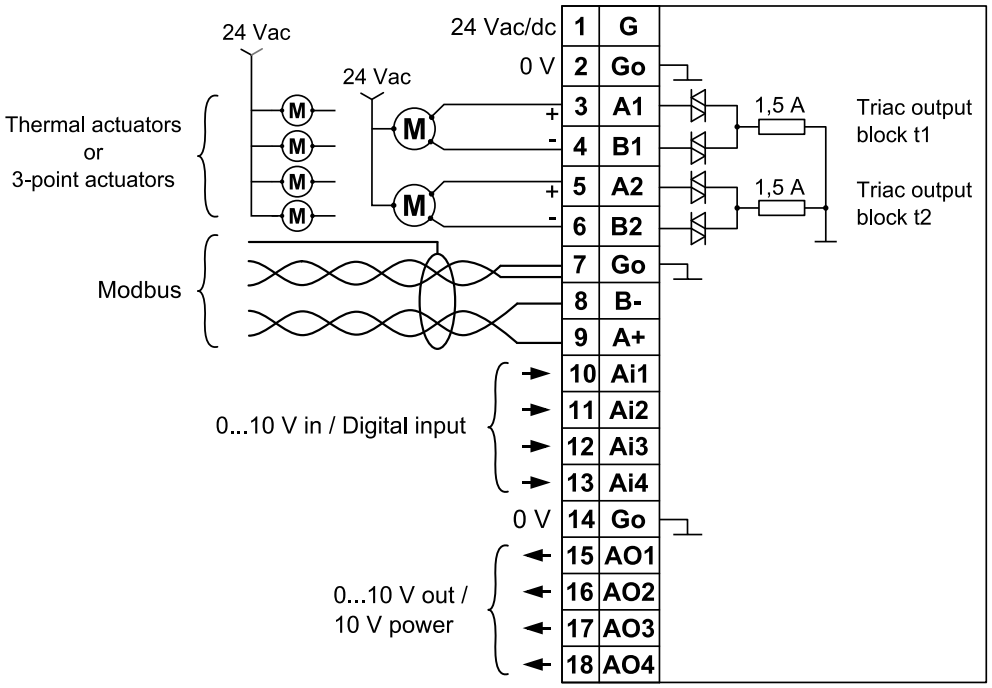
COMMISSIONING

Wiring

Caution

Device connection and commissioning can only be carried out by qualified professionals. Always make the connections while the power is switched off.

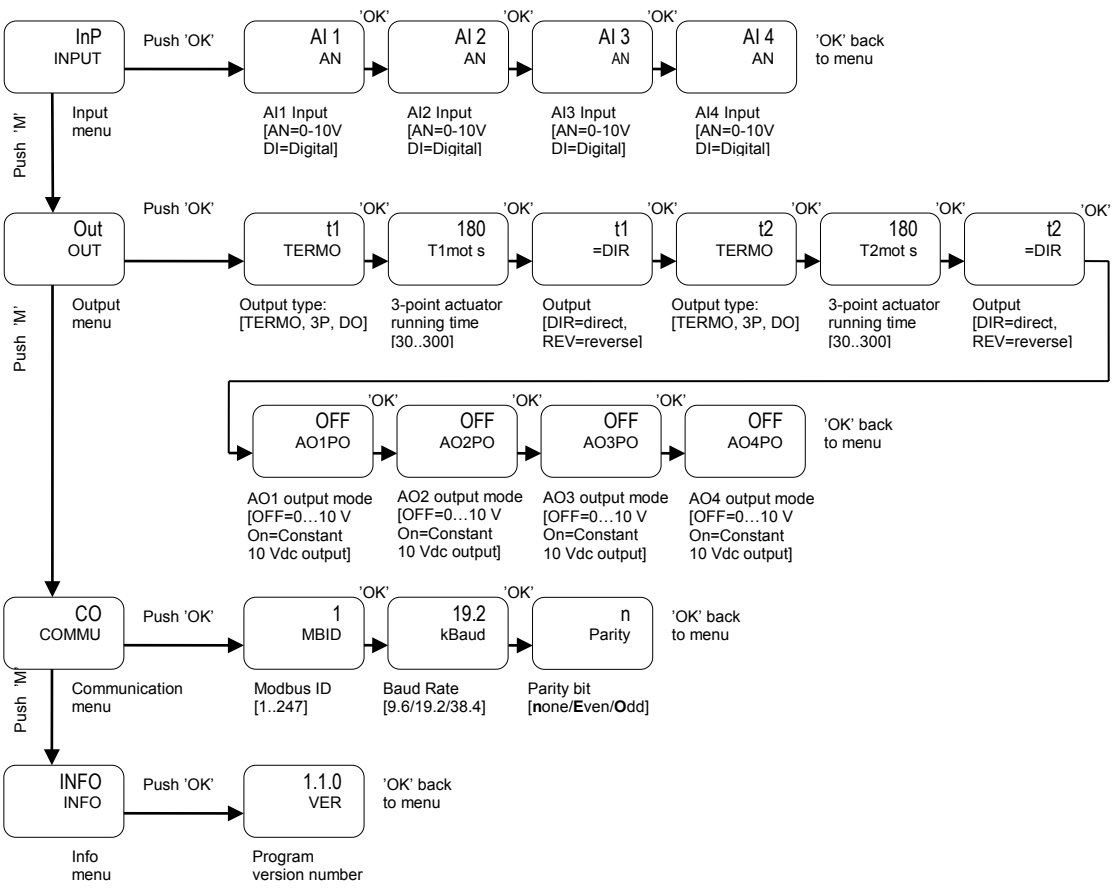
NOTE: Triac outputs (A1, B1, A2 and B2) do not work with 24 Vdc supply.



Menu

The device menu can be activated by pressing the buttons in the following sequence: “+”, “OK”, “OK”, “M”. You can exit the menu by pressing the “M” button for 5 seconds.

You can proceed in the menu by touching the “M” or “OK” buttons. The values can be changed with the “+” and “-“ buttons. The value is accepted with the “OK” button. The following menu structure contains the factory settings.



Inputs (AI1…AI4 / DI1…DI4)

Inputs can be set either digital or analogue (0…10 V) inputs. Via Modbus it is possible to read the status of the digital inputs and the number of the digital pulses summed in the counter. The counter is reset after reading.

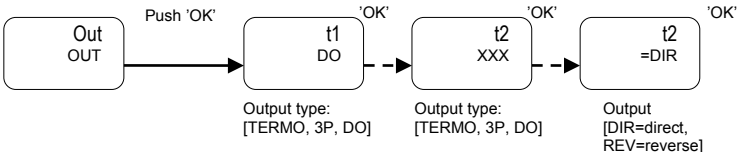
Analogue outputs

The analogue outputs (AO1, AO2, AO3 and AO4) can be controlled separately to provide constant 10 Vdc output. The output can then be used as a supply voltage for a potentiometer, for example.

Digital outputs (DO = ON/OFF)

The settings of the blocks t1 and t2, with triac outputs, will be made by using the Output menu.

The example below indicates that the outputs A1 and B1 of the block t1 are controlling two digital outputs (DO = On/Off). No setting has been made for the outputs A2 and B2 of the block t2.

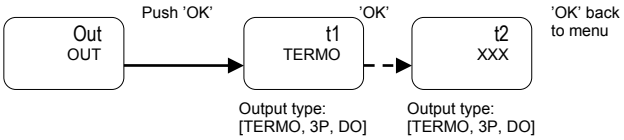


NOTE: The DIR/REV selection is not available for digital outputs.

Thermal actuator outputs

The settings of the blocks t1 and t2, with triac outputs, will be made by using the Output menu.

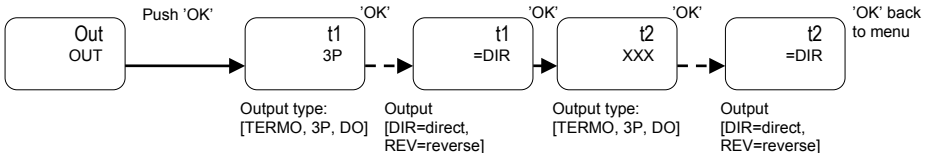
The example below indicates that the outputs A1 and B1 of the block t1 are controlling thermal actuators. No setting has been made for the outputs A2 and B2 of the block t2.



3-point actuator outputs

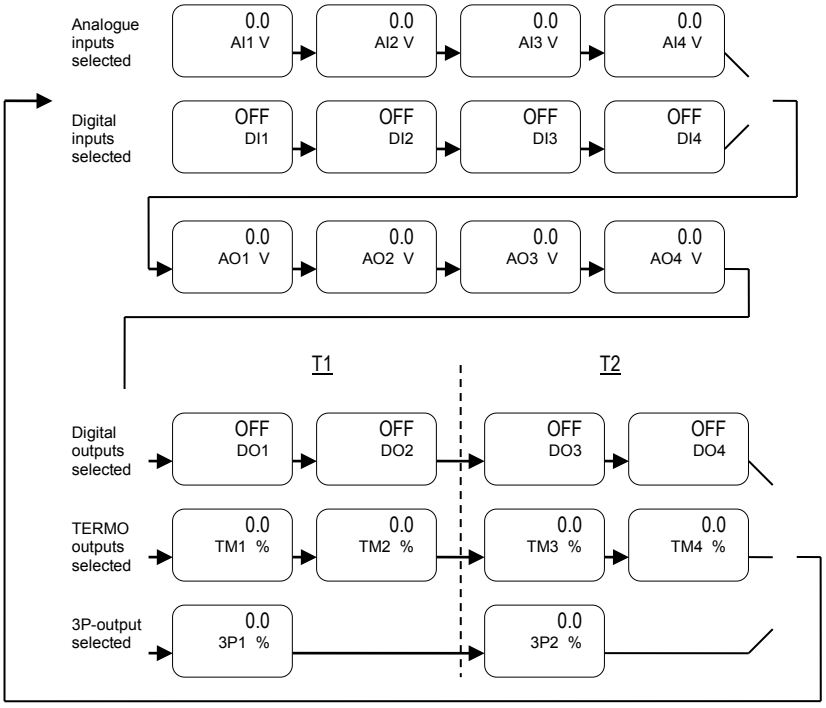
The settings of the blocks t1 and t2, with triac outputs, will be made by using the Output menu.

The example below indicates that the outputs A1 and B1 of the block t1 are controlling one directly working 3-point actuator. No setting has been made for the outputs A2 and B2 of the block t2.



USER MODE

Values or statuses of the inputs and outputs can be seen on the device display. The information on the display is changing automatically as shown in the following figure.



The changing of the displays can be stopped by pushing 'OK' when the wanted value is on the display.

The views can be changed manually by pushing the "OK" button. The views start changing automatically if the buttons are not pushed for 60 seconds.

Changing the output values

The output values can be changed via Modbus or with the device buttons. The possibility to control the output values with the device buttons is useful when commissioning.

NOTE: The value set with the device buttons will be overwritten when the same output is controlled via the Modbus.

Changing the output values with the device buttons:

1. Select the output by pressing the "OK" button.
2. Press the "M" button.
3. Change the output value by pressing the "+" and "-" buttons.
4. Accept the value by pressing the "OK" button.

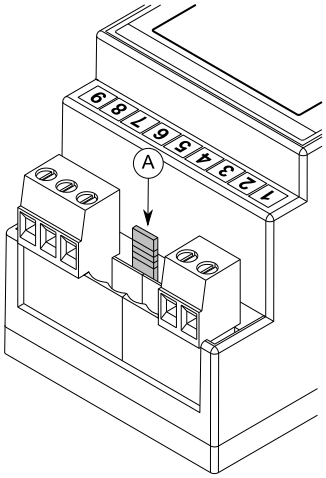
MODBUS

Bus properties

Protocol	RS-485 Modbus RTU
Bus speed	9600/19200/38400 bit/s
Data bits	8
Parity	none/odd/even
Stop bits	1
Network size	up to 127 devices per segment

Bus termination

The Modbus can be terminated by placing the termination jumper.



A. Termination jumper

Supported Modbus functions

0x01	Read Coils
0x02	Read Discrete Inputs
0x03	Read Holding Registers
0x04	Read Input Registers
0x05	Write Single Coil
0x06	Write Single Register
0x0F	Write Multiple Coils
0x10	Write Multiple Registers
0x17	Read/Write Multiple Registers

Modbus registers

Data type:

bit	= 0 or 1
unsigned	= unsigned integer (0…65535)
signed	= integer (-32768…32767)

NOTE: The memory durability is 1 000 000 write cycles.

Coils (read / write)

Register	Parameter description	Data type	Value	Range	Default
1	DO1 - manual mode	bit	0…1	0=off, 1=on	0
2	DO2 - manual mode	bit	0…1	0=off, 1=on	0
3	DO3 - manual mode	bit	0…1	0=off, 1=on	0
4	DO4 - manual mode	bit	0…1	0=off, 1=on	0

Discrete inputs (read only)

Register	Parameter description	Data type	Value	Range
10001	AI1 Digital Input	bit	0…1	0=off, 1=on
10002	AI2 Digital Input	bit	0…1	0=off, 1=on
10003	AI3 Digital Input	bit	0…1	0=off, 1=on
10004	AI4 Digital Input	bit	0…1	0=off, 1=on

Input registers (read only)

Register	Parameter description	Data type	Value	Range
30001	AI1 value	Signed 16	0…1000	0.0…100.0 (%)
30002	AI2 value	Signed 16	0…1000	0.0…100.0 (%)
30003	AI3 value	Signed 16	0…1000	0.0…100.0 (%)
30004	AI4 value	Signed 16	0…1000	0.0…100.0 (%)
30005	AI1 digital counter	Unsigned 16	0…65535	0…65535
30006	AI2 digital counter	Unsigned 16	0…65535	0…65535
30007	AI3 digital counter	Unsigned 16	0…65535	0…65535
30008	AI4 digital counter	Unsigned 16	0…65535	0…65535

Holding registers (read / write)

Register	Parameter description	Data type	Value	Range	Default
40001	AO1 value	Signed 16	0…1000	0.0…100.0 (%)	0
40002	AO2 value	Signed 16	0…1000	0.0…100.0 (%)	0
40003	AO3 value	Signed 16	0…1000	0.0…100.0 (%)	0
40004	AO4 value	Signed 16	0…1000	0.0…100.0 (%)	0
40005	3P MOTOR1 VALUE or THERM1 out	Signed 16	0…1000	0.0…100.0 (%)	25
40006	THERM2 out	Signed 16	0…1000	0.0…100.0 (%)	0
40007	3P MOTOR2 VALUE or THERM3 out	Signed 16	0…1000	0.0…100.0 (%)	25
40008	THERM4 out	Signed 16	0…1000	0.0…100.0 (%)	0