

Zentro Sense

Technical Manual

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Companion documents: ZT-DS-SENSE-001-EN · ZT-IG-SENSE-001-EN

1 THE PRODUCT AND WHAT IT IS FOR

Zentro Sense is an expansion module that reads temperature data from up to eight 1-Wire sensors. Unlike an ordinary 1-Wire bus where every sensor shares a single channel, this module gives each sensor its own channel — so a fault or damaged wiring on one sensor does not disable the rest. The module connects to the controller over Modbus RTU on RS-485 and mounts on a DIN rail.

Category	Expansion module for reading 1-Wire temperature sensors over Modbus RTU
Total I/O points	8 sensor channels

2 INDICATORS AND CONFIGURATION

User LEDs	0
Hardware configuration	6 DIP switches — address 1–15, 9 600 or 19 200 bps, parity

3 COMMUNICATION AND ADDRESSING

RS-485 channels	1
RS-485 bit rate	2 400 – 115 200 bps
Protocols	Modbus RTU
Modbus defaults	Address 15 · 19 200 bps · 8 bits · no parity · 2 s sampling interval
1-Wire	8 independent channels · one sensor per channel · parasitic mode · shielded RJ45 connector · up to 50 m per channel

4 OPERATION, SERVICE AND FAULTS

WARNING

Disconnect the supply before any wiring work. Working on a live circuit risks personal injury and irreversible damage to the unit.

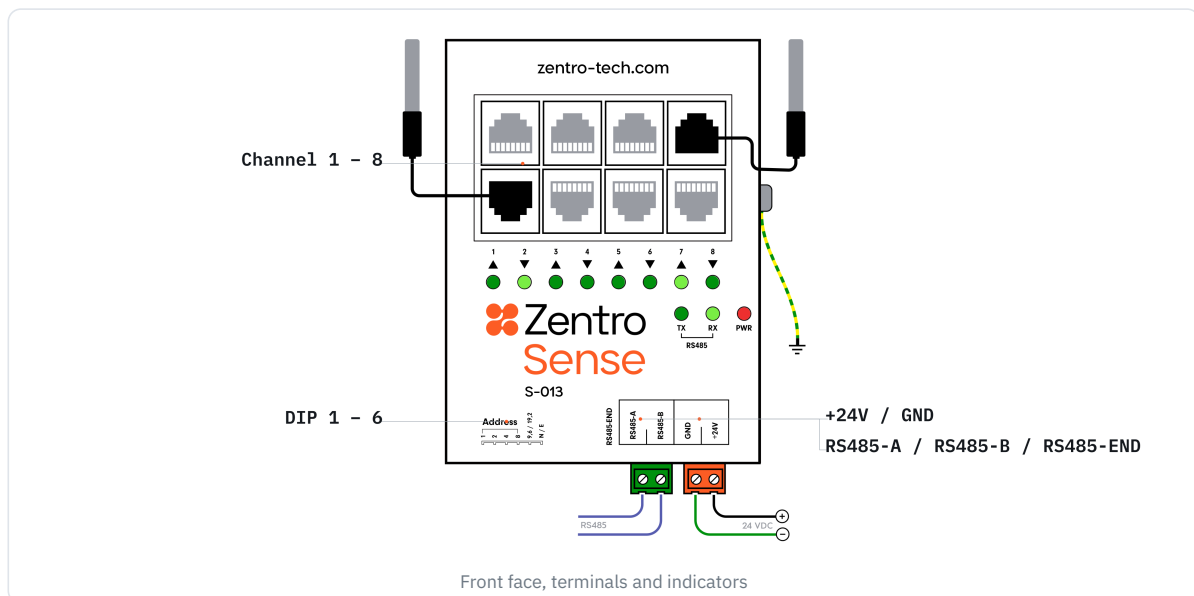
Removal from the DIN rail

Disconnect the supply and every field cable, release the DIN rail clip with a flat screwdriver, pull the bottom of the unit outwards and lift it off the rail.

Frequently asked

Which sensors can be connected?	Digital 1-Wire temperature sensors only, including the probe, pipe-contact, immersion and outdoor variants. Humidity sensors are not supported by this module.
Can more than one sensor share a channel?	No. Connecting more than one marks the whole channel invalid. For the same reason a 1-Wire hub cannot be used.
How do I know a reading is valid?	Register 9 holds eight validity bits, one per channel. If a sensor is disconnected the last value remains in the register and the validity bit clears. The channel indicator shows the same state.
How is the temperature read?	Registers 1 to 8 hold the temperature in degrees Celsius $\times 100$, as a signed integer. For example 25.32 °C is represented as 2532. A value of -32768 means the sensor is not connected or is faulty.
How is the Modbus address changed?	On the DIP switches for addresses 1 to 15, or in register 1019 for the range 1 to 254. A software change requires writing to coil 1003 to save, followed by a restart – otherwise the setting is overwritten.
What is the maximum sensor distance?	Up to 50 m per channel. For longer runs or in electrically noisy environments, shielded FTP cable is recommended with the screen earthed through a shielded RJ45 connector.

5 DIMENSIONS AND MECHANICAL INSTALLATION



Channel 1 - 8	RJ45 connectors for temperature sensors, one sensor per channel
RS485-A / RS485-B / RS485-END	Modbus RTU serial line
+24V / GND	Supply, 5 – 24 V DC
Earth terminal	Earthing via tooth washer and screw
DIP 1 - 6	Modbus address, bit rate and parity
Dimensions (W $\times$ H $\times$ D)	72 $\times$ 91 $\times$ 22 mm
Dimensions note	Width $\times$ height $\times$ depth — stated explicitly in the specification

Weight	110 g
Enclosure	Aluminium

6 STANDARDS AND COMPLIANCE

Compliance	The product carries the CE marking.
Compliance	Complies with EU directives LVD 2014/35/EU, EMC 2014/30/EU, RoHS 2015/863/EU and WEEE 2012/19/EU.
Standard	Conforms to EN 60730-1:2016 · EN IEC 61000-6-2:2019 · EN IEC 61000-6-3:2021.
Compliance	Conformity assessed and certified by an accredited test institute, valid to 2029-11-28.
Performance	Ingress protection IP 20 per IEC 529.



Compliance evidence is supplied on request.

7 REVISION HISTORY

Revision	Date	What changed	Approved by
A	2026-08-04	First issue — generated from the canonical record.	Not yet approved