Product data sheet

Characterstics

SMART CONTROLS

SC-PL-I4-A4-Q8

Features

- 4 Digital inputs
- 4 Analog inputs 4-20mA
- 4 Relay outputs
- 2 Transistor outputs
- RS-485 communication
- 24V Sensor supply
- 4 Programmable Function Keys
- 2.4 inch OLED
- Built-in notification Buzzer
- Built-in Status Indicator
- ESP32-WROOM SoC
- WiFi Antenna: Internal Optional : External
- 100-240V AC 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

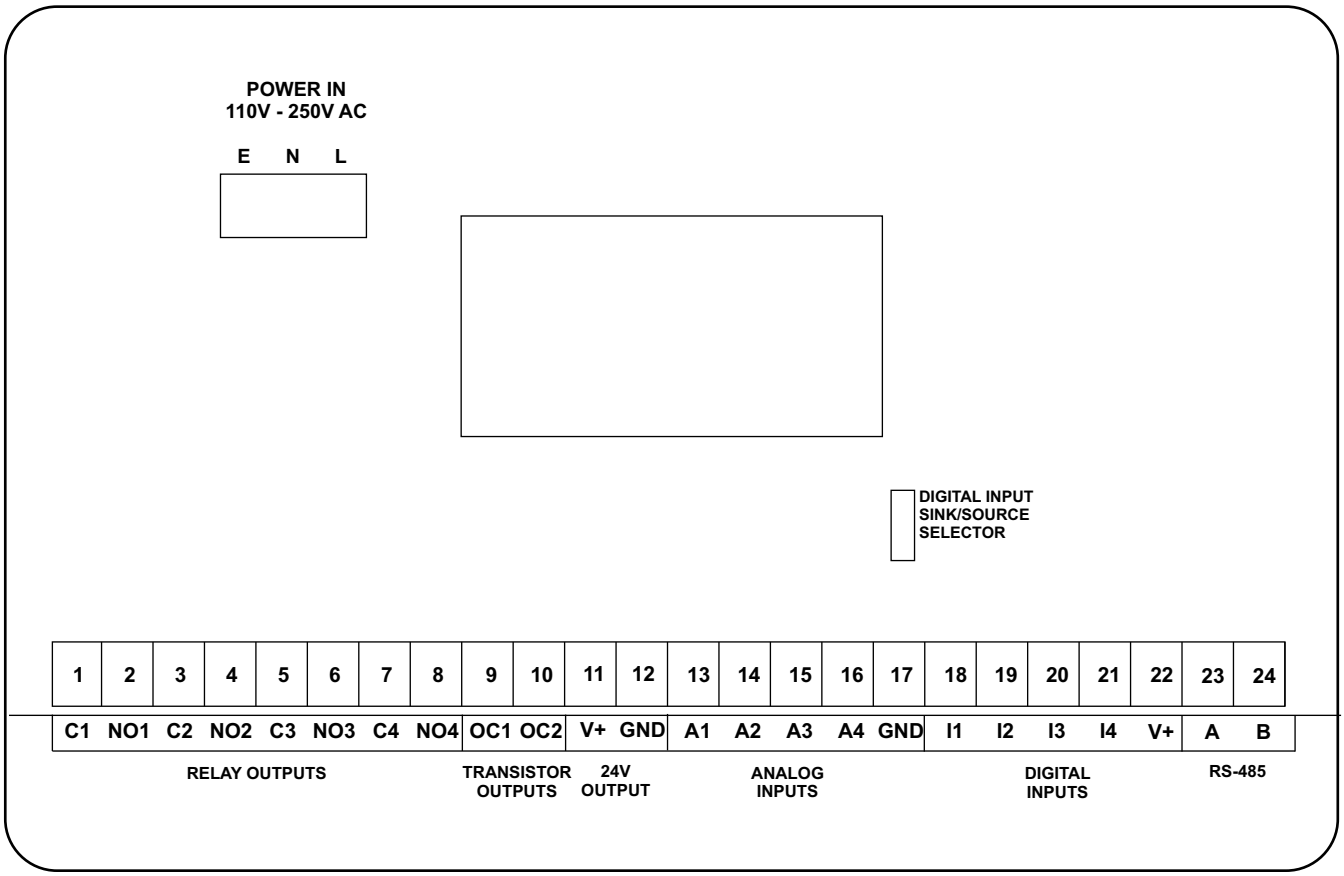
Range of product	Smart Controls
Product type	Programmable Controller
Rated supply voltage	100-240VAC 0.25A 50/60 Hz 277VAC 0.125A 50/60 Hz
Discrete input number	4 Digital Inputs & 4 Analog Inputs
Discrete output type	Relay and Transistor
Discrete output number	4 Relay outputs, 2 Transistor outputs
Discrete output voltage	24V DC for transistor output
Discrete output current	25.8 mA with OC1... OC2 / Transistor Outputs 3A with NO1... NO4 / Relay Outputs
Communication	1 x RS-485

Complementary

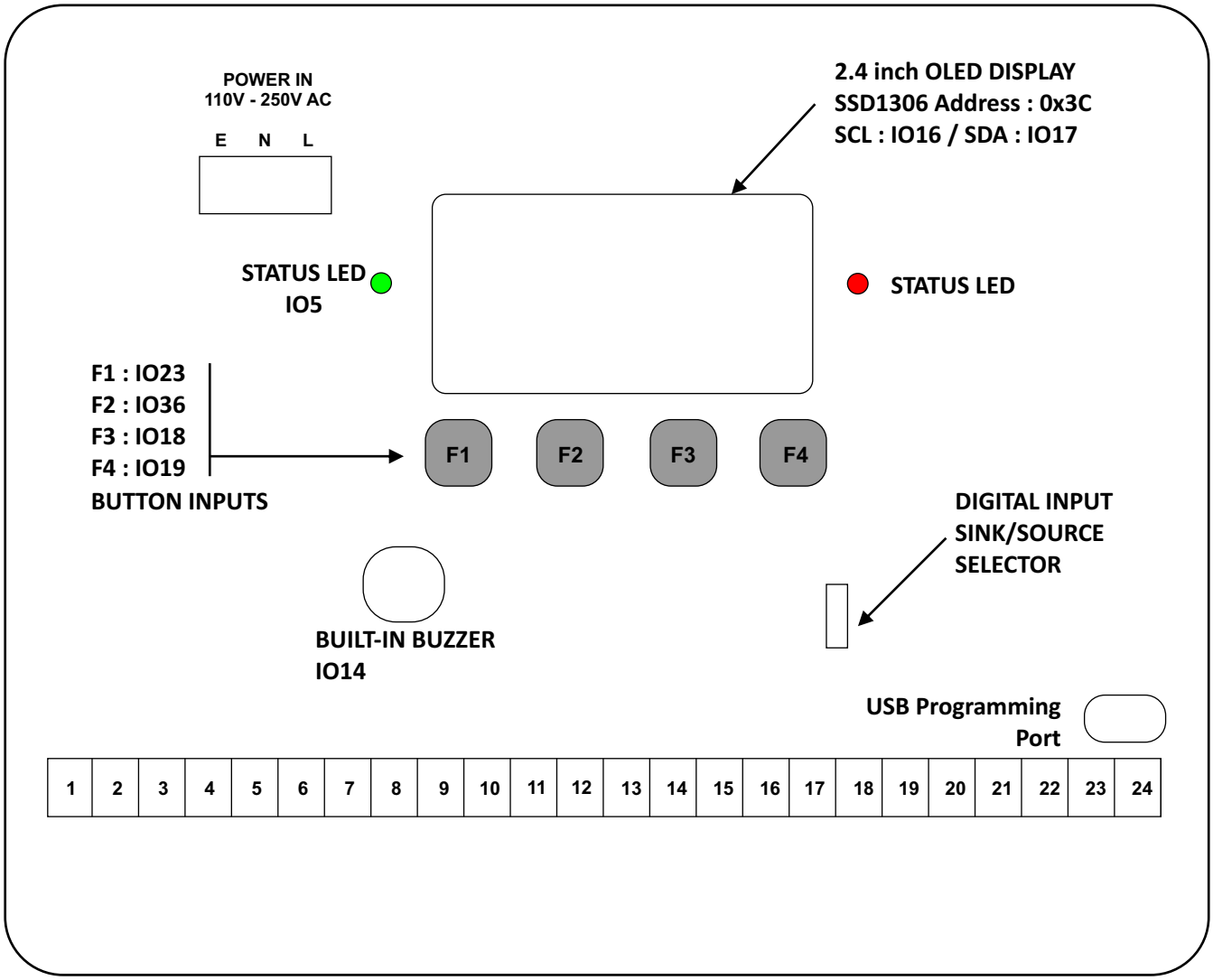
Power consumption in W	10.2W
Discrete logic input	Sink or source
Discrete input voltage	24 V
Discrete input voltage type	DC
Voltage state 1 guaranteed	>=18V for input
Voltage state 0 guaranteed	<=6 V for input
Discrete input current	5 mA for input
Input impedance	4.7k Ohm for input
Memory capacity	Refer datasheet of base micro-controller
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

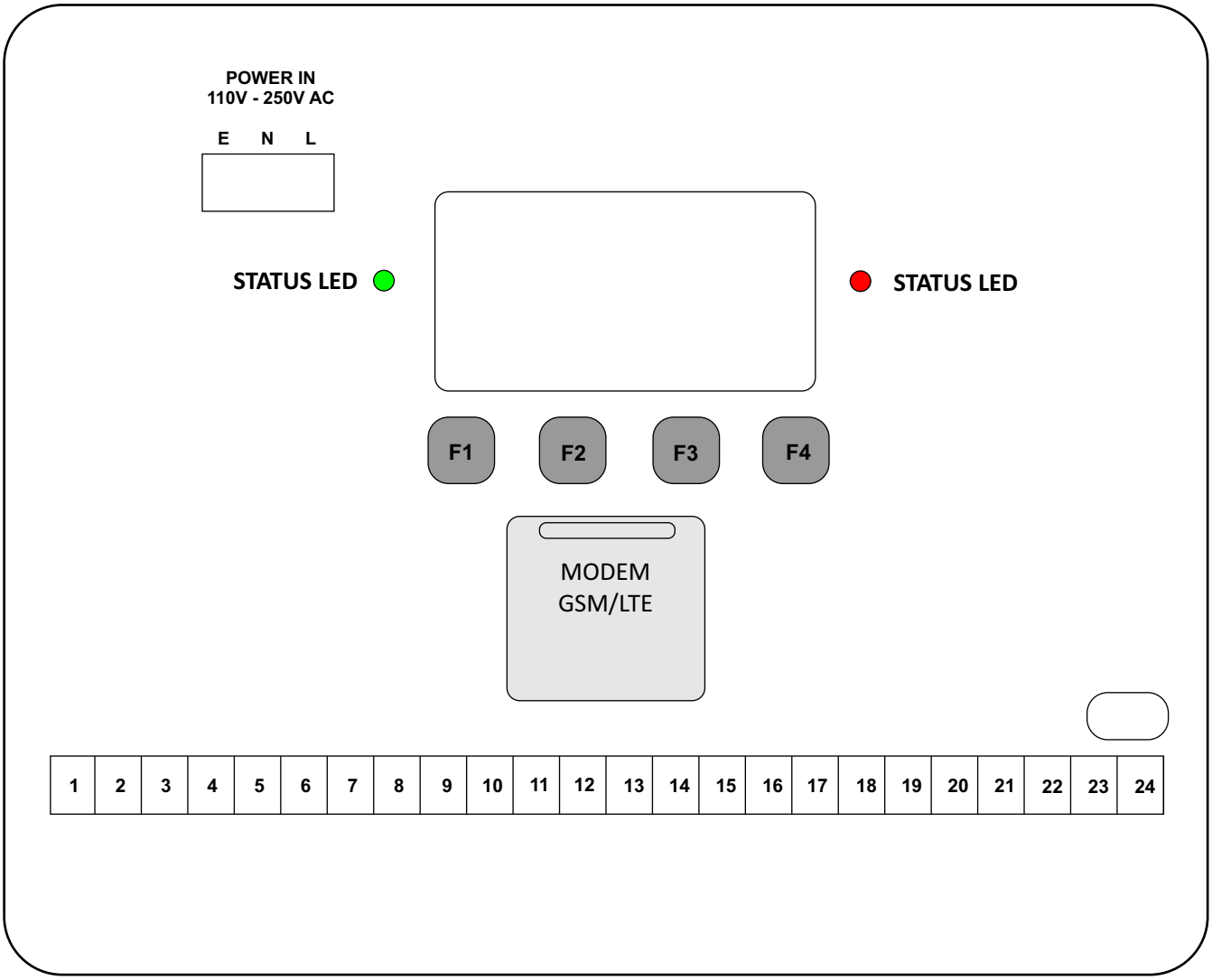


PIN	NAME	DESCRIPTION
1	C1	Common of Relay 1
2	NO1	Relay 1 NC Output
3	C2	Common of Relay 2
4	NO2	Relay 2 NC Output
5	C3	Common of Relay 3
6	NO3	Relay 3 NC Output
7	C4	Common of Relay 4
8	NO4	Relay 4 NC Output
9	OC1	Transistor Output 1
10	OC2	Transistor Output 2
11	V+	24V 100mA Output
12	GND	Ground
13	A1	Analog Input 1
14	A2	Analog Input 2
15	A3	Analog Input 3
16	A4	Analog Input 4
17	GND	GND for Digital Input
18	I1	Digital Input 1
19	I2	Digital Input 2
20	I3	Digital Input 3
21	I4	Digital Input 4
22	V+	24V+ for Digital Input
23	A	A
24	B	B


POWER IN
110V - 250V AC
E N L
2.4 inch OLED DISPLAY
SSD1306 Address : 0x3C
SCL : IO16 / SDA : IO17
STATUS LED
IO5
STATUS LED
F1 : IO23
F2 : IO36
F3 : IO18
F4 : IO19
BUTTON INPUTS
F1
F2
F3
F4
DIGITAL INPUT
SINK/SOURCE
SELECTOR
BUILT-IN BUZZER
IO14
USB Programming
Port
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

GSM/LTE Modem (Optional)

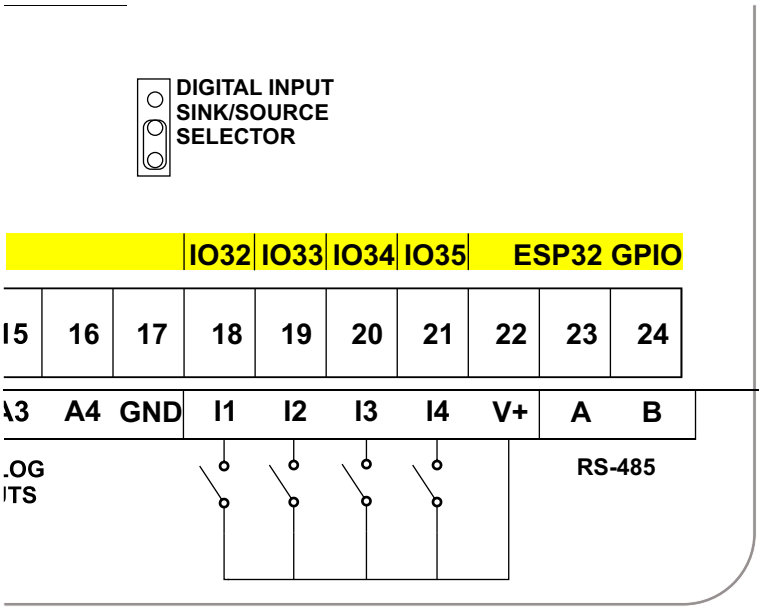
MODEM	SIMCOM SIM7500E
Supported Bands	FDD-LTE B1/B3/B7/B8//B20 GSM/GPRS/EDGE 900/1800 MHz
Control	UART via AT Commands
UART Connection	TX : IO21 / RX : IO22 RESET : IO15
Data Transfer Specifications	• LTE CAT1 • EDGE Class • GPRS • CSD



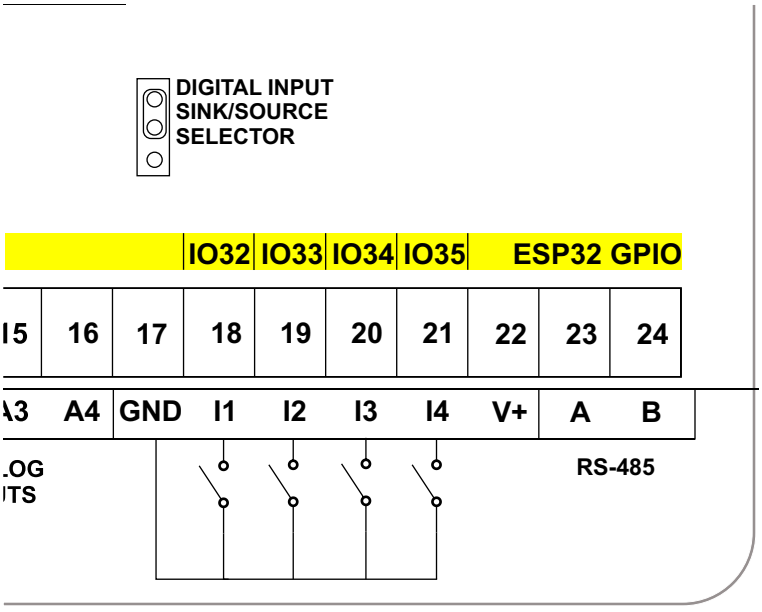
Specifications

Type	Optically Isolated
Rated Voltage	24V DC

Digital Input Wiring Diagram | Source Inputs

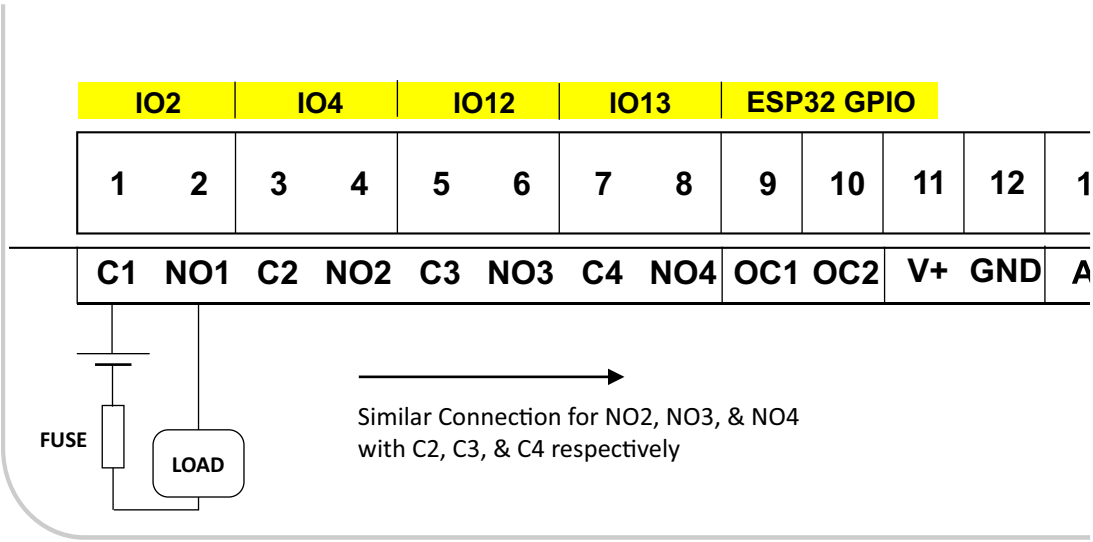


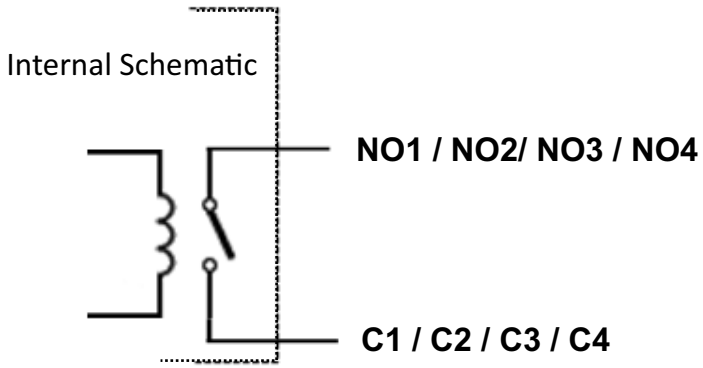
Digital Input Wiring Diagram | Sink Inputs



Specifications

Type	SPST NO Relay
Maximum Voltage	270VAC / 125 VDC
Max. Contact current rating	3A
Min. Contact switching load	100mA @5V

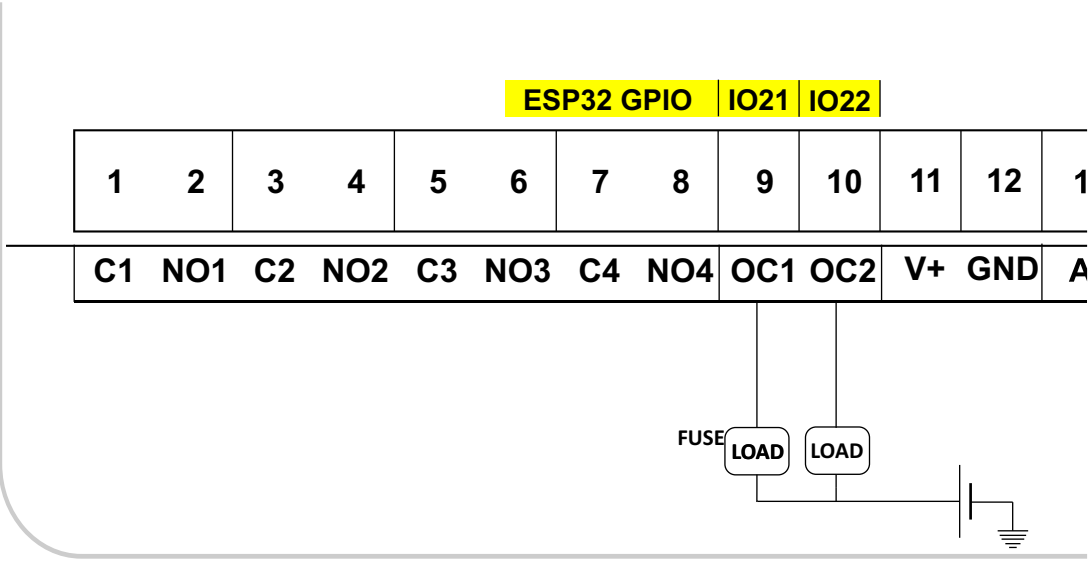




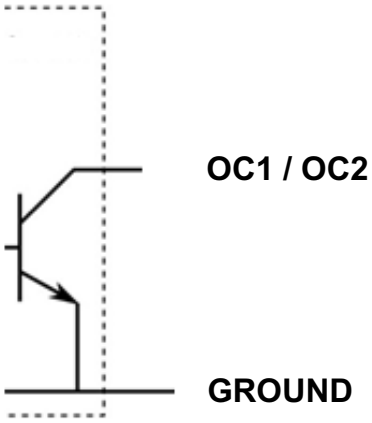
Specifications

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

* Not available if GSM/LTE modem option is used.

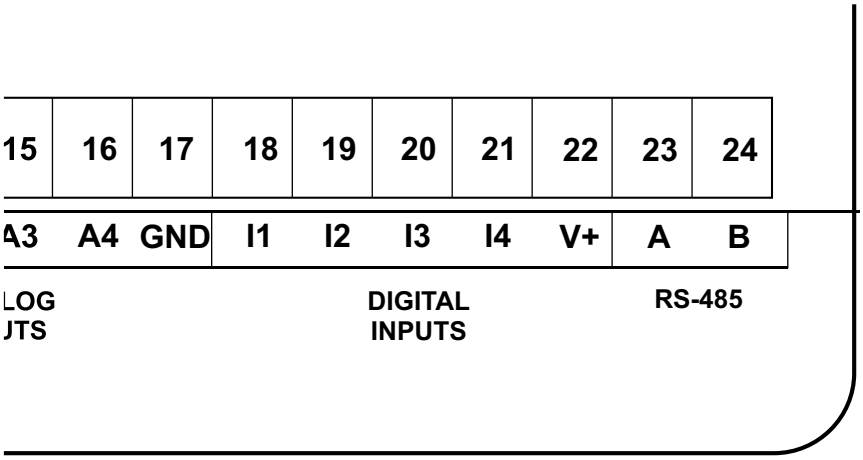


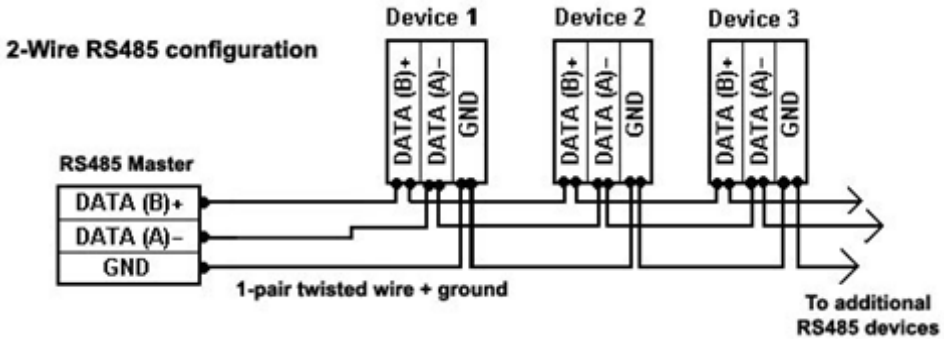
Internal Schematic



Specifications

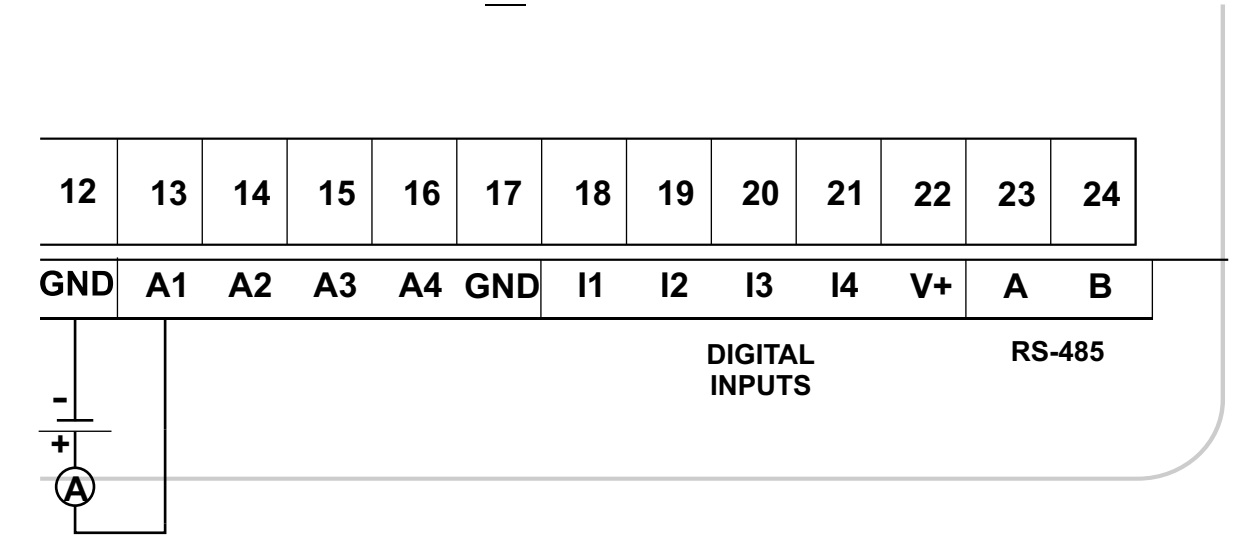
Driver	MAX485	
UART Connection	IO26-RXD	IO27-TXD
Flow control	IO25	



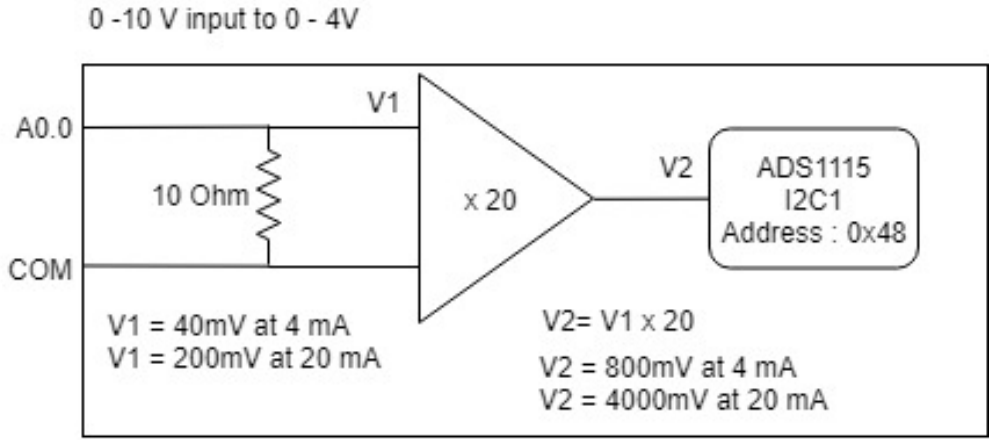


Specifications

ADC	ADS1115
Communication	i2c SCL : IO16 / SDA : IO17
Address	0x48
Resolution	16 bit



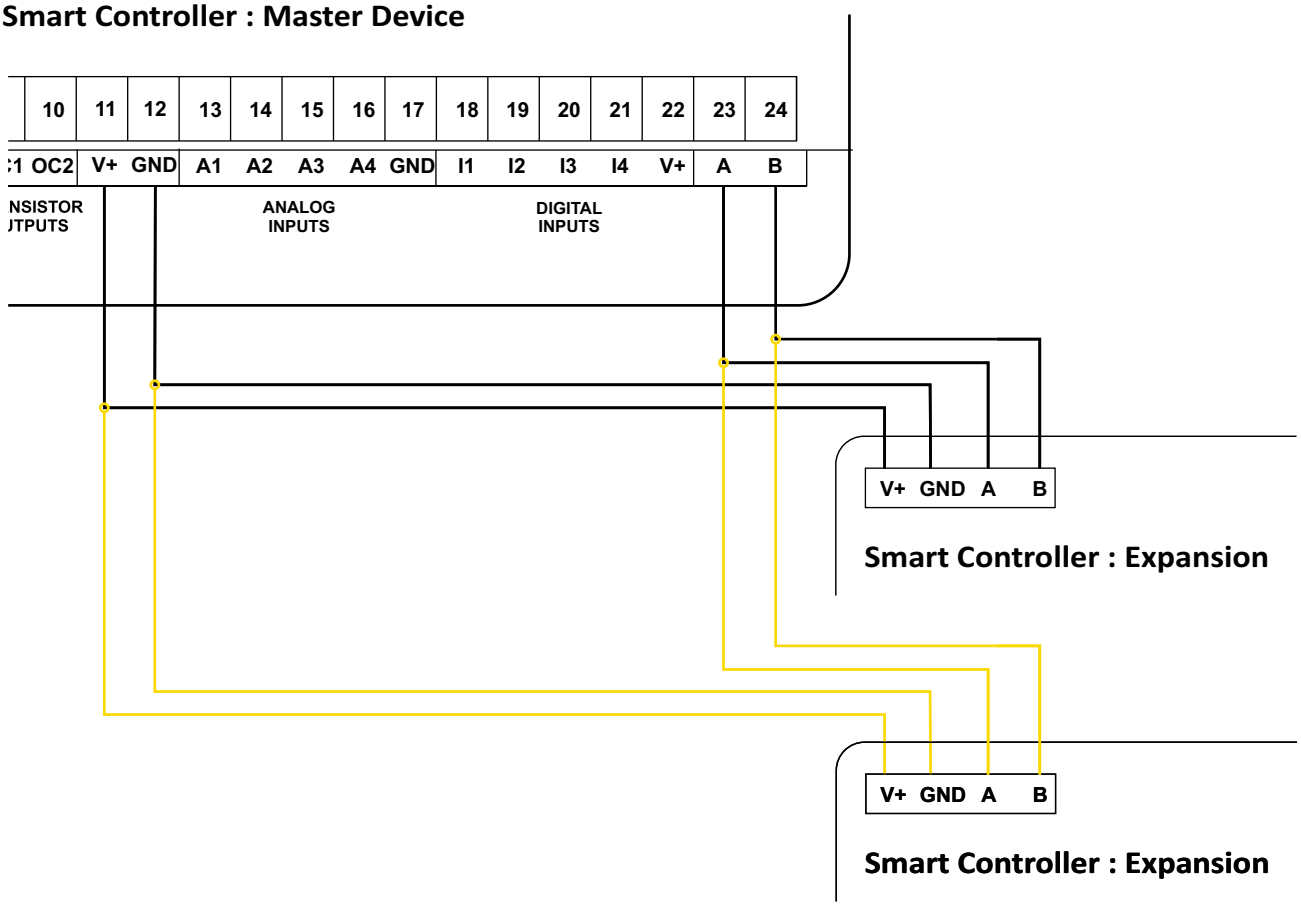
0 - 20mA / 4 - 20mA
Current Source



Specifications

Expansion Types	Remote I/O RS-485
Communication	RS-485
Address	Set by swithes on Expansion Modules
Protocol	Modbus RTU
Max. Count	8

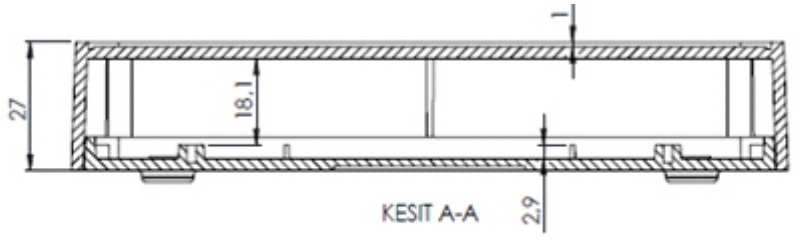
Smart Controller : Master Device

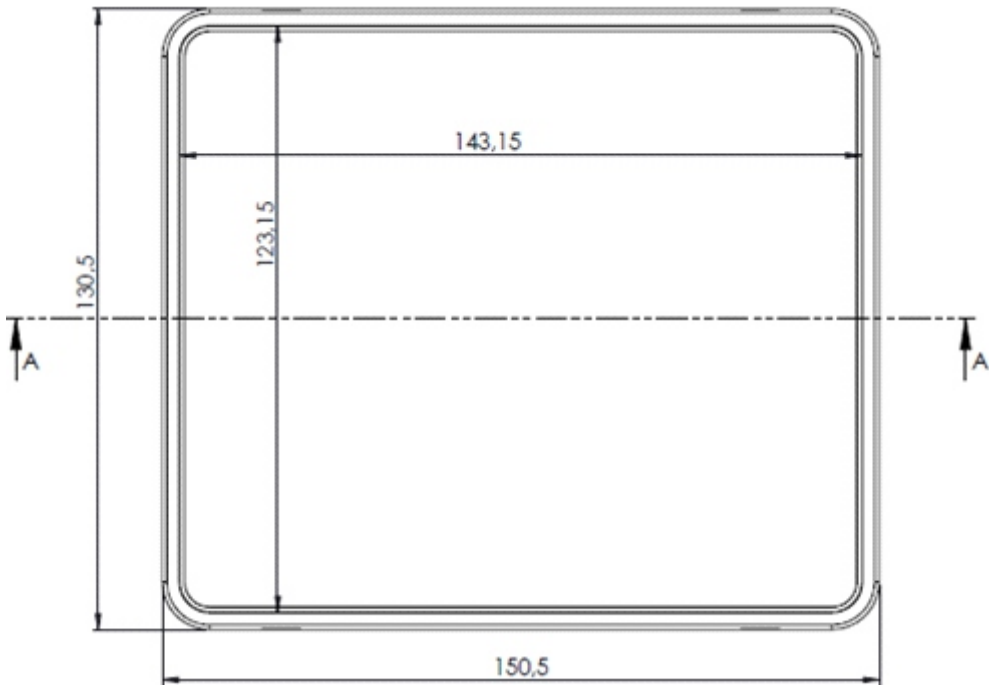


Programming procedure

SOC	ESP32-WROOM32
Flash Mode	QIO
Flash Size	4MB
Flash Frequency	10MHz
PSRAM	Disabled
Upload Speed	115200
Compatible IDE	ESP-IDF , Platform I/O

Dimensions





Reach-Us

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Document Revisions

Version	Changes	Date
1.2	Initial Release	13/08/2021