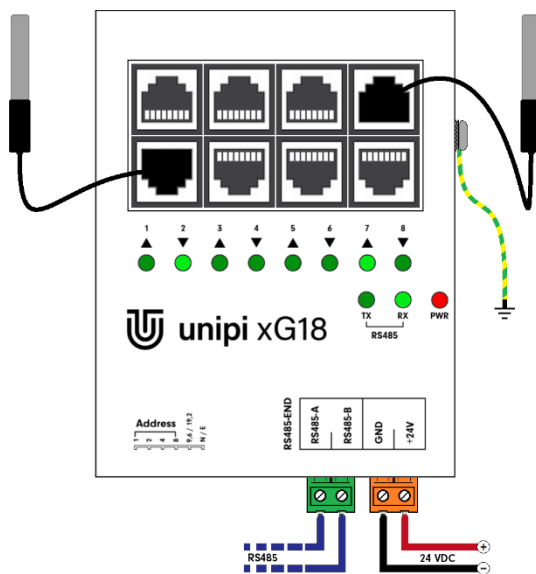


Unipi Extension xG18

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 mm ² |
| 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 $T = \text{reg_val} / 100$ 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 |