Product data sheet

SMART CONTROLS

Smart Controller Expansions

16 Digital inputs

Features

- MODBUS RTU SLAVE
- 15 Configurable Address
- 24 V DC Power

Ordering Information

Range of master controllers

DEVICE P/N	GSM/LTE	WiFi	Antenna
SC-PL-I4-A4-Q8	No	Yes	Internal
SC-PL-I4-A4-Q8-E	No	Yes	External WiFi
SC-PL-I4-A4-Q8-L	Yes	Yes	External GSM

Range of expansion modules

DEVICE P/N	I/O
SC-EX-M-D16	16 x Digital Input
SC-EX-M-Q16	16 x Transistor Output
SC-EX-M-V8	8 x Analog Input 0 - 10V
SC-EX-M-I8	8 x Analog Input 4 - 20mA
SC-EX-M-QV4	4 x Analog Output 0 - 10V
SC-EX-M-QM4	4 x Analog Output 4 - 20mA
SC-EX-M-TC4	4 x K type thermocouple

Main

Range of product	Smart Controls
Product type	I/O Expansion
Rated supply voltage	24 V DC 0.04A
Communication	MODBUS RTU over RS-485

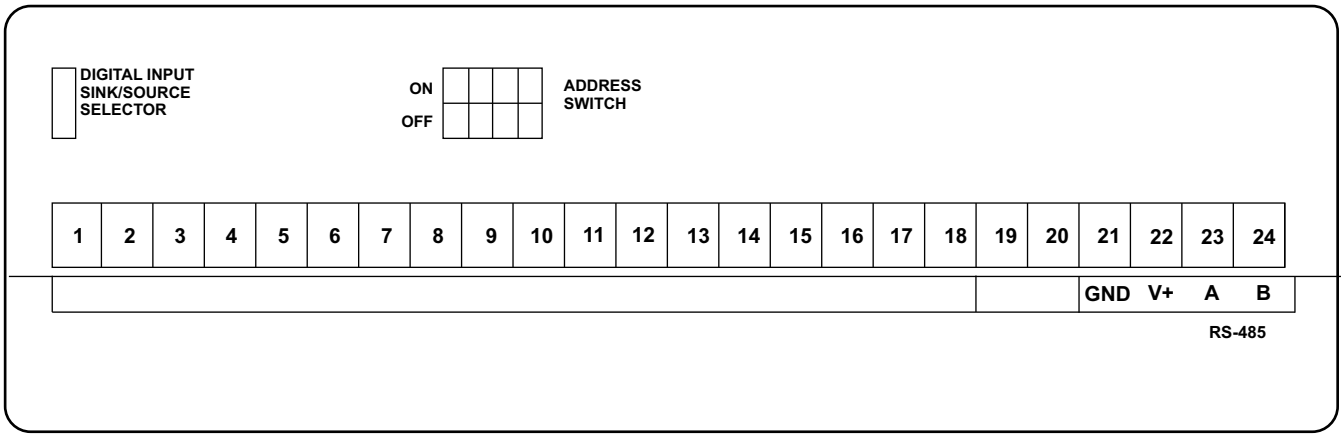
Complementary

Power consumption in W	10.2W
Local signalling	1 LED green for PWR 1 LED green for STATUS (Programmable)
Electrical connection	Screw terminal block for connections (pitch 5.08 mm)
Mounting support	Wall mounting Panel Mounting
Height	130 mm
Depth	27 mm
Width	150 mm
Enclosure Material	ABS UL-94-HB
Product weight	0.43 Kg

Environment

Resistance to electrostatic discharge	4kV on contact 8kV on air
Resistance to electro magnetic fields	10 V/m (80 MHz ..... 1GHz) 3 V/m (1.4 MHz ..... 2 GHz) 1 V/m (2 MHz ..... 3 GHz)
Immunity to microbreaks	10 ms
Relative humidity	10....95% without condensation in operation
IP degree of protection	IP54
Operating altitude	0...2000m
Storage altitude	0...3000m
Shock resistance	15 gn for 11 ms

Modbus Address Setup



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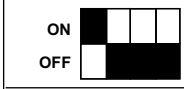	1
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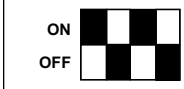	5
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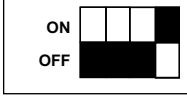
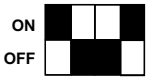
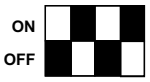
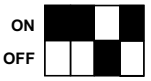
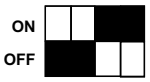
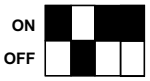
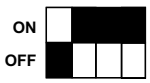
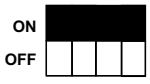
	8

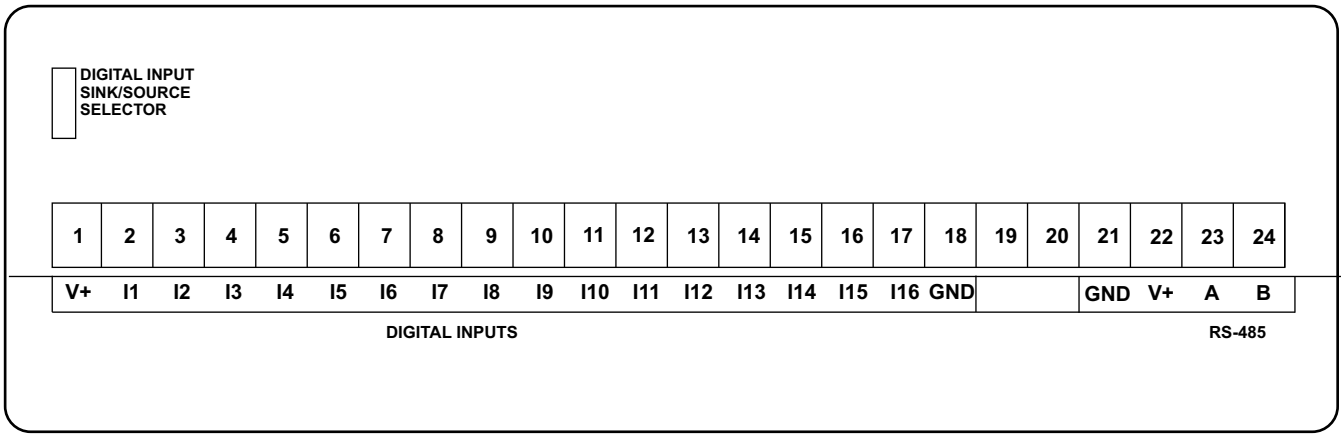
SWITCH CONFIGURATION	ADDRESS
	9
	10
	11
	12
	13
	14
	15

Product data sheet

Connections & Schematics

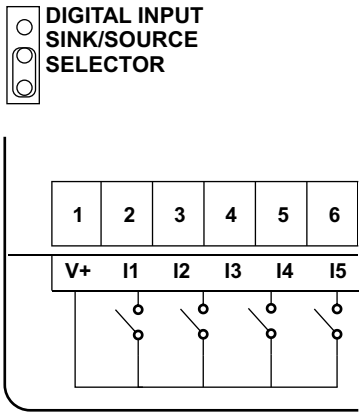
SMART CONTROLS

SC-EX-M-D16

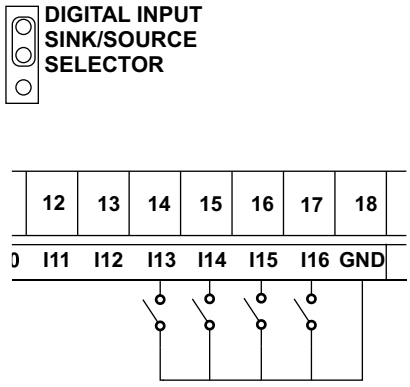


PIN	NAME	DESCRIPTION
1	V+	12V + OUTPUT Max.10mA
2	I1	Digital Input 1
3	I2	Digital Input 2
4	I3	Digital Input 3
5	I4	Digital Input 4
6	I5	Digital Input 5
7	I6	Digital Input 6
8	I7	Digital Input 7
9	I8	Digital Input 8
10	I9	Digital Input 9
11	I10	Digital Input 10
12	I11	Digital Input 11
13	I12	Digital Input 12
14	I13	Digital Input 13
15	I14	Digital Input 14
16	I15	Digital Input 15
17	I16	Digital Input 16
18	GND	GROUND
19	--	Not Connected
20	--	Not Connected
21	GND	GROUND
22	V+	24V+ for Digital Input
23	A	RS-485 A
24	B	RS-485 B

Digital Input Wiring Diagram | Source Inputs

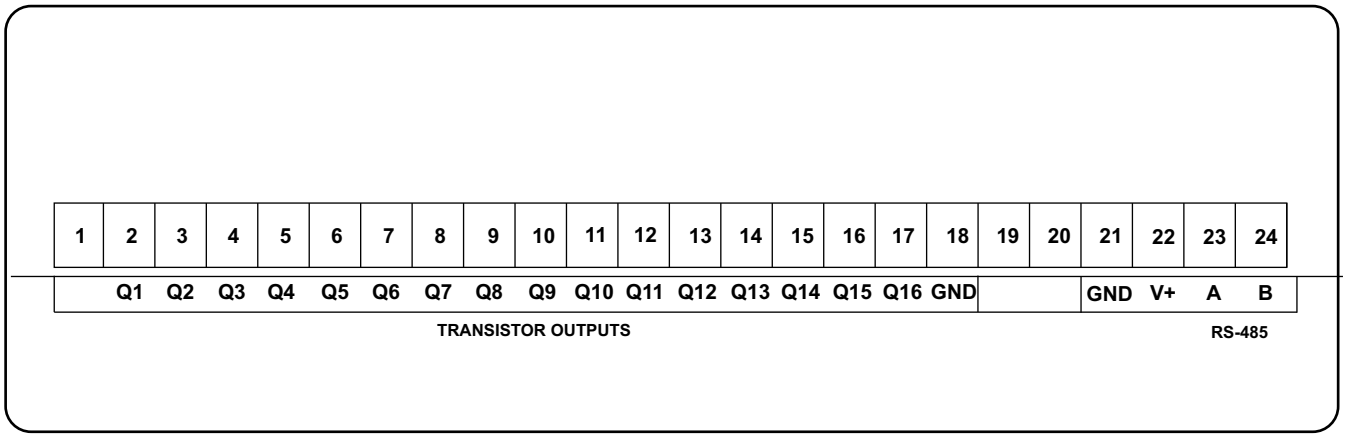


Digital Input Wiring Diagram | Sink Inputs

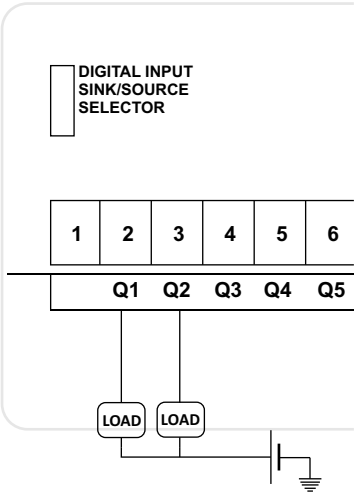


Discrete input number	16 Digital Inputs
Discrete logic input	Sink or source
Discrete input voltage	24 V
Discrete input voltage type	DC
Voltage state 1 guaranteed	>=18V for input
Voltage state 0 guaranteed	<=6 V for input
Discrete input current	5 mA for input
Input impedance	4.7k Ohm for input

***Refer product user guide for MODBUS Address information**



PIN	NAME	DESCRIPTION
1	--	--
2	Q1	Transistor Output 1
3	Q2	Transistor Output 2
4	Q3	Transistor Output 3
5	Q4	Transistor Output 4
6	Q5	Transistor Output 5
7	Q6	Transistor Output 6
8	Q7	Transistor Output 7
9	Q8	Transistor Output 8
10	Q9	Transistor Output 9
11	Q10	Transistor Output 10
12	Q11	Transistor Output 11
13	Q12	Transistor Output 12
14	Q13	Transistor Output 13
15	Q14	Transistor Output 14
16	Q15	Transistor Output 15
17	Q16	Transistor Output 16
18	GND	GROUND
19	--	Not Connected
20	--	Not Connected
21	GND	GROUND
22	V+	24V+ for Digital Input
23	A	RS-485 A
24	B	RS-485 B



Type	Open Collector NPN
Maximum Voltage	24V DC
Max. current drive	25 mA @ 12V DC
Max. Power dissipation	310mW

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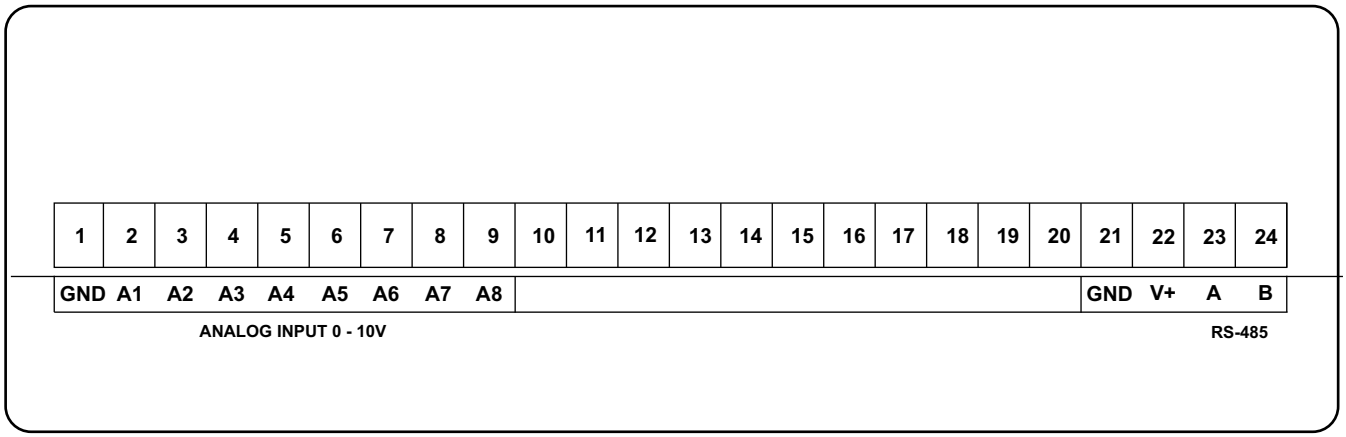
Product data sheet

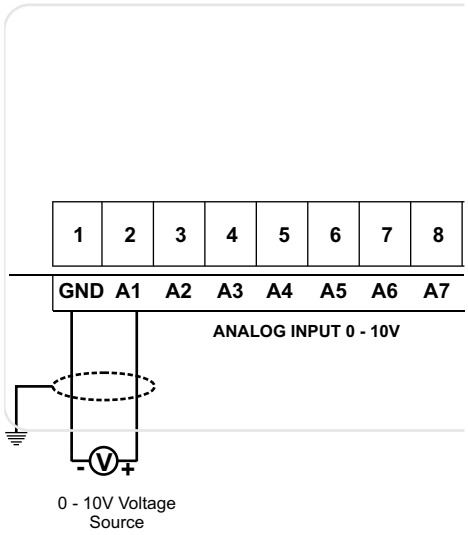
Connections & Schematics

SMART CONTROLS

SC-EX-M-V8



PIN	NAME	DESCRIPTION
1	GND	GROUND
2	A1	Analog Input 1
3	A2	Analog Input 2
4	A3	Analog Input 3
5	A4	Analog Input 4
6	A5	Analog Input 5
7	A6	Analog Input 6
8	A7	Analog Input 7
9	A8	Analog Input 8
10	–	–
11	–	–
12	–	–
13	–	–
14	–	–
15	–	–
16	–	–
17	–	–
18	–	GROUND
19	–	Not Connected
20	–	Not Connected
21	GND	GROUND
22	V+	24V+ for Digital Input
23	A	RS-485 A
24	B	RS-485 B



Type	0 - 10 V DC
Resolution	16 bit
Input Impedance	3.3 kOhm

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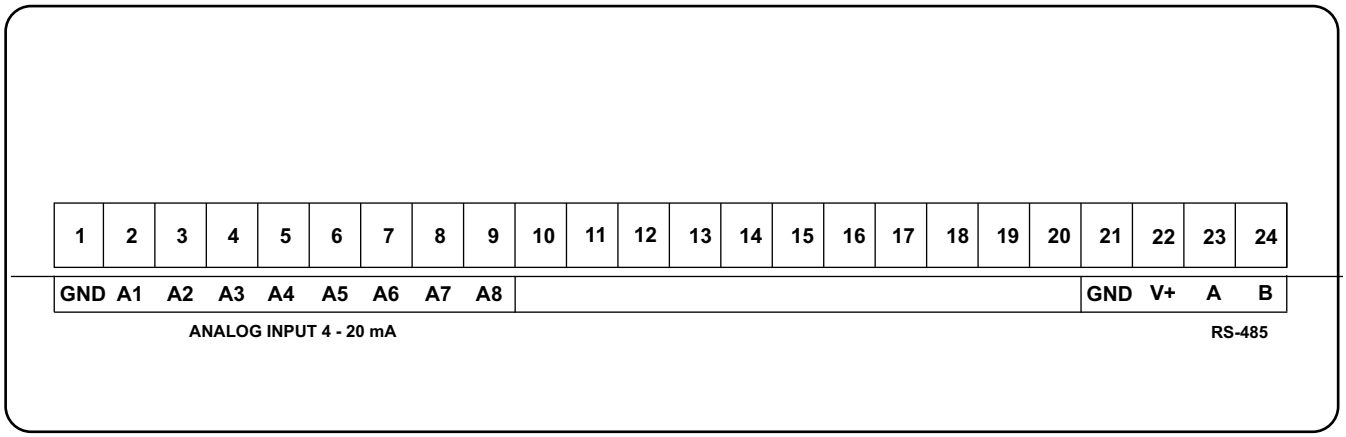
Connections & Schematics

SMART CONTROLS

SC-EX-M-I8



PIN	NAME	DESCRIPTION
1	GND	GROUND
2	A1	Analog Input 1
3	A2	Analog Input 2
4	A3	Analog Input 3
5	A4	Analog Input 4
6	A5	Analog Input 5
7	A6	Analog Input 6
8	A7	Analog Input 7
9	A8	Analog Input 8
10	–	–
11	–	–
12	–	–
13	–	–
14	–	–
15	–	–
16	–	–
17	–	–
18	–	GROUND
19	–	Not Connected
20	–	Not Connected
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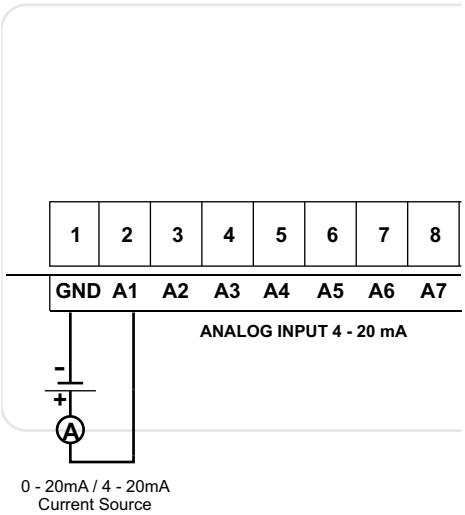

Type	0 - 10 V DC
Resolution	16 bit
Input Impedance	10 Ohm

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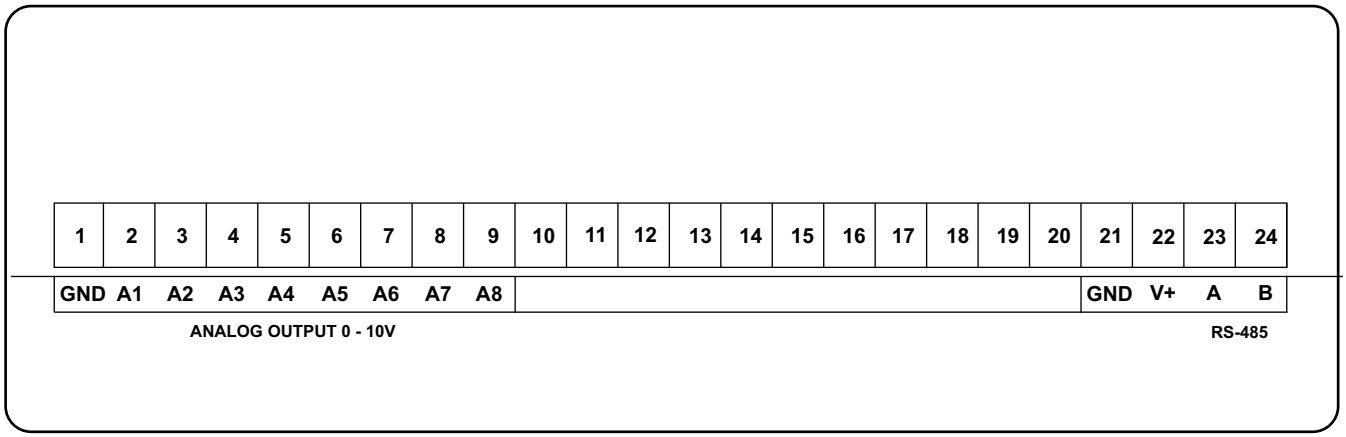
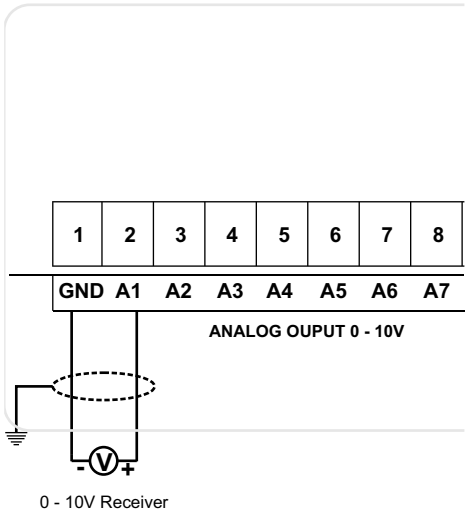
Connections & Schematics

SMART CONTROLS

SC-EX-M-V8



PIN	NAME	DESCRIPTION
1	GND	GROUND
2	A1	Analog Output 1
3	A2	Analog Output 2
4	A3	Analog Output 3
5	A4	Analog Output 4
6	–	–
7	–	–
8	–	–
9	–	–
10	–	–
11	–	–
12	–	–
13	–	–
14	–	–
15	–	–
16	–	–
17	–	–
18	–	–
19	–	–
20	–	–
21	GND	GROUND
22	V+	24V+ for Digital Input
23	A	RS-485 A
24	B	RS-485 B



Type	0 - 10 V DC
Resolution	10 bit
Input Impedance	3.3 kOhm

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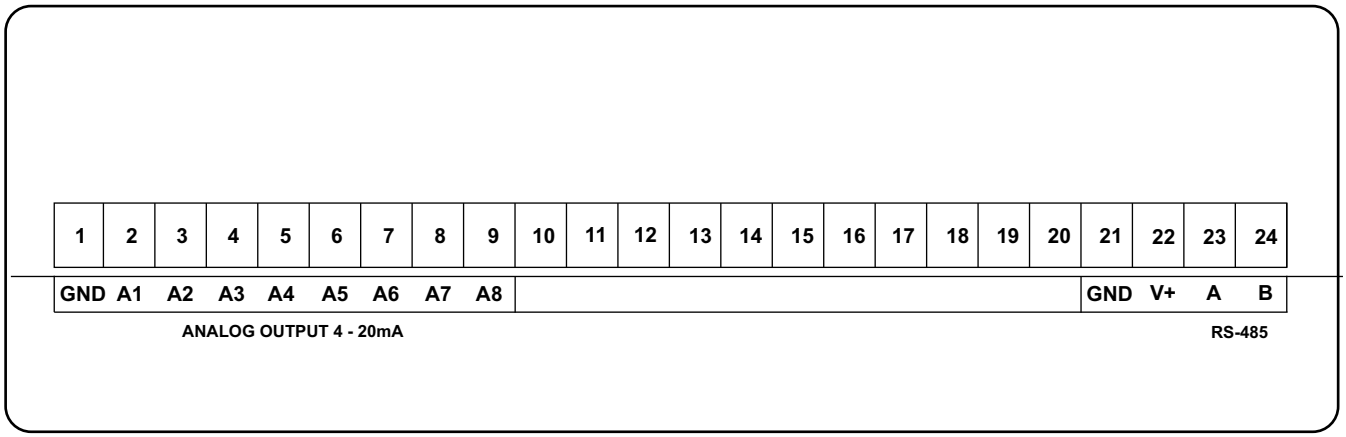
Product data sheet

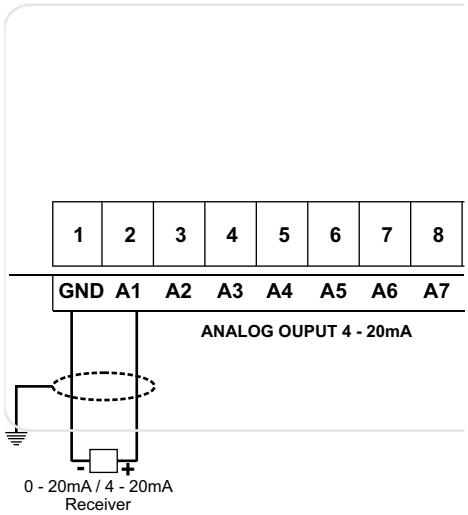
Connections & Schematics

SMART CONTROLS

SC-EX-M-V8



PIN	NAME	DESCRIPTION
1	GND	GROUND
2	A1	Analog Output 1
3	A2	Analog Output 2
4	A3	Analog Output 3
5	A4	Analog Output 4
6	–	–
7	–	–
8	–	–
9	–	–
10	–	–
11	–	–
12	–	–
13	–	–
14	–	–
15	–	–
16	–	–
17	–	–
18	–	–
19	–	–
20	–	–
21	GND	GROUND
22	V+	24V+ for Digital Input
23	A	RS-485 A
24	B	RS-485 B



Type	4 - 20 mA
Resolution	10 bit
Input Impedance	3.3 kOhm

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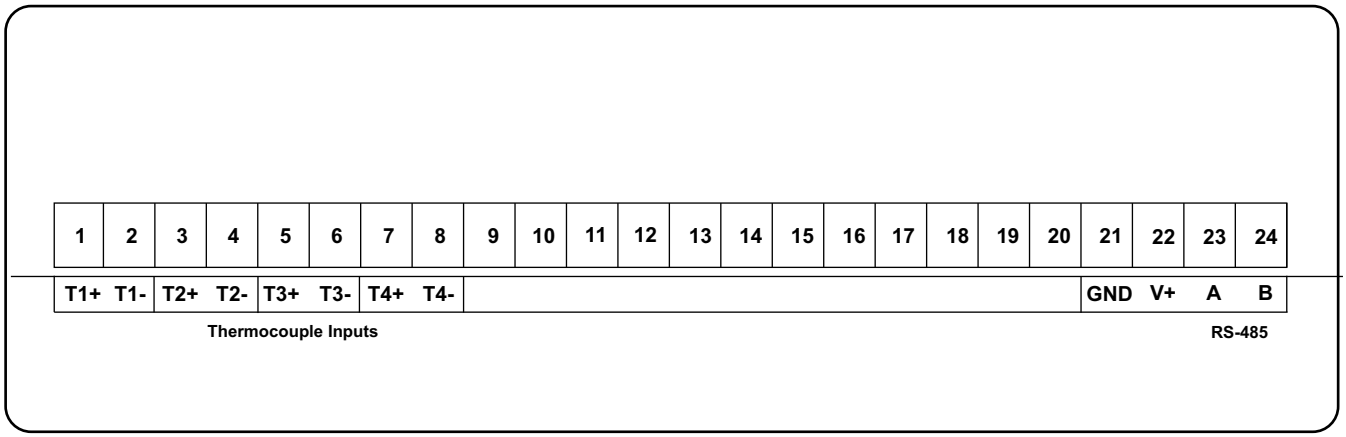
Product data sheet

Connections & Schematics

SMART CONTROLS

SC-EX-M-TC4

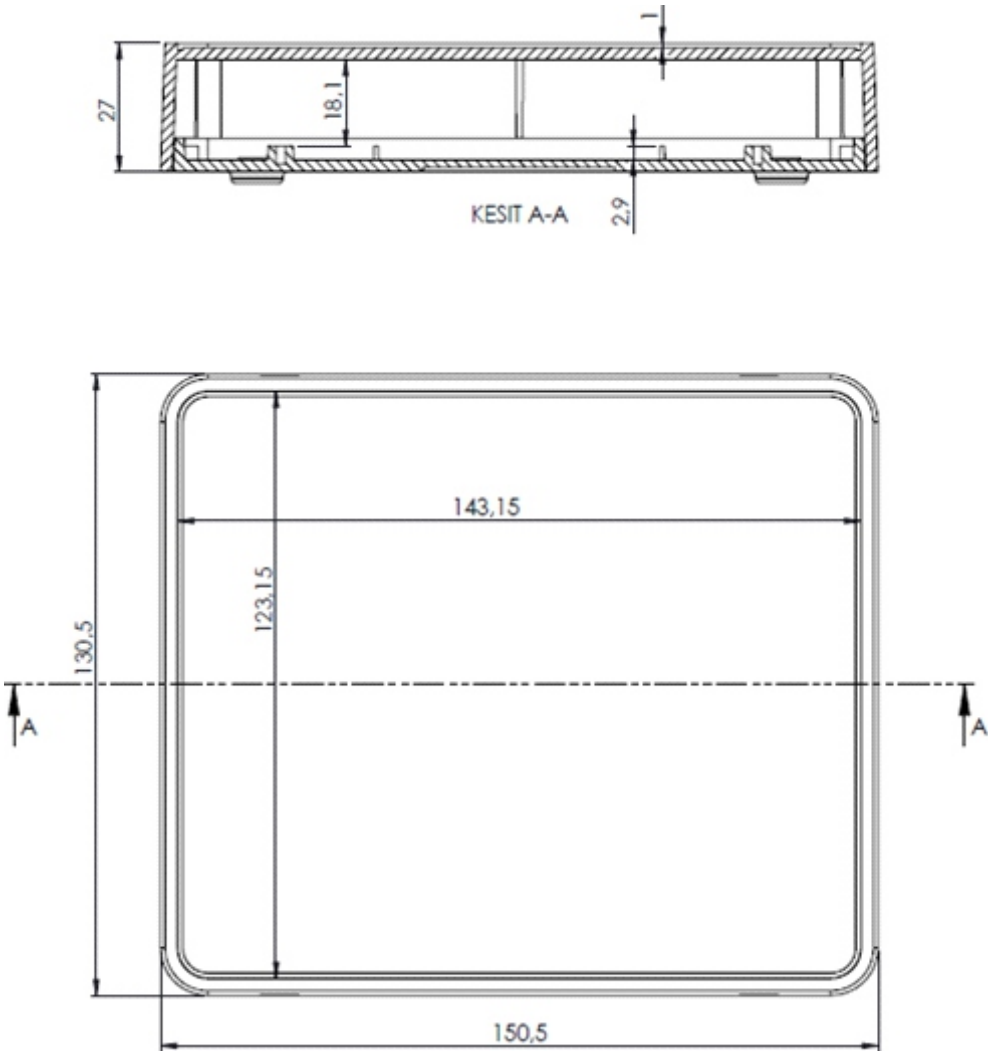


PIN	NAME	DESCRIPTION
1	T1+	Thermocouple 1 +
2	T1-	Thermocouple 1 -
3	T2+	Thermocouple 2 +
4	T2-	Thermocouple 2 -
5	T3+	Thermocouple3 +
6	T3-	Thermocouple 3 -
7	T4+	Thermocouple 4 +
8	T4-	Thermocouple 4 -
9	–	–
10	–	–
11	–	–
12	–	–
13	–	–
14	–	–
15	–	–
16	–	–
17	–	–
18	–	
19	–	–
20	–	–
21	GND	GROUND
22	V+	24V+ for Digital Input
23	A	RS-485 A
24	B	RS-485 B

Type	K - type Thermocouple
Resolution	14 bit
Cold Junction Compensation	YES

***Refer product user guide for MODBUS Address information**

Dimensions



Reach-Us

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Web : https://www.sensoper.com/support/

Document Revisions

Version	Changes	Date
1.0	Initial Release	15/08/2021