Modbus communication module for X2 devices

Features

- RS485 2-wire MODBUS standard in accordance with EIA/TIA 485.
- Slave type of communication
- Supports up to 127 nodes on one network
- Galvanic isolated bus connection
- LED indicators
- Selectable transmission types:
  - **RTU** with CRC16 checksum
  - ASCII with LRC checksum
  - Baud rates: 4800, 9600, **19200**, 38400
  - Parity: No parity, odd or **even parity**.

Default: RTU with 8 data bits, 1 even parity bit, 1 stop bit. Baud rate 19200.

Communication Specification

Communication standard	Modbus (www.modbus.org)
Default setting	19200 Baud rate, RTU 8 data bits, 1 even parity bit, 1 stop bit
Communication speed	4800, 9600, 19200, 38400
Protocol	RTU with CRC16 checksum, ASCII with LRC checksum
Parity – stop bit	no parity – 2 stop, even parity or odd parity – 1 stop, no parity – 1 stop (RTU mode only)

RTU or ASCII, data and stop bits

By **default**, **RTU** uses 8 data bits, 1 parity bit with even parity and 1 stop bit; ASCII mode uses 7 data bits, 1 parity bit with even parity, and 1 stop bit.

Both modes support "No Parity" mode, in these cases a 2nd stop bit is used to keep the byte length (11bit for RTU and 10 bit for ASCII, including the Start and Stop bits) unchanged in accordance with the Modbus specification. Other possible serial port modes like Odd Parity or baud rates other than listed ones are not supported.

Supported Modbus commands:

- 03 (0x03): Read multiple registers
- 06 (0x06): Write single register
- 16 (0x10): Write multiple registers

In commands 03 and 16 the allowed number of registers ranges from 1 to 32. Although Modbus specification would allow more registers to be read and written, a maximum of 32 Modbus registers are supported in one packet. One Modbus register is 16 bits wide. The Modbus slave transmits the values as signed 16 bit integers. The least significant digit of the transmitted number is always the first digit below the decimal point, and this results in the following range of numbers that the slave module is able to transmit: from -9999.9 to 9999.9

In an event of an out-of-range command addressing or an unsupported command, the Modbus slave responds with an exception message according to the Modbus specification.

LED indicators

The Modbus slave features a green LED and a red LED for indication of traffic on the RS-485 bus. The green LED is lit when an incoming packet is received, and the red LED is lit when an outgoing packet is transmitted to the bus. At power-up, both LED blink twice simultaneously as a sign of the boot process being completed. A constantly lit LED serves as an indication of a fault condition in the reception or sending process.

Configuration of X2-MOD devices

The communication parameters may be set via operation terminals. Login to the controller as follows:

1. Press UP/DOWN buttons simultaneously for three seconds. The display will show firmware version and revision number. Press the OPTION button to start login.
2. CODE is shown in small display.
3. Select 241 using UP/DOWN buttons.
4. Press OPTION after selecting the correct code.
5. Once logged in with 241 control modules are displayed (Lp1, Lp2, 1u, 2u, etc.) – select with UP/DOWN the communication parameters **CO** and open with OPTION. As soon as the module is open its parameters are displayed.
6. Select the parameters with the UP/DOWN buttons. Change a parameter by pressing the OPTION button. Three arrows are displayed to indicate that the parameter may be modified. Use UP/DOWN buttons to adjust the value.
7. After you are done, press OPTION to save the new value and return to the selection level (arrows disappear when selection is saved). Pressing left hand POWER button without pressing OPTION will discard the value and return without saving. For control parameters press POWER again to leave parameter selection and return to control module selection.

Press the POWER to leave the menu. The unit will return to normal operation if no button is pressed for more than 5 minutes.

COM parameters

Parameter	Address	Description	Range	Default
CO 00	13000	Bus plug-in id (read only)	0…255	1
CO 01	13001	Bus plug-in software version (read only)	0…255	-
CO 02	13002	Bus plug-in software revision (read only)	0…255	-
CO 03	13003	Communication address (must be unique in network)	1…127	1
CO 04	13004	Baud rate: 0 = **19200** 1 = 4800 2 = 9600 3 = 19200 4 = 38400	0…4	0
CO 05	13005	Parity mode 0 = NO Parity, 2 stop bits 1 = **EVEN Parity, 1 stop bit** 2 = ODD Parity, 1 stop bit 3 = NO Parity, 1 stop bit (RTU mode only)	0…3	1
CO 06	13006	Mode of communication 0 = **RTU, 8 data bits** 1 = ASCII, 7 data bits	0…1	0
CO 07	13007	Allow changing of static settings through communication 0 = Not allowed 1 = **Allowed**	0…1	1
CO 08	13008	Modbus address base mode **0 = Modbus addresses are "Base 0"** 1 = Modbus addresses are "Base 1" (PLC style)	0…1	0
CO 09	13009	User definable data storage address 00	0…255	255
CO 10	13010	User definable data storage address 01	0…255	255
CO 11	13011	User definable data storage address 02	0…255	255
CO 12	13012	User definable data storage address 03	0…255	255
CO 13	13013	Not used	0…255	255
CO 14	13014	Not used	0…255	255
CO 15	13015	Automatic address increase. If enabled the address will automatically increase when parameters are automatically loaded at power up using AEC-PM1 in auto load mode. This is useful when setting up controllers for a large network. This way the installer will not have to login manually and set the network address for each controller. 0 = Auto increment function disabled 1 = Auto increment function is enabled	0…1	0

➔ **Automatic address increase function:**
When this function is enabled and an automatic AEC-PM1 parameter load is executed at power up of the controller, the communication address on CO03 is incremented and written back to the AEC-PM1 unit.
It is incremented only if the value is not already 127.

➔ **Changing address register through broadcast message:**
It is not possible to change network address register through broadcast message.

Changing parameters of the controller through bus communication

It is possible to remotely changing parameters through an indirect read/write mode. Find details on the procedure required and how to interpret values in the application note: Access to control parameters through AEX-MOD.

Available properties for different X2 products

The same module for Modbus communication is used over the entire X2 product range. When the module initializes, it reads the properties from the X2 device, such as in and outputs, control loops, alarms, time schedules and so forth. It then activates and assigns its porperties to the available physical points.
If an output or an input is not physical present in the scope of the product, its object will not be generated.
The available physical properties for each device may be found in its product datasheet under the scope table.
Here is a brief overview.

Available inputs

	TCX2-40863	TCX2-23343	TCX2-24273	TCX2-14050	TCI2	SXC2-200	SXC2-210	TRI2
UI1	Universal1	NTC	NTC	NTC	Universal2	Sensor	Sensor	Sensor
UI2	Universal1	NTC	NTC	NTC	Universal2	Sensor	Sensor	Sensor
UI3	Universal1	NTC	NTC	NTC	Universal2	Sensor	Sensor	Sensor
UI4	Universal1	VDC	NTC	NTC	Universal2	Sensor	Sensor	NTC
UI5	Universal1	VDC	VDC	Virtual 1	Virtual 1	Sensor	Sensor	NTC
UI6	Universal1	VDC	VDC	Virtual 2	Virtual 2	Virtual 1	NTC	VDC
UI7	Universal1	Virtual 1	Virtual 1	Virtual 3	Virtual 3	Virtual 2	Virtual 1	Virtual 1
UI8	Universal1	Virtual 2	Virtual 2	Virtual 4	Virtual 4	Virtual 3	Virtual 2	Virtual 2
UI9	Virtual 1	Virtual 3	Virtual 3			Virtual 4	Virtual 3	Virtual 3
UI10	Virtual 2	Virtual 4	Virtual 4				Virtual 4	Virtual 4
UI11	Virtual 3							
UI12	Virtual 4							

There are the following different input types for X2 devices:

- Sensor inputs: sensors that measure for example temperature, relative Humidity, CO2, Air quality.
- Universal1 inputs: Selectable with jumper for NTC, VDC, mA signals
- Universal2 inputs: Selectable with jumper for NTC, PT1000, VDC, mA signals
- Voltage inputs: VDC
- Passive inputs: NTC
- Virtual inputs

Available outputs

	TCX2-40863	TCX2-23343	TCX2-24273	TCX2-14050	TCI2-204.202	SxC2-201.102	SxC2-200.101	TRI2-221.202
AO1	AO1	AO1	AO1		AO1	AO1	AO1	AO1
AO2	AO2	AO2	AO2		AO2	AO2		AO2
AO3	AO3	AO3	AO3					
DO1	DO1	DO1	DO1	DO1	DO1	DO1	DO1	DO1
DO2	DO2	DO2	DO2	DO2	DO2			DO2
DO3	DO3	DO3	DO3	DO3				
DO4	DO4	DO4	DO4	DO4				
DO5	DO5		DO5	DO5				
DO6	DO6		DO6					
DO7			DO7					

Properties of digital outputs.

The available objects for digital outputs depend on their configuration. The reason is that an output assigned to a fan module will have different objects than if assigned to a floating or binary output.
There are 4 different object tables for digital objects:

- Digital output in fan configuration (applies to all binary outputs that are part of the fan module)
- Digital output in 3-point floating configuration (Always two binary outputs)
- Digital output in PWM configuration
- Digital output in binary configuration

Available control loops

TCX2-40863	TCX2-23343	TCX2-24273	TCX2-14050	TCI2	SxC2	TRI2
LP1	LP1	LP1	LP1	LP1	LP1	LP1
LP2	LP2	LP2		LP2	LP2	LP2
LP3						
LP4						

Available alarms

All devices have 8 alarms

Dynamic Address list

Controller information

Address	Description	Range	R/W
1000	Product series information	8bit	R
1001	Product type information	8bit	R
1002	Controller Firmware Version	8bit	R
1003	Controller Firmware Revision	8bit	R
1004	Type of controller	16bit	R
1005	Number of control loops	16bit	R
1006	Number of binary inputs	16bit	R
1007	Number of universal inputs	16bit	R
1008	Number of virtual inputs	16bit	R
1009	Number of binary outputs	16bit	R
1010	Number of analog outputs	16bit	R
1011	Number of fan outputs	16bit	R
1012	Number of floating outputs	16bit	R
1013	Number of alarms	16bit	R
1014	Number of auxiliary functions	16bit	R
1015	Number of time schedules	16bit	R
1016	Number of switching times / time schedule	16bit	R

Controller state

1050	Operation State ON 0 = OFF, 1 = ON	1bit	R/W
1051	Operation state Standby – Comfort 0 = **Comfort**, 1 = Standby	1bit	R/W
1052	Operation State Heat – Cool 1 = **Heat**, 0 = Cool	1bit	R/W
1053	Operation state Celsius – Fahrenheit 0 = **Celsius**, 1 = Fahrenheit	1bit	R/W
1054	Operation state Fan Only 0 = **Fan Only disabled** 1 = Fan Only enabled	1bit	R/W
1055	Operation state Enable Time Schedules 0 = **Time Schedules disabled** 1 = Time Schedules enabled	1bit	R/W

Clock setting

1080	Century (0…99)	BCD format	R/W
1081	Year (0…99)	BCD format	R/W
1082	Month (1…12)	BCD format	R/W
1083	Day (1…31)	BCD format	R/W
1084	Weekday (1…7)	BCD format	R/W
1085	Hour (00…23)	BCD format	R/W
1086	Minute (00…59)	BCD format	R/W
1087	Second (00…59)	BCD format	R/W

Special controller flags

2022	No-reply-mode: No-reply-mode allows connecting one operation terminal to multiple controllers. One controller must be in normal operation mode and all the others must be set to no-reply-mode. These controllers will follow each command issued by the operation terminal. They will not send responses and their alarm conditions are not monitored by the operation terminal. 0 = **normal operation**, 1 = no-reply-mode	1bit	R/W
2023	Wink function: activates LED on top of controller 0 = **LED has normal operation**, 1 = LED is constantly on	1bit	R/W
2024	Operation state Summer – Winter (used to switch set point limits for 4-pipe systems) 0 = **Summer mode** 1 = Winter mode	1bit	R/W

X2-Inputs

The available input properties depend on the actual configuration of the X2 product. Sensor inputs and virtual inputs will be treated as universal inputs in X2-MOD. Please observe the table on page 3 to see which are the available inputs for the product selected. At this stage all products have 4 virtual inputs with the objects listed below.

Universal (sensor and virtual) Inputs

Address	Input	Description	Range	Datatype	R/W
1100	UI1	universal input 1 state, 0 = not active / error, 1 = ok	1bit	16 bit signed	R
1101	UI1	Unit of universal input 0 = no unit 1 = % 2 = °C /°F 3 = Pa	8bit	16 bit signed	R
1102	UI1	Value Multiplier: "**1**" means a multiplication factor of **0.1** "10" means a multiplication factor of 1 "100" means a multiplication factor of 10	8bit	16 bit signed	R
1103	UI1	Short value (word)	16bit	16 bit signed	R
1700	UI1	Long value low word	16bit	32 bit signed (long inverse)	R
1701	UI1	Long value high word	16bit		R
1104	UI2	universal input 2 state, 0 = not active / error, 1 = ok	1bit	16 bit signed	R
1105	UI2	Unit of universal input (explanation as in 1101)	8bit	16 bit signed	R
1106	UI2	Value Multiplier (explanation as in 1102)	8bit	16 bit signed	R
1107	UI2	Value	16bit	16 bit signed	R
1702	UI2	Long value low word	16bit	32 bit signed (long inverse)	R
1703	UI2	Long value high word	16bit		R
1108	UI3	universal input 3 state, 0 = not active / error, 1 = ok	1bit	16 bit signed	R
1109	UI3	Unit of universal input (explanation as in 1101)	8bit	16 bit signed	R
1110	UI3	Value Multiplier (explanation as in 1102)	8bit	16 bit signed	R
1111	UI3	Value	16bit	16 bit signed	R
1704	UI3	Long value low word	16bit	32 bit signed (long inverse)	R
1705	UI3	Long value high word	16bit		R
1112	UI4	universal input 4 state, 0 = not active / error, 1 = ok	1bit	16 bit signed	R
1113	UI4	Unit of universal input (explanation as in 1101)	8bit	16 bit signed	R
1114	UI4	Value Multiplier (explanation as in 1102)	8bit	16 bit signed	R
1115	UI4	Value	16bit	16 bit signed	R
1706	UI4	Long value low word	16bit	32 bit signed (long inverse)	R
1707	UI4	Long value high word	16bit		R
1116	UI5	universal input 5 state, 0 = not active / error, 1 = ok	1bit	16 bit signed	R
1117	UI5	Unit of universal input (explanation as in 1101)	8bit	16 bit signed	R
1118	UI5	Value Multiplier (explanation as in 1102)	8bit	16 bit signed	R
1119	UI5	Value	16bit	16 bit signed	R (R/W if VI)
1708	UI5	Long value low word	16bit	32 bit signed (long inverse)	R
1709	UI5	Long value high word	16bit		R
1120	UI6	universal input 6 state, 0 = not active / error, 1 = ok	1bit	16 bit signed	R
1121	UI6	Unit of universal input (explanation as in 1101)	8bit	16 bit signed	R
1122	UI6	Value Multiplier (explanation as in 1102)	8bit	16 bit signed	R
1123	UI6	Value	16bit	16 bit signed	R (R/W if VI)
1710	UI6	Long value low word	16bit	32 bit signed (long inverse)	R
1711	UI6	Long value high word	16bit		R
1124	UI7	universal input 7 state, 0 = not active / error, 1 = ok	1bit	16 bit signed	R
1125	UI7	Unit of universal input (explanation as in 1101)	8bit	16 bit signed	R
1126	UI7	Value Multiplier (explanation as in 1102)	8bit	16 bit signed	R
1127	UI7	Value	16bit	16 bit signed	R (R/W if VI)
1712	UI7	Long value low word	16bit	32 bit signed (long inverse)	R
1713	UI7	Long value high word	16bit		R
1128	UI8	universal input 8 state, 0 = not active / error, 1 = ok	1bit	16 bit signed	R
1129	UI8	Unit of universal input (explanation as in 1101)	8bit	16 bit signed	R
1130	UI8	Value Multiplier (explanation as in 1102)	8bit	16 bit signed	R
1131	UI8	Value	16bit	16 bit signed	R (R/W if VI)
1714	UI8	Long value low word	16bit	32 bit signed (long inverse)	R
1715	UI8	Long value high word	16bit		R
1132	UI9	universal input 9 state, 0 = not active / error, 1 = ok	1bit	16 bit signed	R
1133	UI9	Unit of universal input (explanation as in 1101)	8 bit	16 bit signed	R
1134	UI9	Value Multiplier (explanation as in 1102)	8 bit	16 bit signed	R
1135	UI9	Value	16 bit	16 bit signed	R/W
1716	UI9	Long value low word	16 bit	32 bit signed (long inverse)	R
1717	UI9	Long value high word	16 bit		R

Address	Input	Description	Range	Datatype	R/W
1136	UI10	universal input 10 state, 0 = not active / error, 1 = ok	1bit	16 bit signed	R
1137	UI10	Unit of universal input (explanation as in 1101)	8bit	16 bit signed	R
1138	UI10	Value Multiplier (explanation as in 1102)	8bit	16 bit signed	R
1139	UI10	Value	16bit	16 bit signed	R/W
1718	UI10	Long value low word	16bit	32 bit signed (long inverse)	R
1719	UI10	Long value high word	16bit		R
1140	UI11	universal input 11 state, 0 = not active / error, 1 = ok	1bit	16 bit signed	R
1141	UI11	Unit of universal input (explanation as in 1101)	8bit	16 bit signed	R
1142	UI11	Value Multiplier (explanation as in 1102)	8bit	16 bit signed	R
1143	UI11	Value	16bit	16 bit signed	R/W
1720	UI11	Long value low word	16bit	32 bit signed (long inverse)	R
1721	UI11	Long value high word	16bit		R
1144	UI12	universal input 12 state, 0 = not active / error, 1 = ok	1bit	16 bit signed	R
1145	UI12	Unit of universal input (explanation as in 1101)	8bit	16 bit signed	R
1146	UI12	Value Multiplier (explanation as in 1102)	8bit	16 bit signed	R
1147	UI12	Value	16bit	16 bit signed	R/W
1722	UI12	Long value low word	16bit	32 bit signed (long inverse)	R
1723	UI12	Long value high word	16bit		R

Virtual Inputs

➔ The virtual inputs are always the last 4 inputs. See page 3 for details.

➔ The X2 devices can operate with external inputs. To activate, program the virtual input to use it as external input of the communication module: for example, 9u00 = 2 (Address 3800 = 2) or 10u00 = 2 (Address 3900 = 2), see static address list on page 8).

➔ Then program the master to write to the input address the value to the corresponding input. For example Address 1135 for virtual input 1 and 1139 for virtual input 2. Observe the specified time out limitations in the virtual input settings of the X2 devices. If the input is not re-written within the time out limits, the X2 devices will disable the corresponding virtual input and with it all associated control functions.

Control loop

Address	Loop	Description	Range	R/W
1200	Loop 1	Control input state	8bit	R
1201	Loop 1	Control loop sequence 1 = heating, 0 = cooling	1bit	R
1202	Loop 1	Control input unit	8 bit	R
1203	Loop 1	Control input value	16bit	R
1204	Loop 1	Saved Set point	8bit	R/W
1205	Loop 1	Calculated Set point	8bit	R
1206	Loop 1	Proportional output	8bit	R
1207	Loop 1	Binary output	8bit	R
1208	Loop 2	Control input state	8bit	R
1209	Loop 2	Control loop sequence 1 = heating, 0 = cooling	1bit	R
1210	Loop 2	Control input unit	8 bit	R
1211	Loop 2	Control input value	16bit	R
1212	Loop 2	Saved Set point	8bit	R/W
1213	Loop 2	Calculated Set point	8bit	R
1214	Loop 2	Proportional output	16bit	R
1215	Loop 2	Binary output	8bit	R
1216	Loop 3	Control input state	8bit	R
1217	Loop 3	Control loop sequence 1 = heating, 0 = cooling	1bit	R
1218	Loop 3	Control input unit	8 bit	R
1219	Loop 3	Control input value	16bit	R
1220	Loop 3	Saved Set point	8bit	R/W
1221	Loop 3	Calculated Set point	8bit	R
1222	Loop 3	Proportional output	16bit	R
1223	Loop 3	Binary output	8bit	R
1224	Loop 4	Control input state	8bit	R
1225	Loop 4	Control loop sequence 1 = heating, 0 = cooling	1bit	R
1226	Loop 4	Control input unit	8 bit	R
1227	Loop 4	Control input value	16bit	R
1228	Loop 4	Saved Set point	8bit	R/W
1229	Loop 4	Calculated Set point	8bit	R
1230	Loop 4	Proportional output	16bit	R
1231	Loop 4	Binary output	8bit	R

Analog Outputs

1300	AO1	State bit 0: 0 = not active / error, 1 = ok bit 1: 0 = automatic mode, 1 = manual mode	8bit	R
1301	AO1	Current value	16bit	R
1302	AO1	Override value (Only applies if output set to manual)	16bit	R/W
1303	AO2	State, 0 = not active / error, 1 = ok	8bit	R
1304	AO2	Current value	16bit	R
1305	AO2	Override value (Only applies if output set to manual)	16bit	R/W
1306	AO3	State, 0 = not active / error, 1 = ok	8bit	R
1307	AO3	Current value	16bit	R
1308	AO3	Override value (Only applies if output set to manual)	16bit	R/W

Digital Outputs

Address	DO	Description	Range	R/W
1400	DO1	State Bit 0: 0= Floating mode is OFF, 1 = Floating mode is ON Bit 1: 0= not active / error, 1 = active and ok Bit 2: 0 = automatic mode, 1 = manual mode Bit 3: 0 = PWM not active, 1 = PWM active Bit 6: 0 = Run time totalizer disabled, 1 = Run time totalizer ON Bit 7: 0 = Run time limit not reached, 1 = Run time limit reached Bit 3 to 7 only apply if bit 0 = 0 (non floating output)	8bit	R
1401	DO1	Current value	8bit	R
1402	DO1	Override value (Only applies if output set to manual)	8bit	R/W
1403	DO2	State, as on 1400	8bit	R
1404	DO2	Current value	8bit	R
1405	DO2	Override value (Only applies if output set to manual)	8bit	R/W
1406	DO3	State, as on 1400	8bit	R
1407	DO3	Current value	8bit	R
1408	DO3	Override value (Only applies if output set to manual)	8bit	R/W
1409	DO4	State, as on 1400	8bit	R
1410	DO4	Current value	8bit	R
1411	DO4	Override value (Only applies if output set to manual)	8bit	R/W
1412	DO5	State, as on 1400	8bit	R
1413	DO5	Current value	8bit	R
1414	DO5	Override value (Only applies if output set to manual)	8bit	R/W
1415	DO6	State, as on 1400	8bit	R
1416	DO6	Current value	8bit	R
1417	DO6	Override value (Only applies if output set to manual)	8bit	R/W
1418	DO7	State, as on 1400	8bit	R
1419	DO7	Current value	8bit	R
1420	DO7	Override value (Only applies if output set to manual)	8bit	R/W

Fans

1500	FAN1	State Bit 0/1:= Current fan output Bit 2: 0= not active / error, 1 = active and ok Bit 3: automatic mode, 1 = manual mode Bit 4/5: = Total number of fan speeds Bit 6: 0 = Fan mode active, 1 = rotation mode is active Bit 7: 0 = Manual fan off disabled, 1 = Manual fan off enabled	8bit	R
1501	FAN1	Current value	1bit	R
1502	FAN1	Override value	16bit	R/W
1503	FAN2	State, 0 = not active / error, 1 = ok	8bit	R
1504	FAN2	Current value	1bit	R
1505	FAN2	Override value	16bit	R/W

Alarms

1600	ALA1	Alarm active 0 = not active, 1 = active	1bit	R
1601	ALA1	Alarm confirmed, 0 = confirmed, 1 = not confirmed	1bit	R/W*
1602	ALA2	Alarm active 0 = not active, 1 = active	1bit	R
1603	ALA2	Alarm confirmed, 0 = confirmed, 1 = not confirmed	1bit	R/W*
1604	ALA3	Alarm active 0 = not active, 1 = active	1bit	R
1605	ALA3	Alarm confirmed, 0 = confirmed, 1 = not confirmed	1bit	R/W*
1606	ALA4	Alarm active 0 = not active, 1 = active	1bit	R
1607	ALA4	Alarm confirmed, 0 = confirmed, 1 = not confirmed	1bit	R/W*
1608	ALA5	Alarm active 0 = not active, 1 = active	1bit	R
1609	ALA5	Alarm confirmed, 0 = confirmed, 1 = not confirmed	1bit	R/W*
1610	ALA6	Alarm active 0 = not active, 1 = active	1bit	R
1611	ALA6	Alarm confirmed, 0 = confirmed, 1 = not confirmed	1bit	R/W*
1612	ALA7	Alarm active 0 = not active, 1 = active	1bit	R
1613	ALA7	Alarm confirmed, 0 = confirmed, 1 = not confirmed	1bit	R/W*
1614	ALA8	Alarm active 0 = not active, 1 = active	1bit	R
1615	ALA8	Alarm confirmed, 0 = confirmed, 1 = not confirmed	1bit	R/W*

*) Writable to 0 = confirmed only if state is 1 = not confirmed

**Efficient use of energy -
for a better future**

Quality - Innovation - Partnership
Vector Controls GmbH

Poststrasse 20, CH-8620 Wetzikon, Schweiz
Tel: +41 41 740 60 50 Fax: +41 41 740 60 51
info@vectorcontrols.com
www.vectorcontrols.com