINT32 | RW | | UINT32 | 0x400002FF | COB-ID |
| | 2 | UINT8 | | | UINT8 | 0xFE | Transmission type |
| | 3 | UINT16 | | | UINT16 | 0 | Inhibit time |
| | 4 | UINT8 | | | UINT8 | 0 | Compatibility entry |
| | 5 | UINT16 | | | UINT16 | 0xFA | Event timer |

## *4.22 1802h TPDO 3 Communication Parameters*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1802 | 0 | UINT8 | RO | No | 5 | 5 | Number of subindexes |
| | 1 | UINT32 | RW | | UINT32 | 0x400003FF | COB-ID |
| | 2 | UINT8 | | | UINT8 | 0xFE | Transmission type |
| | 3 | UINT16 | | | UINT16 | 0 | Inhibit time |
| | 4 | UINT8 | | | UINT8 | 0xFA | Compatibility entry |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5 | UINT16 | | | UINT16 | 0 | Event timer |

## *4.23 1803h TPDO 4 Communication Parameters*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1803 | 0 | UINT8 | RO | No | 5 | 5 | Number of subindexes |
| | 1 | UINT32 | RW | | UINT32 | 0xC00004FF | COB-ID |
| | 2 | UINT8 | | | UINT8 | 0xFE | Transmission type |
| | 3 | UINT16 | | | UINT16 | 0 | Inhibit time |
| | 4 | UINT8 | | | UINT8 | 0 | Compatibility entry |
| | 5 | UINT16 | | | UINT16 | 0xFA | Event timer |

## *4.24 1804h TPDO 5 Communication Parameters*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1803 | 0 | UINT8 | RO | No | 5 | 5 | Number of subindexes |
| | 1 | UINT32 | RW | | UINT32 | 0xC00005FF | COB-ID |
| | 2 | UINT8 | | | UINT8 | 0xFE | Transmission type |
| | 3 | UINT16 | | | UINT16 | 0 | Inhibit time |
| | 4 | UINT8 | | | UINT8 | 0 | Compatibility entry |
| | 5 | UINT16 | | | UINT16 | 0 | Event timer |

## *4.25 1A00h TPDO 1 Mapping Parameters*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1A00 | 0 | UINT8 | RW | No | 0-4 | 4 | Number of subindexes |
| | 1 | UINT32 | | | UINT32 | 0x71300110 | AI Input PV #1 |
| | 2 | | | | | 0x71300210 | AI Input PV #2 |
| | 3 | | | | | 0x71300310 | AI Input PV #3 |
| | 4 | | | | | 0x71300410 | AI Input PV #4 |

## 4.26 1A01h TPDO 2 Mapping Parameters

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1A01 | 0 | UINT8 | RW | No | 0-4 | 4 | Number of subindexes |
| | 1 | UINT32 | | | UINT32 | 0x71300510 | AI Input PV #5 |
| | 2 | | | | | 0x71300610 | AI Input PV #6 |
| | 3 | | | | | 0x71300710 | AI Input PV #7 |
| | 4 | | | | | 0x71300810 | AI Input PV #8 |

## 4.27 1A02h TPDO 3 Mapping Parameters

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1A02 | 0 | UINT8 | RW | No | 0-4 | 2 | Number of subindexes |
| | 1 | UINT32 | | | UINT32 | 0x71300910 | AI Input PV #9 |
| | 2 | | | | | 0x71300A10 | AI Input PV #10 |
| | 3 | | | | | 0 | Not used by default |
| | 4 | | | | | 0 | Not used by default |

## 4.28 1A03h TPDO 4 Mapping Parameters

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 1A03 | 0 | UINT8 | RW | No | 0-4 | 2 | Number of subindexes |
| | 1 | UINT32 | | | UINT32 | 0x60000108 | DI Input 1-8 |
| | 2 | | | | | 0x60000208 | DI Input 9-10 |
| | 3 | | | | | 0 | Not used by default |
| | 4 | | | | | 0 | Not used by default |

# 5 Application Objects (DS-404 Inputs)

| *Index (hex)* | *Object* | *Object Type* | *Data Type* | *Access* | *PDO Mapping* |
|---|---|---|---|---|---|
| 6000 | DI Read State 8 Input Lines | VAR | UNSIGNED8 | RO | Yes |
| 6002 | DI Polarity 8 Input Lines | VAR | UNSIGNED8 | RW | No |
| 7100 | AI Input Field Value | ARRAY | INTEGER16 | RO | Yes |
| 6110 | AI Sensor Type | ARRAY | UNSIGNED16 | RW | No |
| 6112 | AI Operating Mode | ARRAY | UNSIGNED8 | RW | No |
| 7120 | AI Input Scaling 1 FV | ARRAY | INTEGER16 | RW | No |
| 7121 | AI Input Scaling 1 PV | ARRAY | INTEGER16 | RW | No |
| 7122 | AI Input Scaling 2 FV | ARRAY | INTEGER16 | RW | No |
| 7123 | AI Input Scaling 2 PV | ARRAY | INTEGER16 | RW | No |
| 7124 | AI Input Offset | ARRAY | INTEGER16 | RW | No |
| 7130 | AI Input Process Value | ARRAY | INTEGER16 | RO | Yes |
| 6132 | AI Decimal Digits PV | ARRAY | UNSIGNED8 | RW | No |

## *5.1 6000h DI Read State 8 Input Lines*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 6000 | 0 | UINT8 | RO | Yes | 0…2 | 2 | Number of subindexes |
| | 1 | UINT8 | RM | Yes | 0x0 … 0xFF | 0 | Digital Input state bitmap, one bit per input. Covers inputs 1...8 |
| | 2 | UINT8 | RM | Yes | 0x0 … 0x03 | 0 | Digital Input state bitmap, one bit per input. Covers inputs 9-10 |

## *5.2 6002h DI Polarity 8 Input Lines*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 6002 | 0 | UINT8 | RW | No | 0x0 … 0x3F | 2 | Digital Input state polarity bitmap, one bit per input. Inputs 5 & 6 are gate driver's active low fault lines. |
| | 1 | UINT8 | RW | No | 0x0 … 0xFF | 0 | Digital Input state polarity bitmap, one bit per input. Covers inputs 1...8 |
| | 2 | UINT8 | RW | No | 0x0 … 0x03 | 0 | Digital Input state polarity bitmap, one bit per input. Covers inputs 9-10 |

## *5.3 7100h AI Input Field Value*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 7100 | 0 | UINT8 | RO | Yes | 10 | 10 | Number of subindexes |
| | 1 | INT16 | RM | | INT16 | 0 | Input #1 field value |
| | 2 | | | | | | Input #2 field value |
| | 3 | | | | | | Input #3 field value |
| | 4 | | | | | | Input #4 field value |
| | 5 | | | | | | Input #5 field value |
| | 6 | | | | | | Input #6 field value |
| | 7 | | | | | | Input #7 field value |
| | 8 | | | | | | Input #8 field value |
| | 9 | | | | | | Input #9 field value |
| | 10 | | | | | | Input #10 field value |

## *5.4 6110h AI Sensor Type*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 6110 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | UINT16 | RW | | 40,50, 60, 10000 | 40 | Input #1 sensor type |
| | 2 | | | | | | Input #2 sensor type |
| | 3 | | | | 40,50, 60, 120[1] 10000 | | Input #3 sensor type |
| | 4 | | | | | | Input #4 sensor type |
| | 5 | | | | | | Input #5 sensor type |
| | 6 | | | | | | Input #6 sensor type |
| | 7 | | | | | | Input #7 sensor type |
| | 8 | | | | | | Input #8 sensor type |
| | 9 | | | | | | Input #9 sensor type |
| | 10 | | | | | | Input #10 sensor type |

1. Unipolar inputs has additional parameter – resistive input

## *5.5 6112h AI Operating Mode*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 6112 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | UINT16 | RW | | 0, 1, 10, 20 | 1 | Input #1 operating mode |
| | 2 | | | | | | Input #2 operating mode |
| | 3 | | | | | | Input #3 operating mode |
| | 4 | | | | | | Input #4 operating mode |
| | 5 | | | | | | Input #5 operating mode |
| | 6 | | | | | | Input #6 operating mode |
| | 7 | | | | | | Input #7 operating mode |
| | 8 | | | | | | Input #8 operating mode |
| | 9 | | | | | | Input #9 operating mode |
| | 10 | | | | | | Input #10 operating mode |

## *5.6 7120h AI Input Scaling 1 FV*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 7120 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | INT16 | RW | | INT16 | 0 | Input #1 field value scaler 1 |
| | 2 | | | | | | Input #2 field value scaler 1 |
| | 3 | | | | | | Input #3 field value scaler 1 |
| | 4 | | | | | | Input #4 field value scaler 1 |
| | 5 | | | | | | Input #5 field value scaler 1 |
| | 6 | | | | | | Input #6 field value scaler 1 |
| | 7 | | | | | | Input #7 field value scaler 1 |
| | 8 | | | | | | Input #8 field value scaler 1 |
| | 9 | | | | | | Input #9 field value scaler 1 |
| | 10 | | | | | | Input #10 field value scaler 1 |

## *5.7 7121h AI Input Scaling 1 PV*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 7121 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | INT16 | RW | | INT16 | 0 | Input #1 process value scaler 1 |
| | 2 | | | | | | Input #2 process value scaler 1 |
| | 3 | | | | | | Input #3 process value scaler 1 |
| | 4 | | | | | | Input #4 process value scaler 1 |
| | 5 | | | | | | Input #5 process value scaler 1 |
| | 6 | | | | | | Input #6 process value scaler 1 |
| | 7 | | | | | | Input #7 process value scaler 1 |
| | 8 | | | | | | Input #8 process value scaler 1 |
| | 9 | | | | | | Input #9 process value scaler 1 |
| | 10 | | | | | | Input #10 process value scaler 1 |

## *5.8 7122h AI Input Scaling 2 FV*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 7122 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | INT16 | RW | | INT16 | 0 | Input #1 field value scaler 2 |
| | 2 | | | | | | Input #2 field value scaler 2 |
| | 3 | | | | | | Input #3 field value scaler 2 |
| | 4 | | | | | | Input #4 field value scaler 2 |
| | 5 | | | | | | Input #5 field value scaler 2 |
| | 6 | | | | | | Input #6 field value scaler 2 |
| | 7 | | | | | | Input #7 field value scaler 2 |
| | 8 | | | | | | Input #8 field value scaler 2 |
| | 9 | | | | | | Input #9 field value scaler 2 |
| | 10 | | | | | | Input #10 field value scaler 2 |

## *5.9 7123h AI Input Scaling 2 PV*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 7123 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | INT16 | RW | | INT16 | 0 | Input #1 process value scaler 2 |
| | 2 | | | | | | Input #2 process value scaler 2 |
| | 3 | | | | | | Input #3 process value scaler 2 |
| | 4 | | | | | | Input #4 process value scaler 2 |
| | 5 | | | | | | Input #5 process value scaler 2 |
| | 6 | | | | | | Input #6 process value scaler 2 |
| | 7 | | | | | | Input #7 process value scaler 2 |
| | 8 | | | | | | Input #8 process value scaler 2 |
| | 9 | | | | | | Input #9 process value scaler 2 |
| | 10 | | | | | | Input #10 process value scaler 2 |

## *5.10 7124h AI Input Offset*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 7124 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | INT16 | RW | | INT16 | 0 | Input #1 input offset 1 |
| | 2 | | | | | | Input #2 input offset 2 |
| | 3 | | | | | | Input #3 input offset 3 |
| | 4 | | | | | | Input #4 input offset 4 |
| | 5 | | | | | | Input #5 input offset 5 |
| | 6 | | | | | | Input #6 input offset 6 |
| | 7 | | | | | | Input #7 input offset 7 |
| | 8 | | | | | | Input #8 input offset 8 |
| | 9 | | | | | | Input #9 input offset 9 |
| | 10 | | | | | | Input #10 input offset 10 |

## *5.11 7130h AI Input Process Value*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 7130 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | INT16 | RM | Yes | INT16 | 0 | Input #1 process value |
| | 2 | | | | | | Input #2 process value |
| | 3 | | | | | | Input #3 process value |
| | 4 | | | | | | Input #4 process value |
| | 5 | | | | | | Input #5 process value |
| | 6 | | | | | | Input #6 process value |
| | 7 | | | | | | Input #7 process value |
| | 8 | | | | | | Input #8 process value |
| | 9 | | | | | | Input #9 process value |
| | 10 | | | | | | Input #10 process value |

## *5.12 6132h AI Decimal Digits PV*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 6132 | 0 | UINT8 | RO | No | 6 | 6 | Number of subindexes |
| | 1 | INT16 | RW | | 0-3 | 3 | Input #1 PV decimal digits |
| | 2 | | | | | | Input #2 PV decimal digits |
| | 3 | | | | | | Input #3 PV decimal digits |
| | 4 | | | | | | Input #4 PV decimal digits |
| | 5 | | | | | | Input #5 PV decimal digits |
| | 6 | | | | | | Input #6 PV decimal digits |
| | 7 | | | | | | Input #7 PV decimal digits |
| | 8 | | | | | | Input #8 PV decimal digits |
| | 9 | | | | | | Input #9 PV decimal digits |
| | 10 | | | | | | Input #10 PV decimal digits |

| *Index (hex)* | *Object* | *Object Type* | *Data Type* | *Access* | *PDO Mapping* |
|---|---|---|---|---|---|
| 2020 | DI Pull Up Down Mode 1 Input Line | ARRAY | UNSIGNED8 | RW | No |
| 2030 | DI Debounce Filter | ARRAY | UNSIGNED8 | RW | No |
| 2040 | DI Debounce Time | ARRAY | UNSIGNED16 | RW | No |
| 2050 | AI Frequency Averaging | ARRAY | UNSIGNED8 | RW | No |
| 2100 | AI Input Range | ARRAY | UNSIGNED8 | RW | No |
| 2101 | AI Analog LoZ Input | ARAAY | UNSIGNED8 | RW | No |
| 2102 | AI Decimal Digits FV | ARRAY | UNSIGNED8 | RW | No |
| 2103 | AI Analog Input Filter | ARRAY | UNSIGNED8 | RW | No |
| 3000 | BF Binary Output FV | ARRAY | UNSIGNED8 | RM | Yes |
| 300A | BF Binary Output Function | ARRAY | UNSIGNED8 | RW | No |
| 300B | BF Binary Output Scale | ARRAY | FLOAT32 | RW | No |
| 300C | BF Binary Output Offset | ARRAY | FLOAT32 | RW | No |
| 3010 | BF Signal Source 1 | ARRAY | UNSIGNED8 | RW | No |
| 3020 | BF Signal Source 2 | ARRAY | UNSIGNED8 | RW | No |
| 3030 | BF Signal Source 3 | ARRAY | UNSIGNED8 | RW | No |
| 3040 | BF Signal Source 4 | ARRAY | UNSIGNED8 | RW | No |
| 3050 | BF Signal Source 5 | ARRAY | UNSIGNED8 | RW | No |
| 3060 | BF Signal Source 6 | ARRAY | UNSIGNED8 | RW | No |
| 3070 | BF Signal Source 7 | ARRAY | UNSIGNED8 | RW | No |
| 3080 | BF Signal Source 8 | ARRAY | UNSIGNED8 | RW | No |
| 3090 | BF Signal Source 9 | ARRAY | UNSIGNED8 | RW | No |
| 30A0 | BF Signal Source 10 | ARRAY | UNSIGNED8 | RW | No |
| 3011 | BF Is Default Signal 1 | ARRAY | UNSIGNED8 | RW | No |
| 3021 | BF Is Default Signal 2 | ARRAY | UNSIGNED8 | RW | No |
| 3031 | BF Is Default Signal 3 | ARRAY | UNSIGNED8 | RW | No |
| 3041 | BF Is Default Signal 4 | ARRAY | UNSIGNED8 | RW | No |
| 3051 | BF Is Default Signal 5 | ARRAY | UNSIGNED8 | RW | No |
| 3061 | BF Is Default Signal 6 | ARRAY | UNSIGNED8 | RW | No |
| 3071 | BF Is Default Signal 7 | ARRAY | UNSIGNED8 | RW | No |
| 3081 | BF Is Default Signal 8 | ARRAY | UNSIGNED8 | RW | No |
| 3091 | BF Is Default Signal 9 | ARRAY | UNSIGNED8 | RW | No |
| 30A1 | BF Is Default Signal 10 | ARRAY | UNSIGNED8 | RW | No |
| 3012 | BF Default Signal 1 | ARRAY | FLOAT32 | RW | No |
| 3022 | BF Default Signal 2 | ARRAY | FLOAT32 | RW | No |
| 3032 | BF Default Signal 3 | ARRAY | FLOAT32 | RW | No |
| 3042 | BF Default Signal 4 | ARRAY | FLOAT32 | RW | No |
| 3052 | BF Default Signal 5 | ARRAY | FLOAT32 | RW | No |
| 3062 | BF Default Signal 6 | ARRAY | FLOAT32 | RW | No |
| 3072 | BF Default Signal 7 | ARRAY | FLOAT32 | RW | No |
| 3082 | BF Default Signal 8 | ARRAY | FLOAT32 | RW | No |
| 3092 | BF Default Signal 9 | ARRAY | FLOAT32 | RW | No |
| 30A2 | BF Default Signal 10 | ARRAY | FLOAT32 | RW | No |

| | | | | | |
|---|---|---|---|---|---|
| 3013 | BF Unary Function Name 1 | ARRAY | UNSIGNED8 | RW | No |
| 3023 | BF Unary Function Name 2 | ARRAY | UNSIGNED8 | RW | No |
| 3033 | BF Unary Function Name 3 | ARRAY | UNSIGNED8 | RW | No |
| 3043 | BF Unary Function Name 4 | ARRAY | UNSIGNED8 | RW | No |
| 3053 | BF Unary Function Name 5 | ARRAY | UNSIGNED8 | RW | No |
| 3063 | BF Unary Function Name 6 | ARRAY | UNSIGNED8 | RW | No |
| 3073 | BF Unary Function Name 7 | ARRAY | UNSIGNED8 | RW | No |
| 3083 | BF Unary Function Name 8 | ARRAY | UNSIGNED8 | RW | No |
| 3093 | BF Unary Function Name 9 | ARRAY | UNSIGNED8 | RW | No |
| 30A3 | BF Unary Function Name 10 | ARRAY | UNSIGNED8 | RW | No |
| 3014 | BF Unary Input Scale 1 | ARRAY | FLOAT32 | RW | No |
| 3024 | BF Unary Input Scale 2 | ARRAY | FLOAT32 | RW | No |
| 3034 | BF Unary Input Scale 3 | ARRAY | FLOAT32 | RW | No |
| 3044 | BF Unary Input Scale 4 | ARRAY | FLOAT32 | RW | No |
| 3054 | BF Unary Input Scale 5 | ARRAY | FLOAT32 | RW | No |
| 3064 | BF Unary Input Scale 6 | ARRAY | FLOAT32 | RW | No |
| 3074 | BF Unary Input Scale 7 | ARRAY | FLOAT32 | RW | No |
| 3084 | BF Unary Input Scale 8 | ARRAY | FLOAT32 | RW | No |
| 3094 | BF Unary Input Scale 9 | ARRAY | FLOAT32 | RW | No |
| 30A4 | BF Unary Input Scale 10 | ARRAY | FLOAT32 | RW | No |
| 3015 | BF Unary Input Offset 1 | ARRAY | FLOAT32 | RW | No |
| 3025 | BF Unary Input Offset 2 | ARRAY | FLOAT32 | RW | No |
| 3035 | BF Unary Input Offset 3 | ARRAY | FLOAT32 | RW | No |
| 3045 | BF Unary Input Offset 4 | ARRAY | FLOAT32 | RW | No |
| 3055 | BF Unary Input Offset 5 | ARRAY | FLOAT32 | RW | No |
| 3065 | BF Unary Input Offset 6 | ARRAY | FLOAT32 | RW | No |
| 3075 | BF Unary Input Offset 7 | ARRAY | FLOAT32 | RW | No |
| 3085 | BF Unary Input Offset 8 | ARRAY | FLOAT32 | RW | No |
| 3095 | BF Unary Input Offset 9 | ARRAY | FLOAT32 | RW | No |
| 30A5 | BF Unary Input Offset 10 | ARRAY | FLOAT32 | RW | No |
| 2500 | EC Extra Received Process Value | ARRAY | INTEGER16 | RM | Yes |
| 2502 | EC Decimal Digits PV | ARRAY | UNSIGNED8 | RW | No |
| 2520 | EC Scaling 1 PV | ARRAY | INTEGER16 | RW | No |
| 2522 | EC Scaling 2 PV | ARRAY | INTEGER16 | RW | No |
| 4000 | ENET MAC Address | ARRAY | UNSIGNED8 | RW | No |
| 4001 | ENET IP Address | ARRAY | UNSIGNED8 | RW | No |
| 4002 | ENET Subnet Mask | ARRAY | UNSIGNED8 | RW | No |
| 4003 | ENET Gateway Address | ARRAY | UNSIGNED8 | RW | No |
| 4004 | ENET Modbus Port | ARRAY | UNSIGNED16 | RW | No |
| 4005 | ENET Modbus Timeout | ARRAY | UNSIGNED16 | RW | No |
| 5010 | Constant Field Value | ARRAY | FLOAT32 | RW | No |
| 5020 | Power Supply FV | VAR | FLOAT32 | RO | Yes |
| 5030 | CPU Temperature FV | VAR | FLOAT32 | RO | Yes |
| 5040 | Constant Field Value 2 | ARRAY | UNSIGNED16 | RWM | Yes |
| 5041 | Fault Detection Set Threshold | ARRAY | UNSIGNED16 | RW | No |
| 5500 | SPP Command | ARRAY | UNSIGNED32 | RWP | No |
| 5510 | SPP Response | ARRAY | UNSIGNED32 | ROP | No |

| | | | | | |
|---|---|---|---|---|---|
| 5550 | Enable Auto Updates | VAR | BOOLEAN | RWP | No |
| 5555 | Start in Operational Mode | VAR | BOOLEAN | RWP | No |
| 55AA | Start Bootloader | VAR | UNSIGNED8 | RWP | No |
| 5B50 | Change Baud Rate | VAR | UNSIGNED8 | RWP | No |
| 5B51 | Change Node ID | VAR | UNSIGNED8 | RWP | No |

## *6.1 2020h DI Pull Up Down Mode 1 Input Line*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 2020 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | | RW | | 0-2 | 0 | Input #1 pull up down mode |
| | 2 | | | | | | Input #2 pull up down mode |
| | 3 | | | | | | Input #3 pull up down mode |
| | 4 | | | | | | Input #4 pull up down mode |
| | 5 | | | | | | Input #5 pull up down mode |
| | 6 | | | | | | Input #6 pull up down mode |
| | 7 | | | | | | Input #7 pull up down mode |
| | 8 | | | | | | Input #8 pull up down mode |
| | 9 | | | | | | Input #9 pull up down mode |
| | 10 | | | | | | Input #10 pull up down mode |

## *6.2 2030h DI Debounce Filter*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 2030 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | | RW | | 0-3 | 0 | Input #1 debounce filter |
| | 2 | | | | | | Input #2 debounce filter |
| | 3 | | | | | | Input #3 debounce filter |
| | 4 | | | | | | Input #4 debounce filter |
| | 5 | | | | | | Input #5 debounce filter |
| | 6 | | | | | | Input #6 debounce filter |
| | 7 | | | | | | Input #7 debounce filter |
| | 8 | | | | | | Input #8 debounce filter |
| | 9 | | | | | | Input #9 debounce filter |
| | 10 | | | | | | Input #10 debounce filter |

## *6.3 2040h DI Debounce Time*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 2040 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | UINT16 | RW | | 0…1000 | 0 | Input #1 debounce time |
| | 2 | | | | | | Input #2 debounce time |
| | 3 | | | | | | Input #3 debounce time |
| | 4 | | | | | | Input #4 debounce time |
| | 5 | | | | | | Input #5 debounce time |
| | 6 | | | | | | Input #6 debounce time |
| | 7 | | | | | | Input #7 debounce time |
| | 8 | | | | | | Input #8 debounce time |
| | 9 | | | | | | Input #9 debounce time |
| | 10 | | | | | | Input #10 debounce time |

## *6.4 2050h AI Frequency Averaging*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 2030 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | | RW | | 0-3 | 0 | Input #1 frequency averaging |
| | 2 | | | | | | Input #2 frequency averaging |
| | 3 | | | | | | Input #3 frequency averaging |
| | 4 | | | | | | Input #4 frequency averaging |
| | 5 | | | | | | Input #5 frequency averaging |
| | 6 | | | | | | Input #6 frequency averaging |
| | 7 | | | | | | Input #7 frequency averaging |
| | 8 | | | | | | Input #8 frequency averaging |
| | 9 | | | | | | Input #9 frequency averaging |
| | 10 | | | | | | Input #10 frequency averaging |

## 6.5 2100h AI Input Range

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 2100 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | | RW | | Input type dependent | 0 | Input #1 range selection |
| | 2 | | | | | | Input #2 range selection |
| | 3 | | | | | | Input #3 range selection |
| | 4 | | | | | | Input #4 range selection |
| | 5 | | | | | | Input #5 range selection |
| | 6 | | | | | | Input #6 range selection |
| | 7 | | | | | | Input #7 range selection |
| | 8 | | | | | | Input #8 range selection |
| | 9 | | | | | | Input #9 range selection |
| | 10 | | | | | | Input #10 range selection |

## 6.6 2101h AI Analog LoZ Input

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 2101 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | | RW | | 0…1 | 0 | Input #1 LoZ input |
| | 2 | | | | | | Input #2 LoZ input |
| | 3 | | | | | | Input #3 LoZ input |
| | 4 | | | | | | Input #4 LoZ input |
| | 5 | | | | | | Input #5 LoZ input |
| | 6 | | | | | | Input #6 LoZ input |
| | 7 | | | | | | Input #7 LoZ input |
| | 8 | | | | | | Input #8 LoZ input |
| | 9 | | | | | | Input #9 LoZ input |
| | 10 | | | | | | Input #10 LoZ input |

## 6.7 2102h AI Decimal Digits FV

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 2102 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | | RW | | 0-4 | 3 | Input #1 decimal digits FV |
| | 2 | | | | | | Input #2 decimal digits FV |
| | 3 | | | | | | Input #3 decimal digits FV |
| | 4 | | | | | | Input #4 decimal digits FV |
| | 5 | | | | | | Input #5 decimal digits FV |
| | 6 | | | | | | Input #6 decimal digits FV |
| | 7 | | | | | | Input #7 decimal digits FV |
| | 8 | | | | | | Input #8 decimal digits FV |
| | 9 | | | | | | Input #9 decimal digits FV |
| | 10 | | | | | | Input #10 decimal digits FV |

## 6.8 2103h AI Analog Input Filter

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 2103 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | | RW | | 0-3 | 0 | Input #1 analog input filter |
| | 2 | | | | | | Input #2 analog input filter |
| | 3 | | | | | | Input #3 analog input filter |
| | 4 | | | | | | Input #4 analog input filter |
| | 5 | | | | | | Input #5 analog input filter |
| | 6 | | | | | | Input #6 analog input filter |
| | 7 | | | | | | Input #7 analog input filter |
| | 8 | | | | | | Input #8 analog input filter |
| | 9 | | | | | | Input #9 analog input filter |
| | 10 | | | | | | Input #10 analog input filter |

## 6.9 3000h BF Binary Output FV

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 3000 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | INT16 | RO | | | | Binary input #1 binary output FV |
| | 2 | | | | | | Binary input #2 binary output FV |
| | 3 | | | | | | Binary input #3 binary output FV |
| | 4 | | | | | | Binary input #4 binary output FV |
| | 5 | | | | | | Binary input #5 binary output FV |
| | 6 | | | | | | Binary input #6 binary output FV |
| | 7 | | | | | | Binary input #7 binary output FV |
| | 8 | | | | | | Binary input #8 binary output FV |
| | 9 | | | | | | Binary input #9 binary output FV |
| | 10 | | | | | | Binary input #10 binary output FV |

## 6.10 300Ah BF Output Function

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 300A | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | | RW | | 0-20 | 0 | Binary input #1 output function |
| | 2 | | | | | | Binary input #2 output function |
| | 3 | | | | | | Binary input #3 output function |
| | 4 | | | | | | Binary input #4 output function |
| | 5 | | | | | | Binary input #5 output function |
| | 6 | | | | | | Binary input #6 output function |
| | 7 | | | | | | Binary input #7 output function |
| | 8 | | | | | | Binary input #8 output function |
| | 9 | | | | | | Binary input #9 output function |
| | 10 | | | | | | Binary input #10 output function |

## 6.11 300Bh BF Output Scale

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 300B | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | FLOAT32 | RW | | FLOAT32 | 0x3f800000 | Binary input #1 output scale |
| | 2 | | | | | | Binary input #2 output scale |
| | 3 | | | | | | Binary input #3 output scale |
| | 4 | | | | | | Binary input #4 output scale |
| | 5 | | | | | | Binary input #5 output scale |
| | 6 | | | | | | Binary input #6 output scale |
| | 7 | | | | | | Binary input #7 output scale |
| | 8 | | | | | | Binary input #8 output scale |
| | 9 | | | | | | Binary input #9 output scale |
| | 10 | | | | | | Binary input #10 output scale |

## 6.12 300Ch BF Output Offset

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 300C | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | FLOAT32 | RW | | INT32 | 0 | Binary input #1 output offset |
| | 2 | | | | | | Binary input #2 output offset |
| | 3 | | | | | | Binary input #3 output offset |
| | 4 | | | | | | Binary input #4 output offset |
| | 5 | | | | | | Binary input #5 output offset |
| | 6 | | | | | | Binary input #6 output offset |
| | 7 | | | | | | Binary input #7 output offset |
| | 8 | | | | | | Binary input #8 output offset |
| | 9 | | | | | | Binary input #9 output offset |
| | 10 | | | | | | Binary input #10 output offset |

## 6.13 30x0h BF Signal Source[1]

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 30x0 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | | RW | | 0…29 | 0 | Binary input #x output offset 1 |
| | 2 | | | | | | Binary input #x output offset 2 |

1. x is the number from 1 to Ah that represents a couple of inputs

## 6.14 30x1h BF Is Default Signal[1]

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 30x1 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | | RW | | 0…1 | 0 | Binary input #x is default signal 1 |
| | 2 | | | | | | Binary input #x is default signal 2 |

1. x is the number from 1 to Ah that represents a couple of inputs

## 6.15 30x2h BF Default Signal Value[1]

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 30x2 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | FLOAT32 | RW | | 0… 4,294,967,295 | 0 | Binary input #x default signal value 1 |
| | 2 | | | | | | Binary input #x default signal value 2 |

1. x is the number from 1 to Ah that represents a couple of inputs

## 6.16 30x3h BF Unary Function Name[1]

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 30x3 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | | RW | | 0…3 | 0 | Binary input #x unary function name 1 |
| | 2 | | | | | | Binary input #x unary function name 2 |

1. x is the number from 1 to Ah that represents a couple of inputs

## 6.17 30x4h BF Unary Input Scale[1]

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 30x4 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | FLOAT32 | RW | | INT32 | 1.0 | Binary input #x unary input scale 1 |
| | 2 | | | | | | Binary input #x unary input scale 2 |

1. x is the number from 1 to Ah that represents a couple of inputs

## 6.18 30x5h BF Unary Function Offset[1]

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 30x5 | 0 | UINT8 | RO | No | 10 | 10 | Number of subindexes |
| | 1 | FLOAT32 | RW | | INT32 | 0 | Binary input #x unary function offset 1 |
| | 2 | | | | | | Binary input #x unary function offset 2 |

1. x is the number from 1 to Ah that represents a couple of inputs

## 6.19 4000h ENET MAC Address

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 4000 | 0 | UINT8 | RO | No | 6 | 6 | Number of subindexes |
| | 1 | UINT8 | RO | | UINT8 | 0 | Ethernet MAC address 1 |
| | 2 | | | | | | Ethernet MAC address 2 |
| | 3 | | | | | | Ethernet MAC address 3 |
| | 4 | | | | | | Ethernet MAC address 4 |
| | 5 | | | | | | Ethernet MAC address 5 |
| | 6 | | | | | | Ethernet MAC address 6 |

## 6.20 4001h ENET IP Address

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 4001 | 0 | UINT8 | RO | No | 4 | 4 | Number of subindexes |
| | 1 | | RW | | UINT8 | 192 | Ethernet IP address 1 |
| | 2 | | | | | 168 | Ethernet IP address 2 |
| | 3 | | | | | 0 | Ethernet IP address 3 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 4 | | | | | 34 | Ethernet IP address 4 |

## *6.21 4002h ENET Subnet Mask*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 4002 | 0 | UINT8 | RO | No | 4 | 4 | Number of subindexes |
| | 1 | | RW | | UINT8 | 255 | Ethernet subnet mask 1 |
| | 2 | | | | | 255 | Ethernet subnet mask 2 |
| | 3 | | | | | 255 | Ethernet subnet mask 3 |
| | 4 | | | | | 0 | Ethernet subnet mask 4 |

## *6.22 4003h ENET Default Gateway*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 4003 | 0 | UINT8 | RO | No | 4 | 4 | Number of subindexes |
| | 1 | | RW | | UINT8 | 192 | Ethernet default gateway 1 |
| | 2 | | | | | 168 | Ethernet default gateway 2 |
| | 3 | | | | | 0 | Ethernet default gateway 3 |
| | 4 | | | | | 1 | Ethernet default gateway 4 |

## *6.23 4005h ENET Modbus Port*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 4004 | 0 | UINT8 | RO | No | 1 | 1 | Number of subindexes |
| | 1 | UINT16 | RW | | UINT16, except 35100 | 512 | Ethernet modbus port |

## *6.24 4005h ENET Modbus Timeout*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 4005 | 0 | UINT8 | RO | No | 1 | 1 | Number of subindexes |
| | 1 | UINT16 | RW | | 1…10000 | 1000 | Ethernet modbus timeout |

## *6.25 2500h EC Extra Received PV*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 2500 | 0 | UINT8 | RO | Yes | 12 | 12 | Number of subindexes |
| | 1 | INT16 | RW | | INT16 | 0 | Extra received PV 1 |
| | 2 | | | | | | Extra received PV 2 |
| | 3 | | | | | | Extra received PV 3 |
| | 4 | | | | | | Extra received PV 4 |
| | 5 | | | | | | Extra received PV 5 |
| | 6 | | | | | | Extra received PV 6 |
| | 7 | | | | | | Extra received PV 7 |
| | 8 | | | | | | Extra received PV 8 |
| | 9 | | | | | | Extra received PV 9 |
| | 10 | | | | | | Extra received PV 10 |
| | 11 | | | | | | Extra received PV 11 |
| | 12 | | | | | | Extra received PV 12 |

## *6.26 2502h EC Decimal Digits PV*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 2502 | 0 | UINT8 | RO | No | 12 | 12 | Number of subindexes |
| | 1 | | RW | | 0-3 | 0 | Extra received PV 1 decimal digits |
| | 2 | | | | | | Extra received PV 2 decimal digits |
| | 3 | | | | | | Extra received PV 3 decimal digits |
| | 4 | | | | | | Extra received PV 4 decimal digits |
| | 5 | | | | | | Extra received PV 5 decimal digits |
| | 6 | | | | | | Extra received PV 6 decimal digits |
| | 7 | | | | | | Extra received PV 7 decimal digits |
| | 8 | | | | | | Extra received PV 8 decimal digits |
| | 9 | | | | | | Extra received PV 9 decimal digits |
| | 10 | | | | | | Extra received PV 10 decimal digits |
| | 11 | | | | | | Extra received PV 11 decimal digits |
| | 12 | | | | | | Extra received PV 12 decimal digits |

## 6.27 2520h EC Scaling 1 PV

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 2502 | 0 | UINT8 | RO | No | 12 | 12 | Number of subindexes |
| | 1 | INT16 | RW | | INT16 | 0 | EC 1 process value scaler 1 |
| | 2 | | | | | | EC 2 process value scaler 1 |
| | 3 | | | | | | EC 3 process value scaler 1 |
| | 4 | | | | | | EC 4 process value scaler 1 |
| | 5 | | | | | | EC 5 process value scaler 1 |
| | 6 | | | | | | EC 6 process value scaler 1 |
| | 7 | | | | | | EC 7 process value scaler 1 |
| | 8 | | | | | | EC 8 process value scaler 1 |
| | 9 | | | | | | EC 9 process value scaler 1 |
| | 10 | | | | | | EC 10 process value scaler 1 |
| | 11 | | | | | | EC 11 process value scaler 1 |
| | 12 | | | | | | EC 12 process value scaler 1 |

## 6.28 2522h EC Scaling 2 PV

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 2522 | 0 | UINT8 | RO | No | 12 | 12 | Number of subindexes |
| | 1 | INT16 | RW | | INT16 | 0 | EC 1 process value scaler 2 |
| | 2 | | | | | | EC 2 process value scaler 2 |
| | 3 | | | | | | EC 3 process value scaler 2 |
| | 4 | | | | | | EC 4 process value scaler 2 |
| | 5 | | | | | | EC 5 process value scaler 2 |
| | 6 | | | | | | EC 6 process value scaler 2 |
| | 7 | | | | | | EC 7 process value scaler 2 |
| | 8 | | | | | | EC 8 process value scaler 2 |
| | 9 | | | | | | EC 9 process value scaler 2 |
| | 10 | | | | | | EC 10 process value scaler 2 |
| | 11 | | | | | | EC 11 process value scaler 2 |
| | 12 | | | | | | EC 12 process value scaler 2 |

## 6.29 5010h Constant Field Value 1

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 5010 | 0 | UINT8 | RO | Yes | 2 | 2 | Number of subindexes |
| | 1 | FLOAT32 | RW | | FLOAT32 | 0.0 | Non modifiable constant values to be used in custom control application. |
| | 2 | | | | | 1.0 | |

## 6.30 5020h Power Supply FV

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 5020 | 0 | FLOAT32 | RO | Yes | FLOAT32 | 0 | Measured power supply voltage |

## 6.31 5030h CPU Temperature FV

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 5030 | 0 | FLOAT32 | RO | Yes | FLOAT32 | 0 | Measured CPU internal temperature |

## 6.32 5040h Constant Field Value 2

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 5040 | 0 | UINT8 | RO | Yes | 2 | 2 | Number of subindexes |
| | 1 | FLOAT32 | RW | | FLOAT32 | 0.0 | User modifiable constant values to be used in custom control application. |
| | 2 | | | | | | |

## 6.33 5500h SPP Command

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 5500 | 0 | UINT8 | RO | No | 3 | 3 | Number of subindexes |
| | 1 | UINT32 | RW | | UINT32 | 0 | Node ID, data length, function ID, command id |
| | 2 | | | | | | Byte3, byte2, byte1, byte0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 3 | | | | | | |

## 6.34 5510h SPP Response

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 5510 | 0 | UINT8 | RO | No | 3 | 3 | Number of subindexes |
| | 1 | UINT32 | RO | | UINT32 | 0 | |
| | 2 | | | | | | |
| | 3 | | | | | | |

## 6.35 5550h Enable Auto Update

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 5550 | 0 | UINT8 | RW | No | 0-1 | 0 | Enable/disable auto-update feature |

## 6.36 5555h Start In Operational Mode

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 5555 | 0 | UINT8 | RW | No | 0-3 | 0 | 0 – No action, wait NMT commands<br>1 – Start directly in operational mode<br>2 – Start in operational mode and send NMT for starting also other devices<br>3 – Start in operational mode and set PDS FSA to Enabled Mode. |

## 6.37 55AAh Start Bootloader

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 55AA | 0 | UINT8 | RW | No | 0-1 | 0 | Starts the bootloader if the value is 1 |

## 6.38 5B50h Change Baud Rate

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5B50 | 0 | UINT8 | RW | No | 0-8, except 5 | 4 | 125kBps by default. 5 is reserved for future use |

## *6.39 5B51h Change Node ID*

| Index | Subindex | Data Type | Access | PDO Mapping | Value Range | Default Value | Description |
|---|---|---|---|---|---|---|---|
| 5B51 | 0 | UINT8 | RW | No | 0-127 | 127 | Change the node ID |

# 7 CONTROLLER CONFIGURATION

The controller can be configured in two independent ways: through the Modbus or CAN interface.

## *7.1 Modbus Configuration*

The controller can be configured through the Modbus TCP interface using any third-party software tools.

The configuration parameters are grouped by the function blocks, see the MODBUS ADDRESS MAP section.

The controller checks configuration parameters for validity before accepting them and writing in a non-volatile memory. If a configuration parameter is invalid, the Modbus writing function will succeed, but the configuration parameter will not be written.

The controller will reset all relevant function blocks after each change of the configuration parameters. The exception is the *Ethernet* function block that maintains the Ethernet connection. The user will need to perform a manual reset by cycling the controller power to start using the new Ethernet settings.

Any changes in CAN function blocks through Modbus will restart CAN communication of the controller.

## *7.2 CANopen® Configuration*

The controller can be configured through the CANopen® standard using any third-party software tools.

The configuration of each parameter conducts via changing the value in the respective object. All available objects (communication, application, and manufacturer specific) are described in Sections 4,5, and 6. Additional information can be found in Section 3 as well.

*Note:* In this user manual it is considered that the customer obtains the knowledge about CANopen® standards. Additional information is available in CiA standards 301 and 404.

# 8 TECHNICAL SPECIFICATIONS

Specifications are stated at 25°C unless otherwise specified.

*Specifications are indicative and subject to change. Actual performance will vary depending on the application and operating conditions. Users should satisfy themselves that the product is suitable for use in the intended application. All our products carry a limited warranty against defects in material and workmanship. Please refer to our Warranty, Application Approvals/Limitations and Return Materials Process as described on https://www.axiomatic.com/service/.*

## *8.1 Power Supply*

*Table 24. Power Supply*

| Parameter | Value | Remarks |
|---|---|---|
| Supply Voltage | 8…36 VDC | 12V, 24V – nominal. |
| Supply Current | 50 mA<br>100 mA | Typical at 24V.<br>Typical at 12V. |
| Protection | Reverse polarity, Transients | |

## *8.2 Bipolar Inputs*

*Table 25. Bipolar Inputs*

<table>
<tr><th>Parameter</th><th>Value</th></tr>
<tr><td>Analog Input Modes</td><td>Voltage, Current</td></tr>
<tr><td>Voltage Input</td><td>
<table>
<tr><th>Input Range</th><th>Input Impedance</th><th>Resolution</th><th>Accuracy</th></tr>
<tr><td>0…5V</td><td rowspan="4">1 MOhm[1]</td><td><1.5mV</td><td>TBD</td></tr>
<tr><td>0…10V</td><td><3 mV</td><td>TBD</td></tr>
<tr><td>-5…5V</td><td><3 mV</td><td>TBD</td></tr>
<tr><td>-10…10V</td><td><6 mV</td><td>TBD</td></tr>
</table>
[1] 10kOhm LoZ option is available.
</td></tr>
<tr><td>Current Input</td><td>
<table>
<tr><th>Input Range</th><th>Input Impedance</th><th>Resolution</th><th>Accuracy</th></tr>
<tr><td>0…20mA</td><td rowspan="2">124Ohm</td><td rowspan="2"><12uA</td><td rowspan="2">TBD</td></tr>
<tr><td>4…20mA</td></tr>
</table>
</td></tr>
<tr><td>Analog Update Rate</td><td>1.67ms minimum[1]<br>[1] Depends on the analog filter settings</td></tr>
<tr><td>Digital Input Modes</td><td>Discrete Voltage Level, Frequency, PWM Duty Cycle</td></tr>
<tr><td>Input Polarity</td><td>Active High, Active Low</td></tr>
<tr><td>Input Impedance</td><td>1MOhm – High Z, 10kOhm pull down, 10kOhm pull-up to +14V</td></tr>
<tr><td>Input Level</td><td>5V CMOS Compatible. A direct connection to the power supply is acceptable.</td></tr>
<tr><td>Discrete Voltage Level Input</td><td>1ms sampling rate. Configurable debouncing</td></tr>
<tr><td>Frequency Input</td><td>
<table>
<tr><th>Input Number</th><th>Counter Resolution</th><th>Frequency Range</th><th>Resolution[1,2]</th><th>Accuracy</th></tr>
<tr><td>Bipolar Input #1</td><td>32-bit</td><td>1Hz…10kHz</td><td><0.0000012…0.012%</td><td rowspan="4"><0.01%</td></tr>
<tr><td rowspan="3">Bipolar Input #2</td><td rowspan="3">16-bit</td><td>100Hz…10kHz</td><td rowspan="3"><0.0017…0.17%</td></tr>
<tr><td>10Hz…1kHz</td></tr>
<tr><td>1Hz…100Hz</td></tr>
</table>
</td></tr>
<tr><td>PWM Duty Cycle Input</td><td>
<table>
<tr><th>Input Number</th><th>Counter Resolution</th><th>Frequency Range</th><th>Resolution[1,2]</th><th>Accuracy</th></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Parameter</th><th>Value</th></tr>
<tr><td></td><td>
<table>
<tr><td>Bipolar Input #1</td><td>32-bit</td><td>1Hz…10kHz</td><td><0.0000012…0.012%</td><td>TBD</td></tr>
<tr><td rowspan="3">Bipolar Input #2</td><td rowspan="3">16-bit</td><td>100Hz…10kHz</td><td rowspan="3"><0.0017…0.17%</td><td>TBD</td></tr>
<tr><td>10Hz…1kHz</td><td>TBD</td></tr>
<tr><td>1Hz…100Hz</td><td>TBD</td></tr>
</table>
0…100% Duty Cycle Range. DC is included.
</td></tr>
<tr><td>Protection</td><td>+/-36V maximum. Forward and reverse polarity protection</td></tr>
</table>

[1] The relative resolution value is linearly proportional to the signal frequency: 0.0000012% at 100Hz and 0.012% at 10kHz for the 32-bit counter.
[2] Resolution can be affected by the debouncing filter settings.

Notes:
CANopen® is a registered community trademark of CAN in Automation e.V.

## *8.3 Universal Inputs*

*Table 26. Universal Inputs*

<table>
<tr><th>Parameter</th><th>Value</th></tr>
<tr><td>Analog Input Modes</td><td>Voltage, Current, Resistance</td></tr>
<tr><td>Voltage Input</td><td>
<table>
<tr><th>Input Range</th><th>Input Impedance</th><th>Resolution</th><th>Accuracy</th></tr>
<tr><td>0…5V</td><td>>1MOhm (High Z)[1]</td><td><1.5mV</td><td>TBD</td></tr>
<tr><td>0…10V</td><td>204kOhm[1]</td><td><3 mV</td><td>TBD</td></tr>
</table>
[1]10kOhm LoZ option is available.
</td></tr>
<tr><td>Current Input</td><td>
<table>
<tr><th>Input Range</th><th>Input Impedance</th><th>Resolution</th><th>Accuracy</th></tr>
<tr><td>0…20mA</td><td rowspan="2">249Ohm</td><td rowspan="2"><12uA</td><td rowspan="2">TBD</td></tr>
<tr><td>4…20mA</td></tr>
</table>
</td></tr>
<tr><td>Resistance Input</td><td>
<table>
<tr><th>Input Range</th><th>Resolution</th><th>Accuracy</th></tr>
<tr><td>Auto Range 10…250kOhm[1,2]</td><td>–</td><td>–</td></tr>
<tr><td>0…250Ohm[2]</td><td><0.15 Ohm</td><td>TBD</td></tr>
<tr><td>0…2.5kOhm</td><td><1.5 Ohm</td><td>TBD</td></tr>
<tr><td>0…25kOhm</td><td><15 Ohm</td><td>TBD</td></tr>
<tr><td>0…250kOhm</td><td><150 Ohm</td><td>TBD</td></tr>
</table>
[1] Resolution and accuracy depend on the automatically selected Input Range.
[2] Resistance <10 Ohm is measured as 0.
</td></tr>
<tr><td>Analog Update Rate</td><td>1.67ms minimum[1].<br>[1] Depends on the analog filter settings. In resistive mode also depends on the number of resistive inputs.</td></tr>
<tr><td>Digital Input Modes</td><td>Discrete Voltage Level, Frequency, PWM Duty Cycle</td></tr>
<tr><td>Input Polarity</td><td>Active High, Active Low</td></tr>
<tr><td>Input Impedance</td><td>>1MOhm – High Z, 10kOhm pull down, 10kOhm pull-up to +14V</td></tr>
<tr><td>Input Level</td><td>5V CMOS Compatible. A direct connection to the power supply is acceptable.</td></tr>
<tr><td>Discrete Voltage Level Input</td><td>1ms sampling rate. Configurable debouncing</td></tr>
</table>

<table>
<tr><th>Parameter</th><th>Value</th></tr>
<tr><td>Frequency Input</td><td>
<table>
<tr><th>Input Number</th><th>Counter Resolution</th><th>Frequency Range</th><th>Resolution[1,2]</th><th>Accuracy</th></tr>
<tr><td rowspan="3">Universal Input #1…8</td><td rowspan="3">16-bit</td><td>100Hz…10kHz</td><td rowspan="3"><0.0017…0.17%</td><td rowspan="3"><0.01%</td></tr>
<tr><td>10Hz…1kHz</td></tr>
<tr><td>1Hz…100Hz</td></tr>
</table>
</td></tr>
<tr><td>PWM Duty Cycle Input</td><td>
<table>
<tr><th>Input Number</th><th>Counter Resolution</th><th>Frequency Range</th><th>Resolution[1,2]</th><th>Accuracy</th></tr>
<tr><td rowspan="3">Universal Input #1…8</td><td rowspan="3">16-bit</td><td>100Hz…10kHz</td><td rowspan="3"><0.0017…0.17%</td><td>TBD</td></tr>
<tr><td>10Hz…1kHz</td><td>TBD</td></tr>
<tr><td>1Hz…100Hz</td><td>TBD</td></tr>
</table>
0…100% Duty Cycle Range. DC is included.
</td></tr>
<tr><td>Protection</td><td>+36V maximum. Forward voltage only. No reverse polarity protection</td></tr>
</table>

[1] The relative resolution value is linearly proportional to the signal frequency: 0.0017% at 100Hz and 0.17% at 10kHz for the 16-bit counter.
[2] Resolution can be affected by the debouncing filter settings.

## *8.4 Voltage Reference Outputs*

*Table 27. Voltage Reference Outputs*

| Parameter | Value | Remarks |
|---|---|---|
| Number of Outputs | 2 | |
| Output Voltage | +5V | |
| Voltage tolerance | 1% | At 1mA |
| Supply Current | 100mA | Nominal |
| Protection | Short circuit | Connection to the power supply is prohibited. |

## *8.5 Ethernet Interface*

| Parameter | Value | Remarks |
|---|---|---|
| Number of Ports | 1 | Reading inputs, configuring the device. |
| Port Type | 10BASE-T, 100BASE-TX | 10 Mbit/s and 100Mbit/s Auto-configuration and full-duplex supported |
| MDIX | Auto-MDIX | Auto-crossover to eliminate cabling mismatch |
| LED Indicators | Speed/Link (Activity) | Yellow/Green |
| Protocols | Ethernet IEEE 802.3, IP, ICMP, ARP, UDP, TCP, Modbus TCP, Proprietary Discovery Protocol | Axiomatic Proprietary Discovery Protocol on port 35100 |
| Modbus TCP/IP | Server mode (slave device). Supported Function codes:<br>2, 4 — Reading Bipolar/Universal Inputs<br>3, 6, 16, 23 — Reading/Changing configuration parameters<br>43/14 — Reading controller ID, S/N on a private object 0x80 | Up to 8 simultaneous client connections |

## 8.6 CAN Interface

*Table 28. CAN Parameters*

| Parameter | Value | Remarks |
|---|---|---|
| Number of Ports | 1 | Reading inputs, configuring the device, updating firmware |
| LED Indicator | Error/Link (Activity) | Red/Green |
| Communication Standards | CANopen® | Full support for CANopen® |
| | Baud Rate | 10, 20, 50, 125, 250, 500, 800kbit/s, 1Mbit/s. |
| | ISO 11898 | 120Ohm terminated twisted pair, baud rate up to 1Mbit/s.<br>External 120Ohm termination is required. |
| | Bosch CAN protocol specification 2.0, Part A, B. | For the internal CAN controller. |
| Protection | Short circuit to ground | |
| | Connection to the power supply | Only for 12V systems, 24V max. |

## 8.7 General Specifications

*Table 29. General Specifications*

| Parameter | Value | Remarks |
|---|---|---|
| Internal Logic | User-Configurable | Interface<br>CANopen® – Third-party software<br>Modbus TCP – Third-party software |
| Firmware Update | In-system, through CANopen® | Axiomatic Electronic Assistant, P/N: AX070502.<br>Modbus TCP – currently not supported |
| LED Indicators | CAN/System | Red/Green – CAN or System error/CAN link(activity). Flashing green/red– bootloader mode. |
| | Ethernet | Yellow/Green – Ethernet speed/link(activity) |
| Operating Temperature | -40…+85 °C | Industrial temperature range |
| Environmental Protection | IP20 | EN 60259 |
| Housing | Phoenix Contact ME MAX 22,5 G 2-2 KMGY - 2713638 | Polyamide, Flammability V0 UL94, UL Recognized, EAC, China RoHS |
| Electrical Connectors | Phoenix Contact MCO 1,5/5-G1L-3,5 - 2278380 | J3 (Power/CAN/Ref#1), J5 (Bi/Univ Inputs) |
| | Phoenix Contact MCO 1,5/5-G1R-3,5 - 2278351 | J4 (Univ Inputs), J6 (Univ Inputs/Ref#2) |
| | RJ-45 | Ethernet, CAT5 (IEC 11801:2002) |
| Installation | DIN Rail TH35-7.5 or TH35-15 | EN 60715. Mounting Rail: 35 x 7.5mm or 35 x 15mm. |
| Size | 114.5 x 22.5 x 99 mm<br>(4.508 x 0.89 x 3.898 in) | L(D) x W x H. See dimensional drawing |
| | 107 mm<br>(4.213 in) | Depth from the top edge of DIN rail. See dimensional drawing |
| Weight | 0.136 kg (0.30 lb) | |
| Compliance | CE marking RoHS Directive | |

## 8.8 Enclosure

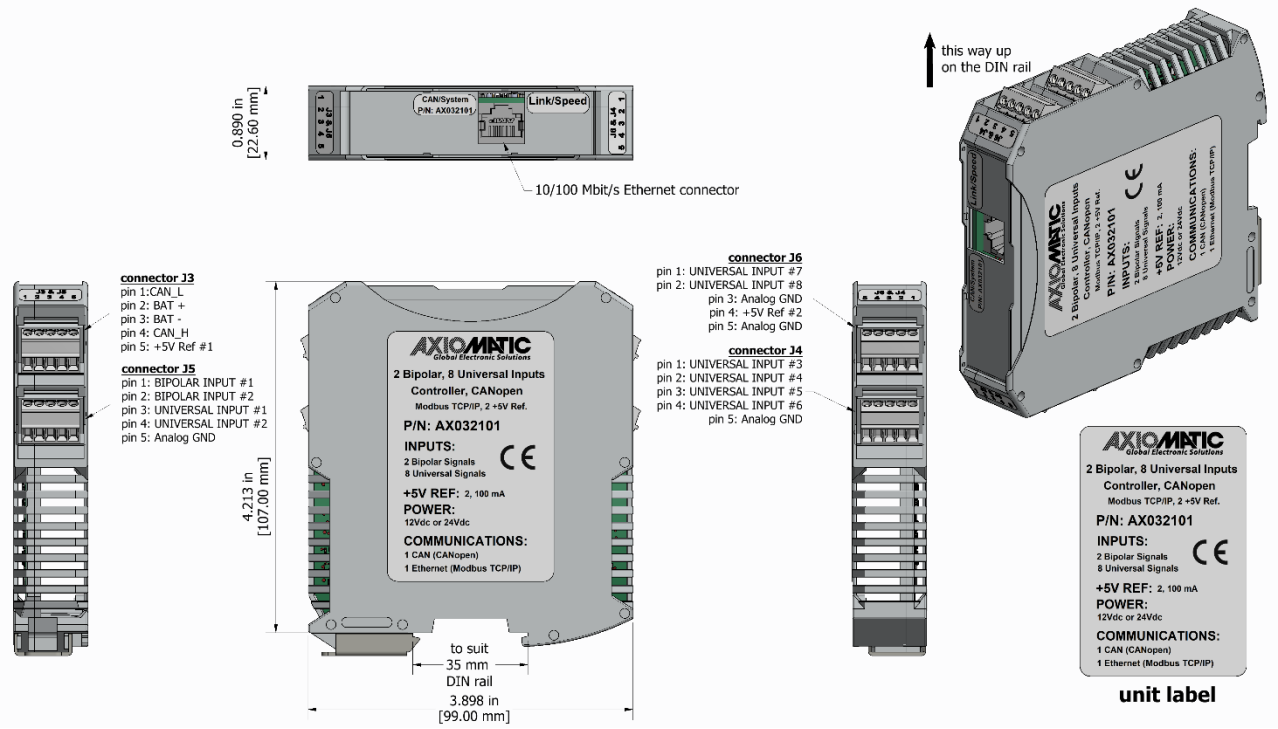


*Figure 14. Dimensional Drawing – AX032101*

## 8.9 Electrical Connections

The controller has four 5-pin electrical connectors (except Ethernet) with the following pinouts.

*Table 30. Connector Pinouts*

| Connector Pin Number | Connector Name | | | |
|---|---|---|---|---|
| | J3 (Power/CAN/Ref#1) | J5 (Bi/Univ Inputs) | J4 (Univ Inputs) | J6 (Univ Inputs/Ref#2) |
| 1 | CAN_L | Bipolar Input #1 | Universal Input #3 | Universal Input #7 |
| 2 | BAT+ | Bipolar Input #2 | Universal Input #4 | Universal Input #8 |
| 3 | BAT- | Universal Input #1 | Universal Input #5 | Analog GND |
| 4 | CAN_H | Universal Input #2 | Universal Input #6 | +5V Ref #2 |
| 5 | +5V Ref #1 | Analog GND | Analog GND | Analog GND |

Recommended mating connectors for J3…J6 are 5-pin 3.5 mm Phoenix Contact MC 1,5/5-ST-3,5 GY7035 – 1769087 screw terminal connectors with tension sleeves. They accept 28-16 AWG wires. A standard RJ-45 CAT5 or better plug can be used as a mating Ethernet connector.

## 8.10 Installation

For mechanical installation see information on the dimensional drawing. The CAN bus should be terminated on both sides with 120 Ohm resistors (0.25W minimum, metal film or similar type) between CAN_H and CAN_L.

## 9 MODBUS ADDRESS MAP

The following Modbus Address Map is used for the Modbus TCP communication with the controller.

*Table 31. Modbus Address Map*

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| ***Input Section*** | | | | | | | | | | |
| **Discrete Inputs** | | | | | | | | | | |
| 101025 | 1024 | 0x0400 | N/A | Bipolar Input #1 | Bit | N/A | 0…1 | State | RO | |
| 101026 | 1025 | 0x0401 | N/A | Bipolar Input #2 | Bit | N/A | 0…1 | State | RO | |
| 101027 | 1026 | 0x0402 | N/A | Universal Input #1 | Bit | N/A | 0…1 | State | RO | |
| 101028 | 1027 | 0x0403 | N/A | Universal Input #2 | Bit | N/A | 0…1 | State | RO | |
| 101029 | 1028 | 0x0404 | N/A | Universal Input #3 | Bit | N/A | 0…1 | State | RO | |
| 101030 | 1029 | 0x0405 | N/A | Universal Input #4 | Bit | N/A | 0…1 | State | RO | |
| 101031 | 1030 | 0x0406 | N/A | Universal Input #5 | Bit | N/A | 0…1 | State | RO | |
| 101032 | 1031 | 0x0407 | N/A | Universal Input #6 | Bit | N/A | 0…1 | State | RO | |
| 101033 | 1032 | 0x0408 | N/A | Universal Input #7 | Bit | N/A | 0…1 | State | RO | |
| 101034 | 1033 | 0x0409 | N/A | Universal Input #8 | Bit | N/A | 0…1 | State | RO | |
| **Discrete Inputs** | | | | | | | | | | |
| 301025 | 1024 | 0x0400 | 1 | Discrete Inputs | Bits | N/A | 0…0x3ff | 1 bit per input | RO | Bit 0 (LSB) - Bipolar Input #1,<br>Bit 1 -Bipolar Input #2,<br>Bit 2 - Universal Input #1,<br>...<br>Bit 9 - Universal Input #8.<br>When an input is not in "Discrete Voltage Level" mode, the input state is 0. |
| **Bipolar/Universal Inputs** | | | | | | | | | | |
| 301026 | 1025 | 0x0401 | 2 | Bipolar Input #1 | Float | N/A | See input config | See config | RO | |
| 301028 | 1027 | 0x0403 | 2 | Bipolar Input #2 | Float | N/A | See input config | See config | RO | |
| 301030 | 1029 | 0x0405 | 2 | Universal Input #1 | Float | N/A | See input config | See config | RO | |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 301032 | 1031 | 0x0407 | 2 | Universal Input #2 | Float | N/A | See input config | See config | RO | |
| 301034 | 1033 | 0x0409 | 2 | Universal Input #3 | Float | N/A | See input config | See config | RO | |
| 301036 | 1035 | 0x040B | 2 | Universal Input #4 | Float | N/A | See input config | See config | RO | |
| 301038 | 1037 | 0x040D | 2 | Universal Input #5 | Float | N/A | See input config | See config | RO | |
| 301040 | 1039 | 0x040F | 2 | Universal Input #6 | Float | N/A | See input config | See config | RO | |
| 301042 | 1041 | 0x0411 | 2 | Universal Input #7 | Float | N/A | See input config | See config | RO | |
| 301044 | 1043 | 0x0413 | 2 | Universal Input #8 | Float | N/A | See input config | See config | RO | |
| 301046 | 1045 | 0x0415 | 11 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0 |
| **Binary Function Outputs** | | | | | | | | | | |
| 301057 | 1056 | 0x0420 | 2 | Binary Function Output #1 | Float | N/A | N/A | N/A | RO | |
| 301059 | 1058 | 0x0422 | 2 | Binary Function Output #2 | Float | N/A | N/A | N/A | RO | |
| 301061 | 1060 | 0x0424 | 2 | Binary Function Output #3 | Float | N/A | N/A | N/A | RO | |
| 301063 | 1062 | 0x0426 | 2 | Binary Function Output #4 | Float | N/A | N/A | N/A | RO | |
| 301065 | 1064 | 0x0428 | 2 | Binary Function Output #5 | Float | N/A | N/A | N/A | RO | |
| 301067 | 1066 | 0x042A | 2 | Binary Function Output #6 | Float | N/A | N/A | N/A | RO | |
| 301069 | 1068 | 0x042C | 2 | Binary Function Output #7 | Float | N/A | N/A | N/A | RO | |
| 301071 | 1070 | 0x042E | 2 | Binary Function Output #8 | Float | N/A | N/A | N/A | RO | |
| 301073 | 1072 | 0x0430 | 2 | Binary Function Output #9 | Float | N/A | N/A | N/A | RO | |
| 301075 | 1074 | 0x0432 | 2 | Binary Function Output #10 | Float | N/A | N/A | N/A | RO | |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 301077 | 1076 | 0x0434 | 12 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0 |
| **CAN Inputs** | | | | | | | | | | |
| 301089 | 1088 | 0x0440 | 2 | CAN Input Signal #1 | Float | N/A | See input config | See In config | RO | |
| 301091 | 1090 | 0x0442 | 2 | CAN Input Signal #2 | Float | N/A | See input config | See In config | RO | |
| 301093 | 1092 | 0x0444 | 2 | CAN Input Signal #3 | Float | N/A | See input config | See In config | RO | |
| 301095 | 1094 | 0x0446 | 10 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0 |
| **Auxiliary Signals** | | | | | | | | | | |
| 301105 | 1104 | 0x0450 | 2 | Global Discrete Constant Signal | Dword | N/A | N/A | N/A | RO | Equals to the *Global Discrete Constant Signal* configuration parameter |
| 301107 | 1106 | 0x0452 | 2 | Global Continuous Constant Signal | Float | N/A | N/A | N/A | RO | Equals to the *Global Continuous Constant Signal* configuration parameter |
| 301109 | 1108 | 0x0454 | 2 | Global Constant Signal = 0 | Float | N/A | N/A | N/A | RO | Equals to zero |
| 301111 | 1110 | 0x0456 | 2 | Global Constant Signal = 1 | Float | N/A | N/A | N/A | RO | Equals to one |
| 301113 | 1112 | 0x0458 | 2 | Supply Voltage | Float | N/A | Not Rated | V | RO | Covers rated supply voltage range |
| 301115 | 1114 | 0x045A | 2 | Microcontroller Temperature | Float | N/A | Not Rated | Deg.C | RO | Covers rated temperature range |
| 301117 | 1116 | 0x045C | 4 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0 |
| ***Configuration Section*** | | | | | | | | | | |
| **Bipolar Input #1** | | | | | | | | | | |
| 401025 | 1024 | 0x0400 | 1 | Input Parameter | Byte | 1 - Voltage | 0 - Input Disabled,<br>1 - Voltage, | N/A | R/W | Defines the input parameter that will be measured by the input. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | 2 - Current,<br>3 - Resistance (not used),<br>4 - Discrete Voltage Level,<br>5 - Frequency,<br>6 - PWM Duty Cycle | | | "Resistance" is not used. Writing "Resistance" will disable the input. |
| 401026 | 1025 | 0x0401 | 1 | Voltage Range | Byte | 0 - 0…5V | 0 - 0…5 V,<br>1 - 0…10 V,<br>2 - -5…5 V,<br>3 - -10…10 V | V | R/W | Used when Input Parameter is "Voltage" |
| 401027 | 1026 | 0x0402 | 1 | Current Range | Byte | 0 - 0…20 mA | 0 - 0…20mA,<br>1 - 4…20 mA | mA | R/W | Used when Input Parameter is "Current" |
| 401028 | 1027 | 0x0403 | 1 | Resistance Range | Byte | 0 | 0 | N/A | RO | Not used in Bipolar Inputs.<br>Reading will always return 0, writing is allowed, but does not change the value. |
| 401029 | 1028 | 0x0404 | 1 | Voltage LoZ Input | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Activates a 10kOhm pull-down resistor to avoid ghost voltages in the "Voltage" mode.<br>Warning: Measurement accuracy will be decreased! |
| 401030 | 1029 | 0x0405 | 1 | Analog Input Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 50Hz Noise Rejection,<br>2 - 60Hz Noise Rejection,<br>3 - Both: 60Hz and 50Hz Noise Rejection | N/A | R/W | Noise Rejection in "Voltage" and "Current" mode. |
| 401031 | 1030 | 0x0406 | 1 | Pull-Up/Pull-Down Resistor | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 10kOhm Pull-Up, | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | 2 - 10kOhm Pull-Down | | | "PWM Duty Cycle" modes. |
| 401032 | 1031 | 0x0407 | 1 | Input Polarity | Byte | 0 - Active High | 0 - Active High,<br>1 - Active Low | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401033 | 1032 | 0x0408 | 1 | Discrete Input Debounce Time | Word | 50ms | 0…1000ms | ms | R/W | Used in "Discrete Voltage Level". If 0 - no debouncing. |
| 401034 | 1033 | 0x0409 | 1 | Frequency Range | Byte | 0 - 1Hz…10kHz | 0 - 1Hz…10kHz | Hz | R/W | One extended range is available due to 32bit counter.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401035 | 1034 | 0x040A | 1 | Frequency/PWM Debounce Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 142ns,<br>2 - 1.14us,<br>3 - 6.10us | N/A | R/W | Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401036 | 1035 | 0x040B | 1 | Frequency/PWM Averaging | Byte | 0 - No Averaging | 0 - No Averaging,<br>1 - 3 Readings,<br>2 - 5 Readings,<br>3 - 10 Readings | N/A | R/W | Defines a moving average filer used in "Frequency", and "PWM Duty Cycle" modes. |
| 401037 | 1036 | 0x040C | 20 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Bipolar Input #2** | | | | | | | | | | |
| 401057 | 1056 | 0x0420 | 1 | Input Parameter | Byte | 1 - Voltage | 0 - Input Disabled,<br>1 - Voltage,<br>2 - Current,<br>3 -Resistance (not used),<br>4 - Discrete Voltage Level, | N/A | R/W | Defines the input parameter that will be measured by the input. "Resistance" is not used. Writing "Resistance" will disable the input. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | 5 - Frequency,<br>6 - PWM Duty Cycle | | | |
| 401058 | 1057 | 0x0421 | 1 | Voltage Range | Byte | 0 - 0…5V | 0 - 0…5 V,<br>1 - 0…10 V,<br>2 - -5…5 V,<br>3 - -10…10 V | V | R/W | Used when Input Parameter is "Voltage" |
| 401059 | 1058 | 0x0422 | 1 | Current Range | Byte | 0 - 0…20 mA | 0 - 0…20mA,<br>1 - 4…20 mA | mA | R/W | Used when Input Parameter is "Current" |
| 401060 | 1059 | 0x0423 | 1 | Resistance Range | Byte | 0 | 0 | N/A | RO | Not used in Bipolar Inputs.<br>Reading will always return 0, writing is allowed, but does not change the value. |
| 401061 | 1060 | 0x0424 | 1 | Voltage LoZ Input | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Activates a 10kOhm pull-down resistor to avoid ghost voltages in the "Voltage" mode.<br>Warning: Measurement accuracy will be decreased! |
| 401062 | 1061 | 0x0425 | 1 | Analog Input Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 50Hz Noise Rejection,<br>2 - 60Hz Noise Rejection,<br>3 - Both: 60Hz and 50Hz Noise Rejection | N/A | R/W | Noise Rejection in "Voltage" and "Current" modes. |
| 401063 | 1062 | 0x0426 | 1 | Pull-Up/Pull-Down Resistor | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 10kOhm Pull-Up,<br>2 - 10 kOhm Pull-Down | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401064 | 1063 | 0x0427 | 1 | Input Polarity | Byte | 0 - Active High | 0 - Active High,<br>1 - Active Low | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | | | | "PWM Duty Cycle" modes. |
| 401065 | 1064 | 0x0428 | 1 | Discrete Input Debounce Time | Word | 50 | 0…1000ms | ms | R/W | Used in "Discrete Voltage Level". If 0 - no debouncing. |
| 401066 | 1065 | 0x0429 | 1 | Frequency Range | Byte | 0 - 100Hz…10kHz | 0 - 100Hz…10kHz,<br>1 - 10Hz…1kHz,<br>2 - 1Hz…100Hz | Hz | RO | A 16-bit shared counter is used. The parameter is configured in Universal Input #3. Writing is allowed but does not change the value. Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401067 | 1066 | 0x042A | 1 | Frequency/PWM Debounce Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 142ns,<br>2 - 1.14us,<br>3 - 6.10us | N/A | RO | The parameter is configured in Universal Input #3.<br>Writing is allowed but does not change the value. Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401068 | 1067 | 0x042B | 1 | Frequency/PWM Averaging | Byte | 0 - No Averaging | 0 - No Averaging,<br>1 - 3 Readings,<br>2 - 5 Readings,<br>3 - 10 Readings | N/A | R/W | Defines a moving average filter.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401069 | 1068 | 0x042C | 20 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Universal Input #1** | | | | | | | | | | |
| 401089 | 1088 | 0x0440 | 1 | Input Parameter | Byte | 1 - Voltage | 0 - Input Disabled,<br>1 - Voltage,<br>2 - Current, | N/A | R/W | Defines the input parameter that will be measured by the input. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | 3 -Resistance,<br>4 - Discrete Voltage Level,<br>5 - Frequency,<br>6 - PWM Duty Cycle | | | |
| 401090 | 1089 | 0x0441 | 1 | Voltage Range | Byte | 0 - 0…5V | 0 - 0…5 V,<br>1 - 0…10 V | V | R/W | Used when Input Parameter is "Voltage" |
| 401091 | 1090 | 0x0442 | 1 | Current Range | Byte | 0 - 0…20 mA | 0 - 0…20mA,<br>1 - 4…20 mA | mA | R/W | Used when Input Parameter is "Current" |
| 401092 | 1091 | 0x0443 | 1 | Resistance Range | Byte | 0 - Auto Range | 0 - Auto Range,<br>1 -0…250Ohm,<br>2-0…2.5kOhm,<br>3- 0…25kOhm,<br>4-0…250kOhm | Ohm | R/W | Used when Input Parameter is "Resistance" |
| 401093 | 1092 | 0x0444 | 1 | Voltage LoZ Input | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Activates a 10kOhm pull-down resistor to avoid ghost voltages in the "Voltage" mode. Warning: Measurement accuracy will be decreased! |
| 401094 | 1093 | 0x0445 | 1 | Analog Input Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 50Hz Noise Rejection,<br>2 - 60Hz Noise Rejection,<br>3 - Both: 60Hz and 50Hz Noise Rejection | N/A | R/W | Noise Rejection in "Voltage", "Current" and "Resistance" modes. |
| 401095 | 1094 | 0x0446 | 1 | Pull-Up/Pull-Down Resistor | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 10kOhm Pull-Up,<br>2 - 10 kOhm Pull-Down | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401096 | 1095 | 0x0447 | 1 | Input Polarity | Byte | 0 - Active High | 0 - Active High,<br>1 - Active Low | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | | | | "PWM Duty Cycle" modes. |
| 401097 | 1096 | 0x0448 | 1 | Discrete Input Debounce Time | Word | 50 | 0…1000ms | ms | R/W | Used in "Discrete Voltage Level". If 0 - no debouncing. |
| 401098 | 1097 | 0x0449 | 1 | Frequency Range | Byte | 0 - 100Hz…10kHz | 0 - 100Hz…10kHz,<br>1 - 10Hz…1kHz,<br>2 - 1Hz…100Hz | Hz | R/W | A 16-bit counter is shared with Universal Input #8.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401099 | 1098 | 0x044A | 1 | Frequency/PWM Debounce Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 142ns,<br>2 - 1.14us,<br>3 - 6.10us | N/A | R/W | Shared with Universal Input #8.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401100 | 1099 | 0x044B | 1 | Frequency/PWM Averaging | Byte | 0 - No Averaging | 0 - No Averaging,<br>1 - 3 Readings,<br>2 - 5 Readings,<br>3 - 10 Readings | N/A | R/W | Defines a moving average filter.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401101 | 1100 | 0x044C | 20 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Universal Input #2** | | | | | | | | | | |
| 401121 | 1120 | 0x0460 | 1 | Input Parameter | Byte | 1 - Voltage | 0 - Input Disabled,<br>1 - Voltage,<br>2 - Current,<br>3 -Resistance,<br>4 - Discrete Voltage Level,<br>5 - Frequency,<br>6 - PWM Duty Cycle | N/A | R/W | Defines the input parameter that will be measured by the input. |
| 401122 | 1121 | 0x0461 | 1 | Voltage Range | Byte | 0 - 0…5V | 0 - 0…5 V,<br>1 - 0…10 V | V | R/W | Used when Input Parameter is "Voltage" |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401123 | 1122 | 0x0462 | 1 | Current Range | Byte | 0 - 0…20 mA | 0 - 0…20mA,<br>1 - 4…20 mA | mA | R/W | Used when Input Parameter is "Current" |
| 401124 | 1123 | 0x0463 | 1 | Resistance Range | Byte | 0 - Auto Range | 0 - Auto Range,<br>1 -0…250Ohm,<br>2-0…2.5kOhm,<br>3- 0…25kOhm,<br>4-0…250kOhm | Ohm | R/W | Used when Input Parameter is "Resistance" |
| 401125 | 1124 | 0x0464 | 1 | Voltage LoZ Input | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Activates a 10kOhm pull-down resistor to avoid ghost voltages in the "Voltage" mode. Warning: Measurement accuracy will be decreased! |
| 401126 | 1125 | 0x0465 | 1 | Analog Input Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 50Hz Noise Rejection,<br>2 - 60Hz Noise Rejection,<br>3 - Both: 60Hz and 50Hz Noise Rejection | N/A | R/W | Noise Rejection in "Voltage", "Current" and "Resistance" modes. |
| 401127 | 1126 | 0x0466 | 1 | Pull-Up/Pull-Down Resistor | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 10kOhm Pull-Up,<br>2 - 10 kOhm Pull-Down | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401128 | 1127 | 0x0467 | 1 | Input Polarity | Byte | 0 - Active High | 0 - Active High,<br>1 - Active Low | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401129 | 1128 | 0x0468 | 1 | Discrete Input Debounce Time | Word | 50 | 0…1000ms | ms | R/W | Used in "Discrete Voltage Level". If 0 - no debouncing. |
| 401130 | 1129 | 0x0469 | 1 | Frequency Range | Byte | 0 - 100Hz…10kHz | 0 - 100Hz…10kHz,<br>1 - 10Hz…1kHz,<br>2 - 1Hz…100Hz | Hz | R/W | A 16-bit counter is shared with Universal Input #5.<br>Used in "Frequency", |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | | | | and "PWM Duty Cycle" modes. |
| 401131 | 1130 | 0x046A | 1 | Frequency/PWM Debounce Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 142ns,<br>2 - 1.14us,<br>3 - 6.10us | N/A | R/W | Shared with Universal Input #5.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401132 | 1131 | 0x046B | 1 | Frequency/PWM Averaging | Byte | 0 - No Averaging | 0 - No Averaging,<br>1 - 3 Readings,<br>2 - 5 Readings,<br>3 - 10 Readings | N/A | R/W | Defines a moving average filter.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401133 | 1132 | 0x046C | 20 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed, but does not change the value. |
| **Universal Input #3** | | | | | | | | | | |
| 401153 | 1152 | 0x0480 | 1 | Input Parameter | Byte | 1 - Voltage | 0 - Input Disabled,<br>1 - Voltage,<br>2 - Current,<br>3 -Resistance,<br>4 - Discrete Voltage Level,<br>5 - Frequency,<br>6 - PWM Duty Cycle | N/A | R/W | Defines the input parameter that will be measured by the input. |
| 401154 | 1153 | 0x0481 | 1 | Voltage Range | Byte | 0 - 0…5V | 0 - 0…5 V,<br>1 - 0…10 V | V | R/W | Used when Input Parameter is "Voltage" |
| 401155 | 1154 | 0x0482 | 1 | Current Range | Byte | 0 - 0…20 mA | 0 - 0…20mA,<br>1 - 4…20 mA | mA | R/W | Used when Input Parameter is "Current" |
| 401156 | 1155 | 0x0483 | 1 | Resistance Range | Byte | 0 - Auto Range | 0 - Auto Range,<br>1 -0…250Ohm,<br>2-0…2.5kOhm,<br>3- 0…25kOhm,<br>4-0…250kOhm | Ohm | R/W | Used when Input Parameter is "Resistance" |
| 401157 | 1156 | 0x0484 | 1 | Voltage LoZ Input | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Activates a 10kOhm pull-down resistor to |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | | | | avoid ghost voltages in the "Voltage" mode. Warning: Measurement accuracy will be decreased! |
| 401158 | 1157 | 0x0485 | 1 | Analog Input Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 50Hz Noise Rejection,<br>2 - 60Hz Noise Rejection,<br>3 - Both: 60Hz and 50Hz Noise Rejection | N/A | R/W | Noise Rejection in "Voltage", "Current" and "Resistance" modes. |
| 401159 | 1158 | 0x0486 | 1 | Pull-Up/Pull-Down Resistor | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 10kOhm Pull-Up,<br>2 - 10 kOhm Pull-Down | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401160 | 1159 | 0x0487 | 1 | Input Polarity | Byte | 0 - Active High | 0 - Active High,<br>1 - Active Low | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401161 | 1160 | 0x0488 | 1 | Discrete Input Debounce Time | Word | 50 | 0…1000ms | ms | R/W | Used in "Discrete Voltage Level". If 0 - no debouncing. |
| 401162 | 1161 | 0x0489 | 1 | Frequency Range | Byte | 0 - 100Hz…10kHz | 0 - 100Hz…10kHz,<br>1 - 10Hz…1kHz,<br>2 - 1Hz…100Hz | Hz | R/W | A 16-bit counter is shared with Bipolar Input #2.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401163 | 1162 | 0x048A | 1 | Frequency/PWM Debounce Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 142ns,<br>2 - 1.14us,<br>3 - 6.10us | N/A | R/W | Shared with Bipolar Input #2.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401164 | 1163 | 0x048B | 1 | Frequency/PWM Averaging | Byte | 0 - No Averaging | 0 - No Averaging,<br>1 - 3 Readings, | N/A | R/W | Defines a moving average filter. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | 2 - 5 Readings,<br>3 - 10 Readings | | | Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401165 | 1164 | 0x048C | 20 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Universal Input #4** | | | | | | | | | | |
| 401185 | 1184 | 0x04A0 | 1 | Input Parameter | Byte | 1 - Voltage | 0 - Input Disabled,<br>1 - Voltage,<br>2 - Current,<br>3 -Resistance,<br>4 - Discrete Voltage Level,<br>5 - Frequency,<br>6 - PWM Duty Cycle | N/A | R/W | Defines the input parameter that will be measured by the input. |
| 401186 | 1185 | 0x04A1 | 1 | Voltage Range | Byte | 0 - 0…5V | 0 - 0…5 V,<br>1 - 0…10 V | V | R/W | Used when Input Parameter is "Voltage" |
| 401187 | 1186 | 0x04A2 | 1 | Current Range | Byte | 0 - 0…20 mA | 0 - 0…20mA,<br>1 - 4…20 mA | mA | R/W | Used when Input Parameter is "Current" |
| 401188 | 1187 | 0x04A3 | 1 | Resistance Range | Byte | 0 - Auto Range | 0 - Auto Range,<br>1 -0…250Ohm,<br>2-0…2.5kOhm,<br>3 -0…25kOhm,<br>4-0…250kOhm | Ohm | R/W | Used when Input Parameter is "Resistance" |
| 401189 | 1188 | 0x04A4 | 1 | Voltage LoZ Input | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Activates a 10kOhm pull-down resistor to avoid ghost voltages in the "Voltage" mode. Warning: Measurement accuracy will be decreased! |
| 401190 | 1189 | 0x04A5 | 1 | Analog Input Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 50Hz Noise Rejection,<br>2 - 60Hz Noise | N/A | R/W | Noise Rejection in "Voltage", "Current" and "Resistance" modes. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | Rejection,<br>3 - Both: 60Hz and 50Hz Noise Rejection | | | |
| 401191 | 1190 | 0x04A6 | 1 | Pull-Up/Pull-Down Resistor | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 10kOhm Pull-Up,<br>2 - 10 kOhm Pull-Down | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401192 | 1191 | 0x04A7 | 1 | Input Polarity | Byte | 0 - Active High | 0 - Active High,<br>1 - Active Low | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401193 | 1192 | 0x04A8 | 1 | Discrete Input Debounce Time | Word | 50 | 0…1000ms | ms | R/W | Used in "Discrete Voltage Level". If 0 - no debouncing. |
| 401194 | 1193 | 0x04A9 | 1 | Frequency Range | Byte | 0 - 100Hz…10kHz | 0 - 100Hz…10kHz,<br>1 - 10Hz…1kHz,<br>2 - 1Hz…100Hz | Hz | R/W | A 16-bit counter is used.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401195 | 1194 | 0x04AA | 1 | Frequency/PWM Debounce Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 142ns,<br>2 - 1.14us,<br>3 - 6.10us | N/A | R/W | Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401196 | 1195 | 0x04AB | 1 | Frequency/PWM Averaging | Byte | 0 - No Averaging | 0 - No Averaging,<br>1 - 3 Readings,<br>2 - 5 Readings,<br>3 - 10 Readings | N/A | R/W | Defines a moving average filter.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401197 | 1196 | 0x04AC | 20 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Universal Input #5** | | | | | | | | | | |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401217 | 1216 | 0x04C0 | 1 | Input Parameter | Byte | 1 - Voltage | 0 - Input Disabled,<br>1 - Voltage,<br>2 - Current,<br>3 -Resistance,<br>4 - Discrete Voltage Level,<br>5 - Frequency,<br>6 - PWM Duty Cycle | N/A | R/W | Defines the input parameter that will be measured by the input. |
| 401218 | 1217 | 0x04C1 | 1 | Voltage Range | Byte | 0 - 0…5V | 0 - 0…5 V,<br>1 - 0…10 V | V | R/W | Used when Input Parameter is "Voltage" |
| 401219 | 1218 | 0x04C2 | 1 | Current Range | Byte | 0 - 0…20 mA | 0 - 0…20mA,<br>1 - 4…20 mA | mA | R/W | Used when Input Parameter is "Current" |
| 401220 | 1219 | 0x04C3 | 1 | Resistance Range | Byte | 0 - Auto Range | 0 - Auto Range,<br>1 -0…250Ohm,<br>2-0…2.5kOhm,<br>3- 0…25kOhm,<br>4-0…250kOhm | Ohm | R/W | Used when Input Parameter is "Resistance" |
| 401221 | 1220 | 0x04C4 | 1 | Voltage LoZ Input | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Activates a 10kOhm pull-down resistor to avoid ghost voltages in the "Voltage" mode. Warning: Measurement accuracy will be decreased! |
| 401222 | 1221 | 0x04C5 | 1 | Analog Input Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 50Hz Noise Rejection,<br>2 - 60Hz Noise Rejection,<br>3 - Both: 60Hz and 50Hz Noise Rejection | N/A | R/W | Noise Rejection in "Voltage", "Current" and "Resistance" modes. |
| 401223 | 1222 | 0x04C6 | 1 | Pull-Up/Pull-Down Resistor | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 10kOhm Pull-Up,<br>2 - 10 kOhm Pull-Down | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401224 | 1223 | 0x04C7 | 1 | Input Polarity | Byte | 0 - Active High | 0 - Active High,<br>1 - Active Low | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401225 | 1224 | 0x04C8 | 1 | Discrete Input Debounce Time | Word | 50 | 0…1000ms | ms | R/W | Used in "Discrete Voltage Level". If 0 - no debouncing. |
| 401226 | 1225 | 0x04C9 | 1 | Frequency Range | Byte | 0 - 100Hz…10kHz | 0 - 100Hz…10kHz,<br>1 - 10Hz…1kHz,<br>2 - 1Hz…100Hz | Hz | RO | A 16-bit shared counter is used. The parameter is configured in Universal Input #2. Writing is allowed but does not change the value. Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401227 | 1226 | 0x04CA | 1 | Frequency/PWM Debounce Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 142ns,<br>2 - 1.14us,<br>3 - 6.10us | N/A | RO | The parameter is configured in Universal Input #2.<br>Writing is allowed but does not change the value. Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401228 | 1227 | 0x04CB | 1 | Frequency/PWM Averaging | Byte | 0 - No Averaging | 0 - No Averaging,<br>1 - 3 Readings,<br>2 - 5 Readings,<br>3 - 10 Readings | N/A | R/W | Defines a moving average filter.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401229 | 1228 | 0x04CC | 20 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Universal Input #6** | | | | | | | | | | |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401249 | 1248 | 0x04E0 | 1 | Input Parameter | Byte | 1 - Voltage | 0 - Input Disabled,<br>1 - Voltage,<br>2 - Current,<br>3 -Resistance,<br>4 - Discrete Voltage Level,<br>5 - Frequency,<br>6 - PWM Duty Cycle | N/A | R/W | Defines the input parameter that will be measured by the input. |
| 401250 | 1249 | 0x04E1 | 1 | Voltage Range | Byte | 0 - 0…5V | 0 - 0…5 V,<br>1 - 0…10 V | V | R/W | Used when Input Parameter is "Voltage" |
| 401251 | 1250 | 0x04E2 | 1 | Current Range | Byte | 0 - 0…20 mA | 0 - 0…20mA,<br>1 - 4…20 mA | mA | R/W | Used when Input Parameter is "Current" |
| 401252 | 1251 | 0x04E3 | 1 | Resistance Range | Byte | 0 - Auto Range | 0 - Auto Range,<br>1 -0…250Ohm,<br>2-0…2.5kOhm,<br>3 -0…25kOhm,<br>4-0…250kOhm | Ohm | R/W | Used when Input Parameter is "Resistance" |
| 401253 | 1252 | 0x04E4 | 1 | Voltage LoZ Input | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Activates a 10kOhm pull-down resistor to avoid ghost voltages in the "Voltage" mode. Warning: Measurement accuracy will be decreased! |
| 401254 | 1253 | 0x04E5 | 1 | Analog Input Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 50Hz Noise Rejection,<br>2 - 60Hz Noise Rejection,<br>3 - Both: 60Hz and 50Hz Noise Rejection | N/A | R/W | Noise Rejection in "Voltage", "Current" and "Resistance" modes. |
| 401255 | 1254 | 0x04E6 | 1 | Pull-Up/Pull-Down Resistor | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 10kOhm Pull-Up,<br>2 - 10 kOhm Pull-Down | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401256 | 1255 | 0x04E7 | 1 | Input Polarity | Byte | 0 - Active High | 0 - Active High,<br>1 - Active Low | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401257 | 1256 | 0x04E8 | 1 | Discrete Input Debounce Time | Word | 50 | 0…1000ms | ms | R/W | Used in "Discrete Voltage Level". If 0 - no debouncing. |
| 401258 | 1257 | 0x04E9 | 1 | Frequency Range | Byte | 0 - 100Hz…10kHz | 0 - 100Hz…10kHz,<br>1 - 10Hz…1kHz,<br>2 - 1Hz…100Hz | Hz | R/W | A 16-bit counter is used.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401259 | 1258 | 0x04EA | 1 | Frequency/PWM Debounce Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 142ns,<br>2 - 1.14us,<br>3 - 6.10us | N/A | R/W | Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401260 | 1259 | 0x04EB | 1 | Frequency/PWM Averaging | Byte | 0 - No Averaging | 0 - No Averaging,<br>1 - 3 Readings,<br>2 - 5 Readings,<br>3 - 10 Readings | N/A | R/W | Defines a moving average filter.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401261 | 1260 | 0x04EC | 20 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Universal Input #7** | | | | | | | | | | |
| 401281 | 1280 | 0x0500 | 1 | Input Parameter | Byte | 1 - Voltage | 0 - Input Disabled,<br>1 - Voltage,<br>2 - Current,<br>3 -Resistance,<br>4 - Discrete Voltage Level,<br>5 - Frequency,<br>6 - PWM Duty Cycle | N/A | R/W | Defines the input parameter that will be measured by the input. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401282 | 1281 | 0x0501 | 1 | Voltage Range | Byte | 0 - 0…5V | 0 - 0…5 V,<br>1 - 0…10 V | V | R/W | Used when Input Parameter is "Voltage" |
| 401283 | 1282 | 0x0502 | 1 | Current Range | Byte | 0 - 0…20 mA | 0 - 0…20mA,<br>1 - 4…20 mA | mA | R/W | Used when Input Parameter is "Current" |
| 401284 | 1283 | 0x0503 | 1 | Resistance Range | Byte | 0 - Auto Range | 0 - Auto Range,<br>1- 0…250Ohm,<br>2-0…2.5kOhm,<br>3 -0…25kOhm,<br>4-0…250kOhm | Ohm | R/W | Used when Input Parameter is "Resistance" |
| 401285 | 1284 | 0x0504 | 1 | Voltage LoZ Input | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Activates a 10kOhm pull-down resistor to avoid ghost voltages in the "Voltage" mode. Warning: Measurement accuracy will be decreased! |
| 401286 | 1285 | 0x0505 | 1 | Analog Input Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 50Hz Noise Rejection,<br>2 - 60Hz Noise Rejection,<br>3 - Both: 60Hz and 50Hz Noise Rejection | N/A | R/W | Noise Rejection in "Voltage", "Current" and "Resistance" modes. |
| 401287 | 1286 | 0x0506 | 1 | Pull-Up/Pull-Down Resistor | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 10kOhm Pull-Up,<br>2 - 10 kOhm Pull-Down | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401288 | 1287 | 0x0507 | 1 | Input Polarity | Byte | 0 - Active High | 0 - Active High,<br>1 - Active Low | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401289 | 1288 | 0x0508 | 1 | Discrete Input Debounce Time | Word | 50 | 0…1000ms | ms | R/W | Used in "Discrete Voltage Level". If 0 - no debouncing. |
| 401290 | 1289 | 0x0509 | 1 | Frequency Range | Byte | 0 - 100Hz…10kHz | 0 - 100Hz…10kHz, | Hz | R/W | A 16-bit counter is used. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | 1 - 10Hz…1kHz,<br>2 - 1Hz…100Hz | | | Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401291 | 1290 | 0x050A | 1 | Frequency/PWM Debounce Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 142ns,<br>2 - 1.14us,<br>3 - 6.10us | N/A | R/W | Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401292 | 1291 | 0x050B | 1 | Frequency/PWM Averaging | Byte | 0 - No Averaging | 0 - No Averaging,<br>1 - 3 Readings,<br>2 - 5 Readings,<br>3 - 10 Readings | N/A | R/W | Defines a moving average filter.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401293 | 1292 | 0x050C | 20 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Universal Input #8** | | | | | | | | | | |
| 401313 | 1312 | 0x0520 | 1 | Input Parameter | Byte | 1 - Voltage | 0 - Input Disabled,<br>1 - Voltage,<br>2 - Current,<br>3 -Resistance,<br>4 - Discrete Voltage Level,<br>5 - Frequency,<br>6 - PWM Duty Cycle | N/A | R/W | Defines the input parameter that will be measured by the input. |
| 401314 | 1313 | 0x0521 | 1 | Voltage Range | Byte | 0 - 0…5V | 0 - 0…5 V,<br>1 - 0…10 V | V | R/W | Used when Input Parameter is "Voltage" |
| 401315 | 1314 | 0x0522 | 1 | Current Range | Byte | 0 - 0…20 mA | 0 - 0…20mA,<br>1 - 4…20 mA | mA | R/W | Used when Input Parameter is "Current" |
| 401316 | 1315 | 0x0523 | 1 | Resistance Range | Byte | 0 - Auto Range | 0 - Auto Range,<br>1 -0…250Ohm,<br>2-0…2.5kOhm,<br>3- 0…25kOhm,<br>4-0…250kOhm | Ohm | R/W | Used when Input Parameter is "Resistance" |
| 401317 | 1316 | 0x0524 | 1 | Voltage LoZ Input | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Activates a 10kOhm pull-down resistor to |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | | | | avoid ghost voltages in the "Voltage" mode. Warning: Measurement accuracy will be decreased! |
| 401318 | 1317 | 0x0525 | 1 | Analog Input Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 50Hz Noise Rejection,<br>2 - 60Hz Noise Rejection,<br>3 - Both: 60Hz and 50Hz Noise Rejection | N/A | R/W | Noise Rejection in "Voltage", "Current" and "Resistance" modes. |
| 401319 | 1318 | 0x0526 | 1 | Pull-Up/Pull-Down Resistor | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 10kOhm Pull-Up,<br>2 - 10 kOhm Pull-Down | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401320 | 1319 | 0x0527 | 1 | Input Polarity | Byte | 0 - Active High | 0 - Active High,<br>1 - Active Low | N/A | R/W | Used in "Discrete Voltage Level", "Frequency", and "PWM Duty Cycle" modes. |
| 401321 | 1320 | 0x0528 | 1 | Discrete Input Debounce Time | Word | 50 | 0…1000ms | ms | R/W | Used in "Discrete Voltage Level". If 0 - no debouncing. |
| 401322 | 1321 | 0x0529 | 1 | Frequency Range | Byte | 0 - 100Hz…10kHz | 0 - 100Hz…10kHz,<br>1 - 10Hz…1kHz,<br>2 - 1Hz…100Hz | Hz | RO | A 16-bit shared counter is used. The parameter is configured in Universal Input #1. Writing is allowed but does not change the value. Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401323 | 1322 | 0x052A | 1 | Frequency/PWM Debounce Filter | Byte | 0 - Disabled | 0 - Disabled,<br>1 - 142ns, | N/A | RO | The parameter is configured in Universal Input #1. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | 2 - 1.14us,<br>3 - 6.10us | | | Writing is allowed but does not change the value. Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401324 | 1323 | 0x052B | 1 | Frequency/PWM Averaging | Byte | 0 - No Averaging | 0 - No Averaging,<br>1 - 3 Readings,<br>2 - 5 Readings,<br>3 - 10 Readings | N/A | R/W | Defines a moving average filter.<br>Used in "Frequency", and "PWM Duty Cycle" modes. |
| 401325 | 1324 | 0x052C | 20 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Binary Function #1** | | | | | | | | | | |
| 401345 | 1344 | 0x0540 | 1 | Binary Function | Byte | 0 - Undefined | See Table 20. Binary Functions | N/A | R/W | F[x;y] – Binary function |
| 401346 | 1345 | 0x0541 | 2 | Output Scale | Float | 1 | Any value | N/A | R/W | A – Output Scale |
| 401348 | 1347 | 0x0543 | 2 | Output Offset | Float | 0 | Any value | N/A | R/W | B – Output Offset |
| 401350 | 1349 | 0x0545 | 1 | Input #1 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X1 – Input Signal #1 |
| 401351 | 1350 | 0x0546 | 1 | Input #1 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X1 is defined. |
| 401352 | 1351 | 0x0547 | 2 | Input #1 Signal Default Value | Float | 0 | Any value | N/A | R/W | X1 default value, if Input #1 Signal Default is "Yes". |
| 401354 | 1353 | 0x0549 | 1 | Unary Function #1 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f1(x) – Unary function #1 |
| 401355 | 1354 | 0x054A | 2 | Scale #1 | Float | 1 | Any value | N/A | R/W | a1 – Scale #1 |
| 401357 | 1356 | 0x054C | 2 | Offset #1 | Float | 0 | Any value | N/A | R/W | b1 – Offset #1 |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401359 | 1358 | 0x054E | 1 | Input #2 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X2 – Input Signal #2 |
| 401360 | 1359 | 0x054F | 1 | Input #2 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X2 is defined. |
| 401361 | 1360 | 0x0550 | 2 | Input #2 Signal Default Value | Float | 0 | Any value | N/A | R/W | X2 default value, if Input #2 Signal Default is Yes. |
| 401363 | 1362 | 0x0552 | 1 | Unary Function #2 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f2(x) – Unary function #2 |
| 401364 | 1363 | 0x0553 | 2 | Scale #2 | Float | 1 | Any value | N/A | R/W | a2 – Scale #2 |
| 401366 | 1365 | 0x0555 | 2 | Offset #2 | Float | 0 | Any value | N/A | R/W | b2 – Offset #2 |
| 401368 | 1367 | 0x0557 | 9 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Binary Function #2** | | | | | | | | | | |
| 401377 | 1376 | 0x0560 | 1 | Binary Function | Byte | 0 - Undefined | See Table 20. Binary Functions | N/A | R/W | F[x;y] – Binary function |
| 401378 | 1377 | 0x0561 | 2 | Output Scale | Float | 1 | Any value | N/A | R/W | A – Output Scale |
| 401380 | 1379 | 0x0563 | 2 | Output Offset | Float | 0 | Any value | N/A | R/W | B – Output Offset |
| 401382 | 1381 | 0x0565 | 1 | Input #1 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X1 – Input Signal #1 |
| 401383 | 1382 | 0x0566 | 1 | Input #1 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X1 is defined. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401384 | 1383 | 0x0567 | 2 | Input #1 Signal Default Value | Float | 0 | Any value | N/A | R/W | X1 default value, if Input #1 Signal Default is "Yes". |
| 401386 | 1385 | 0x0569 | 1 | Unary Function #1 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f1(x) – Unary function #1 |
| 401387 | 1386 | 0x056A | 2 | Scale #1 | Float | 1 | Any value | N/A | R/W | a1 – Scale #1 |
| 401389 | 1388 | 0x056C | 2 | Offset #1 | Float | 0 | Any value | N/A | R/W | b1 – Offset #1 |
| 401391 | 1390 | 0x056E | 1 | Input #2 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X2 – Input Signal #2 |
| 401392 | 1391 | 0x056F | 1 | Input #2 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X2 is defined. |
| 401393 | 1392 | 0x0570 | 2 | Input #2 Signal Default Value | Float | 0 | Any value | N/A | R/W | X2 default value, if Input #2 Signal Default is Yes. |
| 401395 | 1394 | 0x0572 | 1 | Unary Function #2 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f2(x) – Unary function #2 |
| 401396 | 1395 | 0x0573 | 2 | Scale #2 | Float | 1 | Any value | N/A | R/W | a2 – Scale #2 |
| 401398 | 1397 | 0x0575 | 2 | Offset #2 | Float | 0 | Any value | N/A | R/W | b2 – Offset #2 |
| 401400 | 1399 | 0x0577 | 9 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Binary Function #3** | | | | | | | | | | |
| 401409 | 1408 | 0x0580 | 1 | Binary Function | Byte | 0 - Undefined | See Table 20. Binary Functions | N/A | R/W | F[x;y] – Binary function |
| 401410 | 1409 | 0x0581 | 2 | Output Scale | Float | 1 | Any value | N/A | R/W | A – Output Scale |
| 401412 | 1411 | 0x0583 | 2 | Output Offset | Float | 0 | Any value | N/A | R/W | B – Output Offset |
| 401414 | 1413 | 0x0585 | 1 | Input #1 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. | N/A | R/W | X1 – Input Signal #1 |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | Controller Signal Sources | | | |
| 401415 | 1414 | 0x0586 | 1 | Input #1 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X1 is defined. |
| 401416 | 1415 | 0x0587 | 2 | Input #1 Signal Default Value | Float | 0 | Any value | N/A | R/W | X1 default value, if Input #1 Signal Default is "Yes". |
| 401418 | 1417 | 0x0589 | 1 | Unary Function #1 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f1(x) – Unary function #1 |
| 401419 | 1418 | 0x058A | 2 | Scale #1 | Float | 1 | Any value | N/A | R/W | a1 – Scale #1 |
| 401421 | 1420 | 0x058C | 2 | Offset #1 | Float | 0 | Any value | N/A | R/W | b1 – Offset #1 |
| 401423 | 1422 | 0x058E | 1 | Input #2 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X2 – Input Signal #2 |
| 401424 | 1423 | 0x058F | 1 | Input #2 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X2 is defined. |
| 401425 | 1424 | 0x0590 | 2 | Input #2 Signal Default Value | Float | 0 | Any value | N/A | R/W | X2 default value, if Input #2 Signal Default is Yes. |
| 401427 | 1426 | 0x0592 | 1 | Unary Function #2 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f2(x) – Unary function #2 |
| 401428 | 1427 | 0x0593 | 2 | Scale #2 | Float | 1 | Any value | N/A | R/W | a2 – Scale #2 |
| 401430 | 1429 | 0x0595 | 2 | Offset #2 | Float | 0 | Any value | N/A | R/W | b2 – Offset #2 |
| 401432 | 1431 | 0x0597 | 9 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Binary Function #4** | | | | | | | | | | |
| 401441 | 1440 | 0x05A0 | 1 | Binary Function | Byte | 0 - Undefined | See Table 20. Binary Functions | N/A | R/W | F[x;y] – Binary function |
| 401442 | 1441 | 0x05A1 | 2 | Output Scale | Float | 1 | Any value | N/A | R/W | A – Output Scale |
| 401444 | 1443 | 0x05A3 | 2 | Output Offset | Float | 0 | Any value | N/A | R/W | B – Output Offset |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401446 | 1445 | 0x05A5 | 1 | Input #1 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X1 – Input Signal #1 |
| 401447 | 1446 | 0x05A6 | 1 | Input #1 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X1 is defined. |
| 401448 | 1447 | 0x05A7 | 2 | Input #1 Signal Default Value | Float | 0 | Any value | N/A | R/W | X1 default value, if Input #1 Signal Default is "Yes". |
| 401450 | 1449 | 0x05A9 | 1 | Unary Function #1 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f1(x) – Unary function #1 |
| 401451 | 1450 | 0x05AA | 2 | Scale #1 | Float | 1 | Any value | N/A | R/W | a1 – Scale #1 |
| 401453 | 1452 | 0x05AC | 2 | Offset #1 | Float | 0 | Any value | N/A | R/W | b1 – Offset #1 |
| 401455 | 1454 | 0x05AE | 1 | Input #2 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X2 – Input Signal #2 |
| 401456 | 1455 | 0x05AF | 1 | Input #2 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X2 is defined. |
| 401457 | 1456 | 0x05B0 | 2 | Input #2 Signal Default Value | Float | 0 | Any value | N/A | R/W | X2 default value, if Input #2 Signal Default is Yes. |
| 401459 | 1458 | 0x05B2 | 1 | Unary Function #2 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f2(x) – Unary function #2 |
| 401460 | 1459 | 0x05B3 | 2 | Scale #2 | Float | 1 | Any value | N/A | R/W | a2 – Scale #2 |
| 401462 | 1461 | 0x05B5 | 2 | Offset #2 | Float | 0 | Any value | N/A | R/W | b2 – Offset #2 |
| 401464 | 1463 | 0x05B7 | 9 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| **Binary Function #5** | | | | | | | | | | |
| 401473 | 1472 | 0x05C0 | 1 | Binary Function | Byte | 0 - Undefined | See Table 20. Binary Functions | N/A | R/W | F[x;y] – Binary function |
| 401474 | 1473 | 0x05C1 | 2 | Output Scale | Float | 1 | Any value | N/A | R/W | A – Output Scale |
| 401476 | 1475 | 0x05C3 | 2 | Output Offset | Float | 0 | Any value | N/A | R/W | B – Output Offset |
| 401478 | 1477 | 0x05C5 | 1 | Input #1 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X1 – Input Signal #1 |
| 401479 | 1478 | 0x05C6 | 1 | Input #1 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X1 is defined. |
| 401480 | 1479 | 0x05C7 | 2 | Input #1 Signal Default Value | Float | 0 | Any value | N/A | R/W | X1 default value, if Input #1 Signal Default is "Yes". |
| 401482 | 1481 | 0x05C9 | 1 | Unary Function #1 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f1(x) – Unary function #1 |
| 401483 | 1482 | 0x05CA | 2 | Scale #1 | Float | 1 | Any value | N/A | R/W | a1 – Scale #1 |
| 401485 | 1484 | 0x05CC | 2 | Offset #1 | Float | 0 | Any value | N/A | R/W | b1 – Offset #1 |
| 401487 | 1486 | 0x05CE | 1 | Input #2 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X2 – Input Signal #2 |
| 401488 | 1487 | 0x05CF | 1 | Input #2 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X2 is defined. |
| 401489 | 1488 | 0x05D0 | 2 | Input #2 Signal Default Value | Float | 0 | Any value | N/A | R/W | X2 default value, if Input #2 Signal Default is Yes. |
| 401491 | 1490 | 0x05D2 | 1 | Unary Function #2 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f2(x) – Unary function #2 |
| 401492 | 1491 | 0x05D3 | 2 | Scale #2 | Float | 1 | Any value | N/A | R/W | a2 – Scale #2 |
| 401494 | 1493 | 0x05D5 | 2 | Offset #2 | Float | 0 | Any value | N/A | R/W | b2 – Offset #2 |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401496 | 1495 | 0x05D7 | 9 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Binary Function #6** | | | | | | | | | | |
| 401505 | 1504 | 0x05E0 | 1 | Binary Function | Byte | 0 - Undefined | See Table 20. Binary Functions | N/A | R/W | F[x;y] – Binary function |
| 401506 | 1505 | 0x05E1 | 2 | Output Scale | Float | 1 | Any value | N/A | R/W | A – Output Scale |
| 401508 | 1507 | 0x05E3 | 2 | Output Offset | Float | 0 | Any value | N/A | R/W | B – Output Offset |
| 401510 | 1509 | 0x05E5 | 1 | Input #1 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X1 – Input Signal #1 |
| 401511 | 1510 | 0x05E6 | 1 | Input #1 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X1 is defined. |
| 401512 | 1511 | 0x05E7 | 2 | Input #1 Signal Default Value | Float | 0 | Any value | N/A | R/W | X1 default value, if Input #1 Signal Default is "Yes". |
| 401514 | 1513 | 0x05E9 | 1 | Unary Function #1 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f1(x) – Unary function #1 |
| 401515 | 1514 | 0x05EA | 2 | Scale #1 | Float | 1 | Any value | N/A | R/W | a1 – Scale #1 |
| 401517 | 1516 | 0x05EC | 2 | Offset #1 | Float | 0 | Any value | N/A | R/W | b1 – Offset #1 |
| 401519 | 1518 | 0x05EE | 1 | Input #2 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X2 – Input Signal #2 |
| 401520 | 1519 | 0x05EF | 1 | Input #2 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X2 is defined. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401521 | 1520 | 0x05F0 | 2 | Input #2 Signal Default Value | Float | 0 | Any value | N/A | R/W | X2 default value, if Input #2 Signal Default is Yes. |
| 401523 | 1522 | 0x05F2 | 1 | Unary Function #2 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f2(x) – Unary function #2 |
| 401524 | 1523 | 0x05F3 | 2 | Scale #2 | Float | 1 | Any value | N/A | R/W | a2 – Scale #2 |
| 401526 | 1525 | 0x05F5 | 2 | Offset #2 | Float | 0 | Any value | N/A | R/W | b2 – Offset #2 |
| 401528 | 1527 | 0x05F7 | 9 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Binary Function #7** | | | | | | | | | | |
| 401537 | 1536 | 0x0600 | 1 | Binary Function | Byte | 0 - Undefined | See Table 20. Binary Functions | N/A | R/W | F[x;y] – Binary function |
| 401538 | 1537 | 0x0601 | 2 | Output Scale | Float | 1 | Any value | N/A | R/W | A – Output Scale |
| 401540 | 1539 | 0x0603 | 2 | Output Offset | Float | 0 | Any value | N/A | R/W | B – Output Offset |
| 401542 | 1541 | 0x0605 | 1 | Input #1 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X1 – Input Signal #1 |
| 401543 | 1542 | 0x0606 | 1 | Input #1 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X1 is defined. |
| 401544 | 1543 | 0x0607 | 2 | Input #1 Signal Default Value | Float | 0 | Any value | N/A | R/W | X1 default value, if Input #1 Signal Default is "Yes". |
| 401546 | 1545 | 0x0609 | 1 | Unary Function #1 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f1(x) – Unary function #1 |
| 401547 | 1546 | 0x060A | 2 | Scale #1 | Float | 1 | Any value | N/A | R/W | a1 – Scale #1 |
| 401549 | 1548 | 0x060C | 2 | Offset #1 | Float | 0 | Any value | N/A | R/W | b1 – Offset #1 |
| 401551 | 1550 | 0x060E | 1 | Input #2 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. | N/A | R/W | X2 – Input Signal #2 |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | Controller Signal Sources | | | |
| 401552 | 1551 | 0x060F | 1 | Input #2 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X2 is defined. |
| 401553 | 1552 | 0x0610 | 2 | Input #2 Signal Default Value | Float | 0 | Any value | N/A | R/W | X2 default value, if Input #2 Signal Default is Yes. |
| 401555 | 1554 | 0x0612 | 1 | Unary Function #2 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f2(x) – Unary function #2 |
| 401556 | 1555 | 0x0613 | 2 | Scale #2 | Float | 1 | Any value | N/A | R/W | a2 – Scale #2 |
| 401558 | 1557 | 0x0615 | 2 | Offset #2 | Float | 0 | Any value | N/A | R/W | b2 – Offset #2 |
| 401560 | 1559 | 0x0617 | 9 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Binary Function #8** | | | | | | | | | | |
| 401569 | 1568 | 0x0620 | 1 | Binary Function | Byte | 0 - Undefined | See Table 20. Binary Functions | N/A | R/W | F[x;y] – Binary function |
| 401570 | 1569 | 0x0621 | 2 | Output Scale | Float | 1 | Any value | N/A | R/W | A – Output Scale |
| 401572 | 1571 | 0x0623 | 2 | Output Offset | Float | 0 | Any value | N/A | R/W | B – Output Offset |
| 401574 | 1573 | 0x0625 | 1 | Input #1 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X1 – Input Signal #1 |
| 401575 | 1574 | 0x0626 | 1 | Input #1 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X1 is defined. |
| 401576 | 1575 | 0x0627 | 2 | Input #1 Signal Default Value | Float | 0 | Any value | N/A | R/W | X1 default value, if Input #1 Signal Default is "Yes". |
| 401578 | 1577 | 0x0629 | 1 | Unary Function #1 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f1(x) – Unary function #1 |
| 401579 | 1578 | 0x062A | 2 | Scale #1 | Float | 1 | Any value | N/A | R/W | a1 – Scale #1 |
| 401581 | 1580 | 0x062C | 2 | Offset #1 | Float | 0 | Any value | N/A | R/W | b1 – Offset #1 |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401583 | 1582 | 0x062E | 1 | Input #2 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X2 – Input Signal #2 |
| 401584 | 1583 | 0x062F | 1 | Input #2 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X2 is defined. |
| 401585 | 1584 | 0x0630 | 2 | Input #2 Signal Default Value | Float | 0 | Any value | N/A | R/W | X2 default value, if Input #2 Signal Default is Yes. |
| 401587 | 1586 | 0x0632 | 1 | Unary Function #2 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f2(x) – Unary function #2 |
| 401588 | 1587 | 0x0633 | 2 | Scale #2 | Float | 1 | Any value | N/A | R/W | a2 – Scale #2 |
| 401590 | 1589 | 0x0635 | 2 | Offset #2 | Float | 0 | Any value | N/A | R/W | b2 – Offset #2 |
| 401592 | 1591 | 0x0637 | 9 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Binary Function #9** | | | | | | | | | | |
| 401601 | 1600 | 0x0640 | 1 | Binary Function | Byte | 0 - Undefined | See Table 20. Binary Functions | N/A | R/W | F[x;y] – Binary function |
| 401602 | 1601 | 0x0641 | 2 | Output Scale | Float | 1 | Any value | N/A | R/W | A – Output Scale |
| 401604 | 1603 | 0x0643 | 2 | Output Offset | Float | 0 | Any value | N/A | R/W | B – Output Offset |
| 401606 | 1605 | 0x0645 | 1 | Input #1 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X1 – Input Signal #1 |
| 401607 | 1606 | 0x0646 | 1 | Input #1 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X1 is defined. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401608 | 1607 | 0x0647 | 2 | Input #1 Signal Default Value | Float | 0 | Any value | N/A | R/W | X1 default value, if Input #1 Signal Default is "Yes". |
| 401610 | 1609 | 0x0649 | 1 | Unary Function #1 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f1(x) – Unary function #1 |
| 401611 | 1610 | 0x064A | 2 | Scale #1 | Float | 1 | Any value | N/A | R/W | a1 – Scale #1 |
| 401613 | 1612 | 0x064C | 2 | Offset #1 | Float | 0 | Any value | N/A | R/W | b1 – Offset #1 |
| 401615 | 1614 | 0x064E | 1 | Input #2 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X2 – Input Signal #2 |
| 401616 | 1615 | 0x064F | 1 | Input #2 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X2 is defined. |
| 401617 | 1616 | 0x0650 | 2 | Input #2 Signal Default Value | Float | 0 | Any value | N/A | R/W | X2 default value, if Input #2 Signal Default is Yes. |
| 401619 | 1618 | 0x0652 | 1 | Unary Function #2 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f2(x) – Unary function #2 |
| 401620 | 1619 | 0x0653 | 2 | Scale #2 | Float | 1 | Any value | N/A | R/W | a2 – Scale #2 |
| 401622 | 1621 | 0x0655 | 2 | Offset #2 | Float | 0 | Any value | N/A | R/W | b2 – Offset #2 |
| 401624 | 1623 | 0x0657 | 9 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Binary Function #10** | | | | | | | | | | |
| 401633 | 1632 | 0x0660 | 1 | Binary Function | Byte | 0 - Undefined | See Table 20. Binary Functions | N/A | R/W | F[x;y] – Binary function |
| 401634 | 1633 | 0x0661 | 2 | Output Scale | Float | 1 | Any value | N/A | R/W | A – Output Scale |
| 401636 | 1635 | 0x0663 | 2 | Output Offset | Float | 0 | Any value | N/A | R/W | B – Output Offset |
| 401638 | 1637 | 0x0665 | 1 | Input #1 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. | N/A | R/W | X1 – Input Signal #1 |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | Controller Signal Sources | | | |
| 401639 | 1638 | 0x0666 | 1 | Input #1 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X1 is defined. |
| 401640 | 1639 | 0x0667 | 2 | Input #1 Signal Default Value | Float | 0 | Any value | N/A | R/W | X1 default value, if Input #1 Signal Default is "Yes". |
| 401642 | 1641 | 0x0669 | 1 | Unary Function #1 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f1(x) – Unary function #1 |
| 401643 | 1642 | 0x066A | 2 | Scale #1 | Float | 1 | Any value | N/A | R/W | a1 – Scale #1 |
| 401645 | 1644 | 0x066C | 2 | Offset #1 | Float | 0 | Any value | N/A | R/W | b1 – Offset #1 |
| 401647 | 1646 | 0x066E | 1 | Input #2 Signal Source | Byte | 0 - Not Connected | Any signal output of any function block or “Not connected". See Table 6. Controller Signal Sources | N/A | R/W | X2 – Input Signal #2 |
| 401648 | 1647 | 0x066F | 1 | Input #2 Signal Default | Byte | 0 - No | 0 - No,<br>1 - Yes | N/A | R/W | Defines whether the default signal value for X2 is defined. |
| 401649 | 1648 | 0x0670 | 2 | Input #2 Signal Default Value | Float | 0 | Any value | N/A | R/W | X2 default value, if Input #2 Signal Default is Yes. |
| 401651 | 1650 | 0x0672 | 1 | Unary Function #2 | Byte | 0 - Undefined | See Table 19. Unary Functions | N/A | R/W | f2(x) – Unary function #2 |
| 401652 | 1651 | 0x0673 | 2 | Scale #2 | Float | 1 | Any value | N/A | R/W | a2 – Scale #2 |
| 401654 | 1653 | 0x0675 | 2 | Offset #2 | Float | 0 | Any value | N/A | R/W | b2 – Offset #2 |
| 401656 | 1655 | 0x0677 | 9 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Global Parameters** | | | | | | | | | | |
| 401665 | 1664 | 0x0680 | 2 | Global Continuous Constant Signal | Float | 0 | Any value | N/A | R/W | Output signal value of the Global Continuous Constant Signal |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401667 | 1666 | 0x0682 | 2 | Global Discrete Constant Signal | DWord | 0 | Any value [0… 4294967295 (0xFFFFFFFF)] | N/A | R/W | Output signal value of the Global Discrete Constant Signal |
| 401669 | 1668 | 0x0684 | 12 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **CANopen® Network** | | | | | | | | | | |
| 401682 | 1681 | 0x0691 | 1 | Node ID | Byte | 127 | 0…127 | N/A | R/W | CANopen® ECU address |
| 401683 | 1682 | 0x0692 | 1 | Baud Rate | Word | 125 | {10,20,50, 125, 250, 500, 800, 1000} | kbit/s | RO | Current baud rate on the CAN network. Writing is allowed but does not change the value. |
| 401684 | 1683 | 0x0693 | 1 | Slew Rate | Byte | 0 - Low | 0 - Low,<br>1 - High | N/A | R/W | Slew rate control of the CAN transceiver |
| 401685 | 1684 | 0x0694 | 11 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **Ethernet** | | | | | | | | | | |
| 401697 | 1696 | 0x06A0 | 3 | MAC Address | Byte[6] | Set at the factory | Any valid MAC address | N/A | RO | Ethernet MAC Address. Set at the factory. Writing is allowed but does not change the value. |
| 401700 | 1699 | 0x06A3 | 2 | IP Address | Byte[4] | 192.168.0.34 | Any IP address | N/A | R/W | The device IP address |
| 401702 | 1701 | 0x06A5 | 2 | Subnet Mask | Byte[4] | 255.255.255.0 | Any IP address | N/A | R/W | The device subnet mask |
| 401704 | 1703 | 0x06A7 | 2 | Gateway | Byte[4] | 192.168.0.1 | Any IP address | N/A | R/W | The device default gateway |
| 401706 | 1705 | 0x06A9 | 1 | Modbus Port | Word | 502 | Any port value except the Discovery Port (35100) | N/A | R/W | The Modbus listening port |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401707 | 1706 | 0x06AA | 1 | Modbus Timeout | Word | 1000 | 1…10000 | ms | R/W | The Modbus communication timeout |
| 401708 | 1707 | 0x06AB | 21 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **CAN Input Signal #1** | | | | | | | | | | |
| 401729 | 1728 | 0x06C0 | 1 | Signal Type | Byte | 255 | 255 | N/A | RO | CAN input signal type |
| 401730 | 1729 | 0x06C1 | 1 | COB ID | Word | 27F | Up to 7FF | N/A | R/W | Signal message ID value |
| 401731 | 1730 | 0x06C2 | 1 | Autoreset time | Word | 0 | 65535 | N/A | R/W | There will not be an autoreset if the value is set to 0 |
| 401732 | 1731 | 0x06C3 | 1 | Signal source#1 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for first 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401733 | 1732 | 0x06C4 | 1 | Signal number#1 | Byte | 0 | 0..255 | N/A | R/W | Defines a subindex of a chosen object. |
| 401734 | 1733 | 0x06C5 | 1 | Signal resolution#1 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401735 | 1734 | 0x06C6 | 1 | Signal offset#1 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401736 | 1735 | 0x06C7 | 1 | Signal data size#1 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401737 | 1736 | 0x06C8 | 1 | Control source#2 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for second 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401738 | 1737 | 0x06C9 | 1 | Control number#2 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal size |
| 401739 | 1738 | 0x06CA | 1 | Signal resolution#2 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401740 | 1739 | 0x06CB | 1 | Signal offset#2 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401741 | 1740 | 0x06CC | 1 | Signal data size#2 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401742 | 1741 | 0x06CD | 1 | Control source#3 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for third 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401743 | 1742 | 0x06CE | 1 | Control number#3 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401744 | 1743 | 0x06CF | 1 | Signal resolution#3 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401745 | 1744 | 0x06D0 | 1 | Signal offset#3 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401746 | 1745 | 0x06D1 | 1 | Signal data size#3 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401747 | 1746 | 0x06D2 | 1 | Control source#4 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401748 | 1747 | 0x06D3 | 1 | Control number#4 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401749 | 1748 | 0x06D4 | 1 | Signal resolution#4 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401750 | 1749 | 0x06D5 | 1 | Signal offset#4 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401751 | 1750 | 0x06D6 | 1 | Signal data size#4 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401752 | 1751 | 0x06D7 | 1 | Control source#5 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401753 | 1752 | 0x06D8 | 1 | Control number#5 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401754 | 1753 | 0x06D9 | 1 | Signal resolution#5 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401755 | 1754 | 0x06DA | 1 | Signal offset#5 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401756 | 1755 | 0x06DB | 1 | Signal data size#5 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401757 | 1756 | 0x06DC | 1 | Control source#6 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401758 | 1757 | 0x06DD | 1 | Control number#6 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401759 | 1758 | 0x06DE | 1 | Signal resolution#6 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401760 | 1759 | 0x06DF | 1 | Signal offset#6 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401761 | 1760 | 0x06E0 | 1 | Signal data size#6 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401762 | 1761 | 0x06E1 | 1 | Control source#7 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401763 | 1762 | 0x06E2 | 1 | Control number#7 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401764 | 1763 | 0x06E3 | 1 | Signal resolution#7 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401765 | 1764 | 0x06E4 | 1 | Signal offset#7 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401766 | 1765 | 0x06E5 | 1 | Signal data size#7 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401767 | 1766 | 0x06E6 | 1 | Control source#8 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401768 | 1767 | 0x06E7 | 1 | Control number#8 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401769 | 1768 | 0x06E8 | 1 | Signal resolution#8 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401770 | 1769 | 0x06E9 | 1 | Signal offset#8 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401771 | 1770 | 0x06EA | 1 | Signal data size#8 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401772 | 1771 | 0x06EB | 5 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **CAN Input Signal #2** | | | | | | | | | | |
| 401777 | 1776 | 0x06F0 | 1 | Signal Type | Byte | 255 | 255 | N/A | RO | CAN input signal type |
| 401778 | 1777 | 0x06F1 | 1 | COB ID | Byte | 37F | Up to 7FF | N/A | R/W | Signal message ID value |
| 401779 | 1778 | 0x06F2 | 1 | Autoreset time | Word | 0 | 65535 | N/A | R/W | There will not be an autoreset if the value is set to 0 |
| 401780 | 1779 | 0x06F3 | 1 | Control source#1 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for first 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401781 | 1780 | 0x06F4 | 1 | Control number#1 | Byte | 0 | 0..255 | N/A | R/W | Defines a subindex of a chosen object. |
| 401782 | 1781 | 0x06F5 | 1 | Signal resolution#1 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401783 | 1782 | 0x06F6 | 1 | Signal offset#1 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401784 | 1783 | 0x06F7 | 1 | Signal data size#1 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401785 | 1784 | 0x06F8 | 1 | Control source#2 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for second 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401786 | 1785 | 0x06F9 | 1 | Control number#2 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal size |
| 401787 | 1786 | 0x06FA | 1 | Signal resolution#2 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401788 | 1787 | 0x06FB | 1 | Signal offset#2 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401789 | 1788 | 0x06FC | 1 | Signal data size#2 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401790 | 1789 | 0x06FD | 1 | Control source#3 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for third 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401791 | 1790 | 0x06FE | 1 | Control number#3 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401792 | 1791 | 0x06FF | 1 | Signal resolution#3 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401793 | 1792 | 0x0700 | 1 | Signal offset#3 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401794 | 1793 | 0x0700 | 1 | Signal data size#3 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401795 | 1794 | 0x0701 | 1 | Control source#4 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401796 | 1795 | 0x0702 | 1 | Control number#4 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401797 | 1796 | 0x0703 | 1 | Signal resolution#4 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401798 | 1797 | 0x0704 | 1 | Signal offset#4 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401799 | 1798 | 0x0705 | 1 | Signal data size#4 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401800 | 1799 | 0x0706 | 1 | Control source#5 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401801 | 1800 | 0x0707 | 1 | Control number#5 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401802 | 1801 | 0x0708 | 1 | Signal resolution#5 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401803 | 1802 | 0x0709 | 1 | Signal offset#5 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401804 | 1803 | 0x070A | 1 | Signal data size#5 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401805 | 1804 | 0x070B | 1 | Control source#6 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401806 | 1805 | 0x070C | 1 | Control number#6 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401807 | 1806 | 0x070D | 1 | Signal resolution#6 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401808 | 1807 | 0x070E | 1 | Signal offset#6 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401809 | 1808 | 0x070F | 1 | Signal data size#6 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401810 | 1809 | 0x0710 | 1 | Control source#7 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401811 | 1810 | 0x0711 | 1 | Control number#7 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401812 | 1811 | 0x0712 | 1 | Signal resolution#7 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401813 | 1812 | 0x0713 | 1 | Signal offset#7 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401814 | 1813 | 0x0714 | 1 | Signal data size#7 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401815 | 1814 | 0x0715 | 1 | Control source#8 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401816 | 1815 | 0x0716 | 1 | Control number#8 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401817 | 1816 | 0x0717 | 1 | Signal resolution#8 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401818 | 1817 | 0x0718 | 1 | Signal offset#8 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401819 | 1818 | 0x0719 | 1 | Signal data size#8 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401820 | 1819 | 0x071A | 5 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **CAN Input Signal #3** | | | | | | | | | | |
| 401825 | 1824 | 0x0721 | 1 | Signal Type | Byte | 255 | 255 | N/A | RO | CAN input signal type |
| 401826 | 1825 | 0x0722 | 1 | COB ID | Byte | 47F | Up to 7FF | N/A | R/W | Signal message ID value |
| 401827 | 1826 | 0x0723 | 1 | Autoreset time | Word | 0 | 65535 | N/A | R/W | There will not be an autoreset if the value is set to 0 |
| 401828 | 1827 | 0x0724 | 1 | Control source#1 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for first 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401829 | 1828 | 0x0725 | 1 | Control number#1 | Byte | 0 | 0..255 | N/A | R/W | Defines a subindex of a chosen object. |
| 401830 | 1829 | 0x0726 | 1 | Signal resolution#1 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401831 | 1830 | 0x0727 | 1 | Signal offset#1 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401832 | 1831 | 0x0728 | 1 | Signal data size#1 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401833 | 1832 | 0x0729 | 1 | Control source#2 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for second 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401834 | 1833 | 0x072A | 1 | Control number#2 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal size |
| 401835 | 1834 | 0x072B | 1 | Signal resolution#2 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401836 | 1835 | 0x072C | 1 | Signal offset#2 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401837 | 1836 | 0x072D | 1 | Signal data size#2 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401838 | 1837 | 0x072E | 1 | Control source#3 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for third 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401839 | 1838 | 0x072F | 1 | Control number#3 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401840 | 1839 | 0x0730 | 1 | Signal resolution#3 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401841 | 1840 | 0x0731 | 1 | Signal offset#3 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401842 | 1841 | 0x0732 | 1 | Signal data size#3 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401843 | 1842 | 0x0733 | 1 | Control source#4 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401844 | 1843 | 0x0734 | 1 | Control number#4 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401845 | 1844 | 0x0735 | 1 | Signal resolution#4 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401846 | 1845 | 0x0736 | 1 | Signal offset#4 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401847 | 1846 | 0x0737 | 1 | Signal data size#4 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401847 | 1847 | 0x0738 | 1 | Control source#5 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401847 | 1848 | 0x0739 | 1 | Control number#5 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401847 | 1849 | 0x073A | 1 | Signal resolution#5 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401847 | 1845 | 0x073B | 1 | Signal offset#5 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401847 | 1845 | 0x073C | 1 | Signal data size#5 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401847 | 1845 | 0x073D | 1 | Control source#6 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401847 | 1845 | 0x073E | 1 | Control number#6 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401847 | 1845 | 0x073F | 1 | Signal resolution#6 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401847 | 1845 | 0x0740 | 1 | Signal offset#6 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401847 | 1845 | 0x0741 | 1 | Signal data size#6 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401847 | 1845 | 0x0742 | 1 | Control source#7 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401847 | 1845 | 0x0743 | 1 | Control number#7 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401848 | 1846 | 0x0744 | 1 | Signal resolution#7 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401849 | 1847 | 0x0745 | 1 | Signal offset#7 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401850 | 1848 | 0x0746 | 1 | Signal data size#7 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401851 | 1849 | 0x0747 | 1 | Control source#8 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401852 | 1850 | 0x0743 | 1 | Control number#8 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401853 | 1851 | 0x0748 | 1 | Signal resolution#8 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401854 | 1852 | 0x0749 | 1 | Signal offset#8 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401855 | 1853 | 0x04A | 1 | Signal data size#8 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401856 | 1854 | 0x074B | 5 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **CAN Output Message #1** | | | | | | | | | | |
| 401873 | 1872 | 0x0751 | 1 | COB ID | Word | 1FF | Up to 7FF | N/A | R/W | CAN message 11 bit ID |
| 401874 | 1873 | 0x0752 | 1 | Transmission Enable | Byte | 1 - No | 1 - No,<br>0 - Yes | N/A | R/W | Transmission Enable. Enables the CAN output message transmission |
| 401875 | 1874 | 0x0753 | 1 | Transmission Rate | Word | 100 | 0…10000 | ms | R/W | CAN output message transmission rate. If 0 – transmission is upon request. |
| 401876 | 1875 | 0x0754 | 1 | Transmission type | Byte | 254 | 254 | N/A | RO | Type of a communication. 254 – asynchronous transmit |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401877 | 1876 | 0x0755 | 1 | Control source#1 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for first 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401878 | 1877 | 0x0756 | 1 | Control number#1 | Byte | 0 | 0..255 | N/A | R/W | Defines a subindex of a chosen object. |
| 401879 | 1878 | 0x0757 | 1 | Signal resolution#1 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401880 | 1879 | 0x0758 | 1 | Signal offset#1 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401881 | 1880 | 0x0759 | 1 | Signal data size#1 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401882 | 1881 | 0x075A | 1 | Control source#2 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for second 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401883 | 1882 | 0x075B | 1 | Control number#2 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal size |
| 401884 | 1883 | 0x075C | 1 | Signal resolution#2 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401885 | 1884 | 0x075D | 1 | Signal offset#2 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401886 | 1885 | 0x075E | 1 | Signal data size#2 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401887 | 1886 | 0x075F | 1 | Control source#3 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for third 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401888 | 1887 | 0x0760 | 1 | Control number#3 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401889 | 1888 | 0x0761 | 1 | Signal resolution#3 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401890 | 1889 | 0x0762 | 1 | Signal offset#3 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401891 | 1890 | 0x0763 | 1 | Signal data size#3 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401892 | 1891 | 0x0764 | 1 | Control source#4 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401893 | 1892 | 0x0765 | 1 | Control number#4 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401894 | 1893 | 0x0766 | 1 | Signal resolution#4 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401895 | 1894 | 0x0767 | 1 | Signal offset#4 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401896 | 1895 | 0x0768 | 1 | Signal data size#4 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401897 | 1896 | 0x0769 | 1 | Control source#5 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401898 | 1897 | 0x076A | 1 | Control number#5 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401899 | 1898 | 0x076B | 1 | Signal resolution#5 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401900 | 1899 | 0x076C | 1 | Signal offset#5 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401901 | 1900 | 0x076D | 1 | Signal data size#5 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401902 | 1901 | 0x076E | 1 | Control source#6 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401903 | 1902 | 0x076F | 1 | Control number#6 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401904 | 1903 | 0x0770 | 1 | Signal resolution#6 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401905 | 1904 | 0x0771 | 1 | Signal offset#6 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401906 | 1905 | 0x0772 | 1 | Signal data size#6 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401907 | 1906 | 0x0773 | 1 | Control source#7 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401908 | 1907 | 0x0774 | 1 | Control number#7 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401909 | 1908 | 0x0775 | 1 | Signal resolution#7 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401910 | 1909 | 0x0776 | 1 | Signal offset#7 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401911 | 1910 | 0x0777 | 1 | Signal data size#7 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401912 | 1911 | 0x0778 | 1 | Control source#8 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401913 | 1912 | 0x0779 | 1 | Control number#8 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401914 | 1913 | 0x077A | 1 | Signal resolution#8 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401915 | 1914 | 0x077B | 1 | Signal offset#8 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401916 | 1915 | 0x077C | 1 | Signal data size#8 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401917 | 1916 | 0x075D | 5 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **CAN Output Message #2** | | | | | | | | | | |
| 401921 | 1920 | 0x0780 | 1 | COB ID | Word | 1FF | Up to 7FF | N/A | R/W | CAN message 11 bit ID |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401922 | 1921 | 0x0781 | 1 | Transmission Enable | Byte | 1 - No | 1 - No,<br>0 - Yes | N/A | R/W | Transmission Enable. Enables the CAN output message transmission |
| 401923 | 1922 | 0x0782 | 1 | Transmission Rate | Word | 100 | 0…10000 | ms | R/W | CAN output message transmission rate. If 0 – transmission is upon request. |
| 401924 | 1923 | 0x0783 | 1 | Transmission type | Byte | 254 | 254 | N/A | RO | Type of a communication. 254 – asynchronous transmit |
| 401925 | 1924 | 0x0784 | 1 | Control source#1 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for first 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401926 | 1925 | 0x0785 | 1 | Control number#1 | Byte | 0 | 0..255 | N/A | R/W | Defines a subindex of a chosen object. |
| 401927 | 1926 | 0x0786 | 1 | Signal resolution#1 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401928 | 1927 | 0x0787 | 1 | Signal offset#1 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401929 | 1928 | 0x0788 | 1 | Signal data size#1 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401930 | 1929 | 0x0789 | 1 | Control source#2 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for second 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401931 | 1930 | 0x078A | 1 | Control number#2 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal size |
| 401932 | 1931 | 0x078B | 1 | Signal resolution#2 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401933 | 1932 | 0x078C | 1 | Signal offset#2 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401934 | 1933 | 0x078D | 1 | Signal data size#2 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401935 | 1934 | 0x078E | 1 | Control source#3 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for third 2 bytes. Can be |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | | | | any mappable object. See Sections 4,5, and 6 |
| 401936 | 1935 | 0x078F | 1 | Control number#3 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401937 | 1936 | 0x0791 | 1 | Signal resolution#3 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401938 | 1937 | 0x0792 | 1 | Signal offset#3 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401939 | 1938 | 0x0792 | 1 | Signal data size#3 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401940 | 1939 | 0x0794 | 1 | Control source#4 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401941 | 1940 | 0x0795 | 1 | Control number#4 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401942 | 1941 | 0x0796 | 1 | Signal resolution#4 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401943 | 1942 | 0x0797 | 1 | Signal offset#4 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401944 | 1943 | 0x0798 | 1 | Signal data size#4 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401945 | 1944 | 0x0799 | 1 | Control source#5 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401946 | 1945 | 0x079A | 1 | Control number#5 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401947 | 1946 | 0x079B | 1 | Signal resolution#5 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401948 | 1947 | 0x079C | 1 | Signal offset#5 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401949 | 1948 | 0x079D | 1 | Signal data size#5 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401950 | 1949 | 0x079E | 1 | Control source#6 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401951 | 1950 | 0x079F | 1 | Control number#6 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401952 | 1951 | 0x07A1 | 1 | Signal resolution#6 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401953 | 1952 | 0x07A2 | 1 | Signal offset#6 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401954 | 1953 | 0x07A3 | 1 | Signal data size#6 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401955 | 1954 | 0x07A4 | 1 | Control source#7 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401956 | 1955 | 0x07A5 | 1 | Control number#7 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401957 | 1956 | 0x07A6 | 1 | Signal resolution#7 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401958 | 1957 | 0x07A7 | 1 | Signal offset#7 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401959 | 1958 | 0x07A8 | 1 | Signal data size#7 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401960 | 1959 | 0x07A9 | 1 | Control source#8 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401961 | 1960 | 0x07AA | 1 | Control number#8 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401962 | 1961 | 0x07AB | 1 | Signal resolution#8 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401963 | 1962 | 0x07AC | 1 | Signal offset#8 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401964 | 1963 | 0x07AD | 1 | Signal data size#8 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401965 | 1964 | 0x07AE | 5 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **CAN Output Message #3** | | | | | | | | | | |
| 401969 | 1968 | 0x07B0 | 1 | COB ID | Word | 1FF | Up to 7FF | N/A | R/W | CAN message 11 bit ID |
| 401970 | 1969 | 0x07B1 | 1 | Transmission Enable | Byte | 1 - No | 1 - No,<br>0 - Yes | N/A | R/W | Transmission Enable. Enables the CAN output message transmission |
| 401971 | 1970 | 0x07B2 | 1 | Transmission Rate | Word | 100 | 0…10000 | ms | R/W | CAN output message transmission rate. If 0 – transmission is upon request. |
| 401972 | 1971 | 0x07B3 | 1 | Transmission type | Byte | 254 | 254 | N/A | RO | Type of a communication. 254 – asynchronous transmit |
| 401973 | 1972 | 0x07B4 | 1 | Control source#1 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for first 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401974 | 1973 | 0x07B5 | 1 | Control number#1 | Byte | 0 | 0..255 | N/A | R/W | Defines a subindex of a chosen object. |
| 401975 | 1974 | 0x07B6 | 1 | Signal resolution#1 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401976 | 1975 | 0x07B7 | 1 | Signal offset#1 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401977 | 1976 | 0x07B8 | 1 | Signal data size#1 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401978 | 1977 | 0x07B9 | 1 | Control source#2 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for second 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401979 | 1978 | 0x07BA | 1 | Control number#2 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal size |
| 401980 | 1979 | 0x07BB | 1 | Signal resolution#2 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401981 | 1980 | 0x07BC | 1 | Signal offset#2 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401982 | 1981 | 0x07BD | 1 | Signal data size#2 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401983 | 1982 | 0x07BE | 1 | Control source#3 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for third 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401984 | 1983 | 0x07BF | 1 | Control number#3 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401985 | 1984 | 0x07C0 | 1 | Signal resolution#3 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401986 | 1985 | 0x07C1 | 1 | Signal offset#3 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401987 | 1986 | 0x07C2 | 1 | Signal data size#3 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401988 | 1987 | 0x07C3 | 1 | Control source#4 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401989 | 1988 | 0x07C4 | 1 | Control number#4 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401990 | 1989 | 0x07C5 | 1 | Signal resolution#4 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401991 | 1990 | 0x07C6 | 1 | Signal offset#4 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 401992 | 1991 | 0x07C7 | 1 | Signal data size#4 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401993 | 1992 | 0x07C8 | 1 | Control source#5 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401994 | 1993 | 0x07C9 | 1 | Control number#5 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 401995 | 1994 | 0x07CA | 1 | Signal resolution#5 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 401996 | 1995 | 0x07CB | 1 | Signal offset#5 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 401997 | 1996 | 0x07CC | 1 | Signal data size#5 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 401998 | 1997 | 0x07CD | 1 | Control source#6 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 401999 | 1998 | 0x07CE | 1 | Control number#6 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 402000 | 1999 | 0x07CF | 1 | Signal resolution#6 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402001 | 2000 | 0x07D0 | 1 | Signal offset#6 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402002 | 2001 | 0x07D1 | 1 | Signal data size#6 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402003 | 2002 | 0x07D2 | 1 | Control source#7 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402004 | 2003 | 0x07D3 | 1 | Control number#7 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 402005 | 2004 | 0x07D4 | 1 | Signal resolution#7 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402006 | 2005 | 0x07D5 | 1 | Signal offset#7 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402007 | 2006 | 0x07D6 | 1 | Signal data size#7 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402008 | 2007 | 0x07D7 | 1 | Control source#8 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402009 | 2008 | 0x07D8 | 1 | Control number#8 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 402010 | 2009 | 0x07D9 | 1 | Signal resolution#8 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402011 | 2010 | 0x07DA | 1 | Signal offset#8 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402012 | 2011 | 0x07DB | 1 | Signal data size#8 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402013 | 2012 | 0x07DC | 5 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **CAN Output Message #4** | | | | | | | | | | |
| 402017 | 2016 | 0x07E0 | 1 | COB ID | Word | 1FF | Up to 7FF | N/A | R/W | CAN message 11 bit ID |
| 402018 | 2017 | 0x07E1 | 1 | Transmission Enable | Byte | 1 - No | 1 - No,<br>0 - Yes | N/A | R/W | Transmission Enable. Enables the CAN output message transmission |
| 402019 | 2018 | 0x07E2 | 1 | Transmission Rate | Word | 100 | 0…10000 | ms | R/W | CAN output message transmission rate. If 0 – transmission is upon request. |
| 402020 | 2019 | 0x07E3 | 1 | Transmission type | Byte | 254 | 254 | N/A | RO | Type of a communication. 254 – asynchronous transmit |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 402021 | 2020 | 0x07E4 | 1 | Control source#1 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for first 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402022 | 2021 | 0x07E5 | 1 | Control number#1 | Byte | 0 | 0..255 | N/A | R/W | Defines a subindex of a chosen object. |
| 402023 | 2022 | 0x07E6 | 1 | Signal resolution#1 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402024 | 2023 | 0x07E7 | 1 | Signal offset#1 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402025 | 2024 | 0x07E8 | 1 | Signal data size#1 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402026 | 2025 | 0x07E9 | 1 | Control source#2 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for second 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402027 | 2026 | 0x07EA | 1 | Control number#2 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal size |
| 402028 | 2027 | 0x07EB | 1 | Signal resolution#2 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402029 | 2028 | 0x07EC | 1 | Signal offset#2 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402030 | 2029 | 0x07ED | 1 | Signal data size#2 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402031 | 2030 | 0x07EE | 1 | Control source#3 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for third 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402032 | 2031 | 0x07EF | 1 | Control number#3 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 402033 | 2032 | 0x07F0 | 1 | Signal resolution#3 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402034 | 2033 | 0x07F1 | 1 | Signal offset#3 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402035 | 2034 | 0x07F2 | 1 | Signal data size#3 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 402036 | 2035 | 0x07F3 | 1 | Control source#4 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402037 | 2036 | 0x07F4 | 1 | Control number#4 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 402038 | 2037 | 0x07F5 | 1 | Signal resolution#4 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402039 | 2038 | 0x07F6 | 1 | Signal offset#4 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402040 | 2039 | 0x07F7 | 1 | Signal data size#4 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402041 | 2040 | 0x07F8 | 1 | Control source#5 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402042 | 2041 | 0x07F9 | 1 | Control number#5 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 402043 | 2042 | 0x07FA | 1 | Signal resolution#5 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402044 | 2043 | 0x07FB | 1 | Signal offset#5 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402045 | 2044 | 0x07FC | 1 | Signal data size#5 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402046 | 2045 | 0x07FD | 1 | Control source#6 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402047 | 2046 | 0x07FE | 1 | Control number#6 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 402048 | 2047 | 0x07FF | 1 | Signal resolution#6 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402049 | 2048 | 0x0800 | 1 | Signal offset#6 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 402050 | 2049 | 0x0801 | 1 | Signal data size#6 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402051 | 2050 | 0x0802 | 1 | Control source#7 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402052 | 2051 | 0x0803 | 1 | Control number#7 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 402053 | 2052 | 0x0804 | 1 | Signal resolution#7 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402054 | 2053 | 0x0805 | 1 | Signal offset#7 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402055 | 2054 | 0x0806 | 1 | Signal data size#7 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402056 | 2055 | 0x0809 | 1 | Control source#8 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402057 | 2056 | 0x080A | 1 | Control number#8 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 402058 | 2057 | 0x080B | 1 | Signal resolution#8 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402059 | 2058 | 0x080C | 1 | Signal offset#8 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402060 | 2059 | 0x080D | 1 | Signal data size#8 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402061 | 2060 | 0x080E | 5 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |
| **CAN Output Message #5** | | | | | | | | | | |
| 402065 | 2064 | 0x0810 | 1 | COB ID | Word | 1FF | Up to 7FF | N/A | R/W | CAN message 11 bit ID |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 402066 | 2065 | 0x0811 | 1 | Transmission Enable | Byte | 1 - No | 1 - No,<br>0 - Yes | N/A | R/W | Transmission Enable. Enables the CAN output message transmission |
| 402067 | 2066 | 0x0812 | 1 | Transmission Rate | Word | 100 | 0…10000 | ms | R/W | CAN output message transmission rate. If 0 – transmission is upon request. |
| 402068 | 2067 | 0x0813 | 1 | Transmission type | Byte | 254 | 254 | N/A | RO | Type of a communication. 254 – asynchronous transmit |
| 402069 | 2068 | 0x0814 | 1 | Control source#1 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for first 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402070 | 2069 | 0x0815 | 1 | Control number#1 | Byte | 0 | 0..255 | N/A | R/W | Defines a subindex of a chosen object. |
| 402071 | 2070 | 0x0816 | 1 | Signal resolution#1 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402072 | 2071 | 0x0817 | 1 | Signal offset#1 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402073 | 2072 | 0x0818 | 1 | Signal data size#1 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402074 | 2073 | 0x0819 | 1 | Control source#2 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for second 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402075 | 2074 | 0x081A | 1 | Control number#2 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal size |
| 402076 | 2075 | 0x081B | 1 | Signal resolution#2 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402077 | 2076 | 0x081C | 1 | Signal offset#2 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402078 | 2077 | 0x081D | 1 | Signal data size#2 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402079 | 2078 | 0x081E | 1 | Control source#3 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for third 2 bytes. Can be |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| | | | | | | | | | | any mappable object. See Sections 4,5, and 6 |
| 402080 | 2079 | 0x081F | 1 | Control number#3 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 402081 | 2080 | 0x0820 | 1 | Signal resolution#3 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402082 | 2081 | 0x0821 | 1 | Signal offset#3 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402083 | 2082 | 0x0822 | 1 | Signal data size#3 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402084 | 2083 | 0x0823 | 1 | Control source#4 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402085 | 2084 | 0x0824 | 1 | Control number#4 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 402086 | 2085 | 0x0825 | 1 | Signal resolution#4 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402087 | 2086 | 0x0826 | 1 | Signal offset#4 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402088 | 2087 | 0x0827 | 1 | Signal data size#4 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402089 | 2088 | 0x0828 | 1 | Control source#5 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402090 | 2089 | 0x0829 | 1 | Control number#5 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 402091 | 2090 | 0x082A | 1 | Signal resolution#5 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402092 | 2091 | 0x082B | 1 | Signal offset#5 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 402093 | 2092 | 0x082C | 1 | Signal data size#5 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402094 | 2093 | 0x082D | 1 | Control source#6 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402095 | 2094 | 0x082E | 1 | Control number#6 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 402096 | 2095 | 0x082F | 1 | Signal resolution#6 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402097 | 2096 | 0x0830 | 1 | Signal offset#6 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402098 | 2097 | 0x0831 | 1 | Signal data size#6 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402099 | 2098 | 0x0832 | 1 | Control source#7 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402100 | 2099 | 0x0833 | 1 | Control number#7 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |
| 402101 | 2100 | 0x0834 | 1 | Signal resolution#7 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402102 | 2101 | 0x0835 | 1 | Signal offset#7 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402103 | 2102 | 0x0836 | 1 | Signal data size#7 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402104 | 2103 | 0x0839 | 1 | Control source#8 | Word | 0 | 0xFFFFh | N/A | R/W | Source of the output for last 2 bytes. Can be any mappable object. See Sections 4,5, and 6 |
| 402105 | 2104 | 0x083A | 1 | Control number#8 | Byte | 0 | 0..255 | N/A | R/W | CAN input signal offset for continuous input signals. |

| Bit/Reg Address | Modbus Address | | # of Reg | Name | Format | Default | Range | Units or Res. | Access | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | Dec | Hex | | | | | | | | |
| 402106 | 2105 | 0x083B | 1 | Signal resolution#8 | Byte | 0 | 0…3 | N/A | R/W | Shows the number of decimal digits |
| 402107 | 2106 | 0x083C | 1 | Signal offset#8 | Word | 0 | 0…65535 | N/A | R/W | Defines the offset for the signal |
| 402108 | 2107 | 0x083D | 1 | Signal data size#8 | Byte | 0 | 0, 8, 16, 24, 32 | N/A | R/W | Defines the number of bits. Can only be equal to 0,1,2,3 and 4 bytes |
| 402109 | 2108 | 0x083E | 5 | Reserved | N/A | N/A | N/A | N/A | RO | Reserved for future use. Reading results in 0. Writing is allowed but does not change the value. |

# 10 THIRD-PARTY SOFTWARE LICENSE NOTICES

This section contains Third-Party Software License Notices and/or Additional Terms and Conditions for licensed third-party software components included in the 2 Bipolar, 8 Universal Signal Input Controller with SAE J1939 and Ethernet firmware.

*Table 32. Third-Party Software License Notices*

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|---|---|
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## 11 VERSION HISTORY

| User Manual Version | Firmware version | Date | Author | Modifications |
|---|---|---|---|---|
| 1 | 1.xx | October 15, 2021 | Dmytro Tsebrii | • Initial release |
| - | - | January 24, 2022 | Amanda Wilkins | • Marketing Review<br>• CANopen® trademark Note added<br>• Dimensional drawing updated and AX032101 model drawing pending |
| 1A | 1.01 | February 18, 2022 | Dmytro Tsebrii | • Updated defaults for TPDOs |
| 1.1 | 1.01 | July 13, 2023 | M Ejaz | • Fixed legacy issues<br>• Updated dimensional drawing |
| 1.2 | - | August 2, 2023 | Kiril Mojsov | • Performed Further Legacy Updates |

## OUR PRODUCTS

AC/DC Power Supplies

Actuator Controls/Interfaces

Automotive Ethernet Interfaces

Battery Chargers

CAN Controls, Routers, Repeaters

CAN/WiFi, CAN/Bluetooth, Routers

Current/Voltage/PWM Converters

DC/DC Power Converters

Engine Temperature Scanners

Ethernet/CAN Converters, Gateways, Switches

Fan Drive Controllers

Gateways, CAN/Modbus, RS-232

Gyroscopes, Inclinometers

Hydraulic Valve Controllers

Inclinometers, Triaxial

I/O Controls

LVDT Signal Converters

Machine Controls

Modbus, RS-422, RS-485 Controls

Motor Controls, Inverters

Power Supplies, DC/DC, AC/DC

PWM Signal Converters/Isolators

Resolver Signal Conditioners

Service Tools

Signal Conditioners, Converters

Strain Gauge CAN Controls

Surge Suppressors

## OUR COMPANY

Axiomatic provides electronic machine control components to the off-highway, commercial vehicle, electric vehicle, power generator set, material handling, renewable energy and industrial OEM markets. ***We innovate with engineered and off-the-shelf machine controls that add value for our customers.***

## QUALITY DESIGN AND MANUFACTURING

We have an ISO9001:2015 registered design/manufacturing facility in Canada.

## WARRANTY, APPLICATION APPROVALS/LIMITATIONS

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## COMPLIANCE

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All products should be serviced by Axiomatic. Do not open the product and perform the service yourself.

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## SERVICE

All products to be returned to Axiomatic require a Return Materials Authorization Number (RMA#) from sales@axiomatic.com. Please provide the following information when requesting an RMA number:

- Serial number, part number
- Runtime hours, description of problem
- Wiring set up diagram, application and other comments as needed

## DISPOSAL

Axiomatic products are electronic waste. Please follow your local environmental waste and recycling laws, regulations and policies for safe disposal or recycling of electronic waste.

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