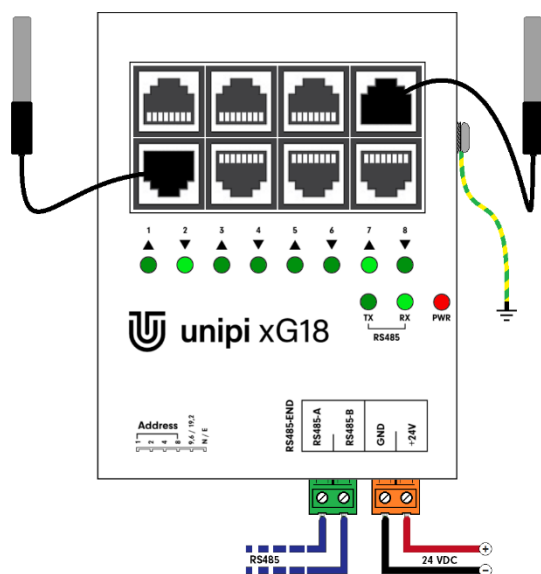# Unipi Extension xG18

BASIC DESCRIPTION

- The device is designed to read data from up to 8 Unipi 1-Wire DS18B20 temperature sensors
- Features an RS-485 interface for easy connection to any control system supporting the Modbus RTU protocol
- Direct SW support on all Unipi PLCs through the Mervis IDE environment

CONNECTION EXAMPLE

CONNECTORS AND DIP SWITCHES

Label	Meaning
+24V	Positive pole of the power supply
GND	Negative pole of the power supply
⏚	Ground screw terminal
Channel 1 - 8	1-Wire temp. sensor (RJ45 connector)
RS485-A / RS485-B	RS-485 screw terminals
DIP switch 1 – 6	Configuration of comm. parameters
RS485-END DIP switch	Attaches the RS-485 terminating resistor

POWER SUPPLY

Rated voltage - SELV	5 – 24 V DC
Reverse polarity protection	YES
Power consumption	Max. 0,2 W

1-WIRE INTERFACE

Number of channels	8
Sensors per channel	1
Sensor mode	Parasite – 2 wires per sensor

TYPICAL APPLICATIONS

- Boiler rooms, refrigeration facilities, heat exchange stations and other installations requiring many temperature sensors. Up to 32 xG18 modules can be connected to a single RS-485 bus (up to 256 sensors)
- Extensive industrial installations with large distances between measuring points – the RS-485 bus allows reliable communication at distances up to 1200 meters
- Installations with high reliability requirement – each sensor is on an individual channel. One failing or corrupted wiring of one sensor will not affect the remaining sensors

CONNECTION

- RS-485: pluggable screw terminals
- 1-Wire: RJ45 connector (standard for Unipi 1-Wire sensors)

DIP SWITCH SETTINGS

Description	Meaning	ON state	OFF state
1	Modbus address	Weight 1	Weight 0
2	Modbus address	Weight 2	Weight 0
4	Modbus address	Weight 4	Weight 0
8	Modbus address	Weight 8	Weight 0
9,6 / 19,2	Bitrate	9600 bps	19200 bps
N / E	Parity	None	Even

RS-485 INTERFACE

Galvanic isolation	NO
Indication of data traffic	YES
Overvoltage protection	YES, Max. 24 V
Terminating resistor	Built-in attachable 120 Ω

OPERATING AND STORAGE CONDITIONS

Storage temperature	-25 °C ... +75 °C
Storage humidity	10 % ... 95 %, non-condensing, non-aggressive
Operating temperature	-25 °C ... +75 °C
Operating humidity	10 % ... 95 %, non-condensing, non-aggressive
Construction	Aluminum box
Installation	DIN rail – 35 mm (EN 50022)
Protection	IP 20
Power/RS-485 connect.	Pluggable screw terminals
Sensor connection	RJ-45
Power/RS485 wire gauge	Max. 2,5 mm²
Dimensions	72 x 91 x 22 mm (w x h x d)
Weight	110 g

INSTALLATION

1. Attach DIN rail holder using screws to the back side of the module.
2. Configure communication parameters using DIP switches.
3. Clip-on the module onto DIN rail.
4. Connect grounding using tooth washer and screw.
5. Connect temperature sensors to the RJ45 connector.
6. Connect RS-485 communication line using pluggable screw terminal (green).
7. Connect power supply using pluggable screw terminal (orange).

SELECTION OF MODBUS REGISTERS

Register address	R/W	Data type	Description		Bit
1	R	INT	Measured temperatures T = reg_val / 100 In two's complement, negative temp. values are signed integer (16 bit)	CH1	
2	R	INT		CH2	
3	R	INT		CH3	
4	R	INT		CH4	
5	R	INT		CH5	
6	R	INT		CH6	
7	R	INT		CH7	
8	R	INT		CH8	
9	R	Bit field	A bitmask determining validity of the temp. value	CH1	0
				CH2	1
				CH3	2
				CH4	3
				CH5	4
				CH6	5
				CH7	6
				CH8	7
1010	R/W	INT	Interval of measurement	CH1	
1011				CH2	
1012				CH3	
1013				CH4	
1014				CH5	
1015				CH6	
1016				CH7	
1017				CH8	