

MODBUS TCP-addresses for SX:ACCESS (002) and extra functions

Applicable to firmware 1.21 and later.

SX:ACCESS is addressed to SIOX-address 60 and can be reached via Modbus channel number 60 (Unit Identifier = 60).

Please refer to the Excel-file "SX_ACCESS (002) - Modbus address list" that describes the register/bit-addresses in different notations.

All register addresses in this document are referred to as zero-based counting.

Local Input Status

<u>Bit no.</u>	<u>Function</u>
913	DI1. Bit set if input active (connection between terminals 1-2).
914	DI2. Bit set if input active (connection between terminals 3-4).
915	DI3. Bit set if input active (connection between terminals 5-6).
916	DI4. Bit set if input active (connection between terminals 7-8).

Alternatively these bits can be read as a 16-bit register with number 57. Bit 913 is the least significant bit (LSB).

Local Output Status

<u>Bit no.</u>	<u>Function</u>
897	DO1. Bit set for sum alarm (communication error+damper failure). Relay opens.
898	DO2. Bit set for fire alarm. Relay opens.
899	DO3. Bit set for smoke detector service alarm. Relay opens.
900	DO4. Run indication output. Bit cleared when selected condition(s) are satisfied and relay opens.
901	OK LED. Bit set if LED active (normal no-alarm condition).
902	Alarm LED. Bit set if LED active.
903	Error LED. Bit set if LED active.

Alternatively these bits can be read as a 16-bit register with number 56. Bit 897 is the least significant bit.

Other registers that might be of interest:

<u>Reg no.</u>	<u>Function</u>
80	Current value for number of fire alarms.
81	Current value for number of non-communicating modules.
82	Current value for number of damper failures.
83	Current value for number of service alarms for smoke detectors.
84	Current value for number of exercising modules.
160	Bit 1 controls night mode. 1=night mode, all dampers closes (bit 1 is LSB).
161	Bit 1 activates exercise for all dampers (bit 1 is LSB). No exercise is performed if the module is in "Service mode". If so, the dampers will be kept open. Bit is automatically cleared.

Below registers 162-168 should only be used for testing purposes. Because no watch of the Modbus communication is available they should not be used for real fire alarms UNLESS the Modbus communication watchdog is activated. Please refer to “Extra functions” further down in the document.

<u>Reg no.</u>	<u>Function</u>
162	Bit 1-16 sets fire in fire cell 1-16 (bit 1 is LSB). Set bit=fire.
163	Bit 1-16 sets fire in fire cell 17-32 (bit 1 is LSB). Set bit=fire.
164	Bit 1-16 sets fire in fire cell 33-48 (bit 1 is LSB). Set bit=fire.
165	Bit 1-16 sets fire in fire cell 49-64 (bit 1 is LSB). Set bit=fire.
166	Bit 1-16 sets fire in fire cell 65-80 (bit 1 is LSB). Set bit=fire.
167	Bit 1-16 sets fire in fire cell 81-96 (bit 1 is LSB). Set bit=fire.
168	Bit 1-3 sets fire in fire cell 97-99 (bit 1 is LSB). Set bit=fire.
169	Bit 1-16 shows fire status for fire cell 1-16 (bit 1 är LSB). Set bit=fire.
170	Bit 1-16 shows fire status for fire cell 17-32 (bit 1 är LSB). Set bit=fire.
171	Bit 1-16 shows fire status for fire cell 33-48 (bit 1 är LSB). Set bit=fire.
172	Bit 1-16 shows fire status for fire cell 49-64 (bit 1 är LSB). Set bit=fire.
173	Bit 1-16 shows fire status for fire cell 65-80 (bit 1 är LSB). Set bit=fire.
174	Bit 1-16 shows fire status for fire cell 81-96 (bit 1 är LSB). Set bit=fire.
175	Bit 1-3 shows fire status for fire cell 97-99 (bit 1 är LSB). Set bit=fire.

Applicable to firmware 1.32 and later:

176	Bit 1-16 activates exercise in fire cell 1-16 (bit 1 is LSB). Set bit=exercise.
177	Bit 1-16 activates exercise in fire cell 17-32 (bit 1 is LSB). Set bit=exercise.
178	Bit 1-16 activates exercise in fire cell 33-48 (bit 1 is LSB). Set bit=exercise.
179	Bit 1-16 activates exercise in fire cell 49-64 (bit 1 is LSB). Set bit=exercise.
180	Bit 1-16 activates exercise in fire cell 65-80 (bit 1 is LSB). Set bit=exercise.
181	Bit 1-16 activates exercise in fire cell 81-96 (bit 1 is LSB). Set bit=exercise.
182	Bit 1-3 activates exercise in fire cell 97-99 (bit 1 is LSB). Set bit=exercise.

Applicable to firmware 1.33 and later:

183	Bit 1-16 shows sum alarm in fire cell 1-16 (bit 1 is LSB). Set bit=alarm.
184	Bit 1-16 shows sum alarm in fire cell 17-32 (bit 1 is LSB). Set bit=alarm.
185	Bit 1-16 shows sum alarm in fire cell 33-48 (bit 1 is LSB). Set bit=alarm.
186	Bit 1-16 shows sum alarm in fire cell 49-64 (bit 1 is LSB). Set bit=alarm.
187	Bit 1-16 shows sum alarm in fire cell 65-80 (bit 1 is LSB). Set bit=alarm.
188	Bit 1-16 shows sum alarm in fire cell 81-96 (bit 1 is LSB). Set bit=alarm.
189	Bit 1-3 shows sum alarm in fire cell 97-99 (bit 1 is LSB). Set bit=alarm.

Sum alarm in this case means communication error, damper alarm AND smoke detector service alarm.

Applicable to firmware 1.36 and later:

To simplify the Modbus TCP communication handling, the damper module status (register 32) in the damper modules can be read directly from the SX:ACCESS - module itself. If a module is silent then the status will be read as zero.

Damper modules addressed in group zero: read registers 257-315 for address 1-59.

Damper modules addressed in group 61: read registers 321-379 for address 1-59.

Damper modules addressed in group 62: read registers 385-443 for address 1-59.

Damper modules addressed in group 63: read registers 449-507 for address 1-59.

Applicable to firmware 1.51 and later:

If any damper is exercising in a fire cell then it is indicated in registers 190-196.

<u>Reg no.</u>	<u>Function</u>
190	Bit 1-16 shows exercise in fire cell 1-16 (bit 1 is LSB). Set bit=exercise
191	Bit 1-16 shows exercise in fire cell 17-32 (bit 1 is LSB). Set bit=exercise
192	Bit 1-16 shows exercise in fire cell 33-48 (bit 1 is LSB). Set bit=exercise
193	Bit 1-16 shows exercise in fire cell 49-64 (bit 1 is LSB). Set bit=exercise
194	Bit 1-16 shows exercise in fire cell 65-80 (bit 1 is LSB). Set bit=exercise
195	Bit 1-16 shows exercise in fire cell 81-96 (bit 1 is LSB). Set bit=exercise
196	Bit 1-16 shows exercise in fire cell 97-99 (bit 1 is LSB). Set bit=exercise

Extra functions

Applicable to firmware 1.35 and later the following function is added:

If bit 1 (LSB) in register 63 is set in EEPROM then the SX:ACCESS -module will not write to register 44 in the damper modules. This is the command register.

The purpose is that a supervising system can have full control over the dampers during normal operation.

However, if there is fire then the affected damper modules will be “taken over” by the SX:ACCESS -module and put into fire condition.

Communications via Modbus TCP to these modules are blocked as long as the fire condition is active. However, the command “reset smoke detector” (writing the value 4 to the command register) can be sent to the damper modules from a supervising system when it is safe to do so. It should only be sent once to each damper module.

Otherwise smoke detectors can be reset by sending commands to them individually from the SX:ACCESS -module's keyboard/display or by pressing the reset/exercise button on the module itself.

Please note that when the fire condition is over then the supervising system will be able to control the dampers again.

Use the EX2Manager_1.4.dff or later to activate/deactivate the function.
Factory default is that the function is deactivated, i.e. the SX:ACCESS -module will write to the command register in the damper modules.

Applicable to firmware 1.49 and later the following function is added:

Status for "Service mode" can be read in register 124, or to read bit 1985. If the bit/register=1 then "Service mode" is active.
Exit from "Service mode" can be ordered by writing 1 to register 125, or to write 1 to bit 2001.

Applicable to firmware 1.52 and later the following function is added:

A Modbus TCP communication watchdog is implemented to allow fire alarms being sent via Modbus TCP. The function is that the value in register 127 has to be altered within the watchdog timeout time (max 255 seconds). Otherwise fire status is set for all fire cells.

A power-on startup delay (max 255 seconds) can be set to allow the external system to boot before it is ready to begin updating the watchdog.

Use the EX2Manager_1.9.dff or later to change the settings. They are located under the "Set Fire/Fire Status" tab.

The bits controlling fire status in the fire cells must be regularly updated. Write a one-bit to set fire status, otherwise write a zero-bit.

If the communication is interrupted and the watchdog triggered then all fire cells are set to fire status. When communication resumes then the update of current fire status will continue.

The bit number for a fire cell is calculated according to the following formula:

Bit number = fire cell + 2592.

Allowed range of fire cells is 1-99.