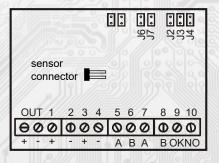
The AM9 interior sensors are supplied in modern design of ABB, LEGRAND, BTicino, SHNEIDER ELECTRIC, EATON, EFAPEL, GIRA, VIMAR, OBZOR and JUNG company. Communication with the supervisory system passes via the RS485 and the Modbus RTU protocol.

Technical data

JMET

Supply voltage	12 to 30 VDC		
Current consumption	max. 20 mA		
Accuracy	± 0,5 °C		
Time needed for equalization	30 min.		
Meassuring range	-30 ÷ 40 °C		
Ambient temperature	-30 ÷ 70 °C		
Relative humidity	< 80 %		
Output	Active, max 100mA		
Voltage level of OUT	$Hi \approx Ucc - 0.8V, Lo \approx 0V$		
Communication	RS485, protocol ModBus RT 8bits, 1 stop bit, without parit		
Communication speed	1200 ÷ 19200 Bd		
Configuration software	REGMET MBSet; freeware; www.regmet.cz		
Galvanic separation of PWM output	no		
Galvanic separation of RS485	no		
Galvanic separation of terminal OKNO	no		
Protection type	IP40		
Terminals	Screw terminal (wire max. 1mm ²)		

Arrangement of jumpers and connectors



List of available types:

ABB		Tango, alpha exklusive, Time, Element, Solo, Impuls, Swing, Future linear. Neo
LEGRA	ND	Galea, Valena, Cariva, Céliane
BTicino		Light, Light Tech, Living, Axolute
	DER ELECTRIC	Unica Basic, Unica Colors,
		Unica Top, Unica Quadro,
		Unica Plus.
		Merten Artec, Merten Antique,
		M-Plan. M-Smart. M-Star
EATON	(Moeller Niko)	Originál, Intense, Pure
EFAPE	Ľ .	Logus90
GIRA		Systém 55, E22
VIMAR		Plana, Idea, Eikon
OBZOF	R	Elegant, Variant, Decente
JUNG		A500, AS 500, CD500, LS 990
		FD
	J2 definition of	idle status (conductor A)
	J3 definition of	idle status (conductor B)
	J4 termination	resistor 120R
	J6 jumper "serv	vice"
<u></u>	898	
l erminal:		ce positive terminal
	2,4 - Power source	
		switching transistor
400-W	OKNO (WINDOW	V) – input of window contact
Terminal	D0405	
A, B	RS485 communio	//
+2301	Power source po	
PR I	Power source gro	buna
J7	jumper (setting a	fixed address 255 and setup

communication speed of 19200 baud

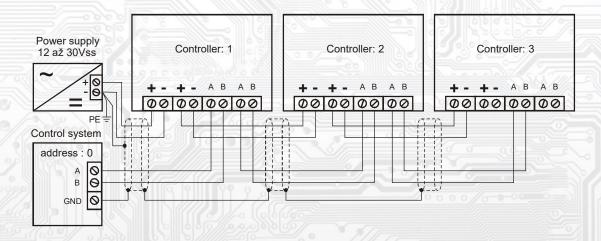
Positive terminal of supply (1,3) and positive terminal (OUT) are galvanically connected. Negative terminal of supply (2,4) and terminal OKNO (10) are galvanically connected.

Examples of embodiments AM9 Image: Solo Time Solo Tango Gira Image: Solo Tango Image: Solo Tango Image: Solo Tango Gira Image: Solo Tango Gira Image: Solo Tango Gira Image: Solo Image: Solo</



Interior temperature sensors in modern design - series AM9

Example of wiring the controllers in the system



Series AM9 sensors have been designed for installation into boxes under wall stucco. Wiring is done on the terminal board using wires of 1 square mm. The A and B signal terminals on the controller are wired to the corresponding terminals on the control system. Jumpers J2 to J4 are used as defined by the rules of communication on RS485 lines. To supply power to the controllers, one source of 12 V= to 30 V= may be used, while the voltage is connected to the controller terminals marked + and -. It is recommended to wire the controllers with suitable multi-conductor shielded cables for data signals as well as power supply. The shield must be interconnected between the specific sections and then only once to the lowest voltage level, terminal PE.

Properties of the communication protocol

Protocol Modbus RTU with adjustable Baud rate 1200 - 57600 Bd, 8 bits, no parity, 1 stop bit, line RS485, half-duplex operation

Description of data registers

To read these registers use command no. 03 "register reading" (0x03 Read Holding Registers).

Temperature measurement:

- is conducted over a resistive sensor Pt1000. The sensor is built into the metal case and connected to the circuit board by means of a loose lead and connectors. The measured temperature is evaluated electronically and the values are transmitted to the control system in as a 16 - bit signed integer multiplied by a constant 10:

Register 0 x0005 ** (measurement temperature): 0xFE0C; 65036dek (-50°C) 0x07D0; 2000dek (200°C)

In case of fault of the analogue input (short circuit or interruption of the temperature probe), the sensors transmits the value 0x7FFF = 32767dek.

Description of conguration registers.

EXTENDED REGISTERS can only be modified if the J6 jumper (enabling writing the configuration values) and J7 jumper (setting the fixed sensor address to 255 and setting the baudrate to 19 200 Bd - these network variables are reserved for configuration only and, therefore, if the required sensor address of 255 is set, the sensor modifies to 254 automatically) are inserted. In case only the J7 jumper is inserted, it is possible to use a fixed address and baudrate without the risk of overwriting the configuration parameters. The configuration is carried out by command 16 (multiple register preset 0x10). The changes are written and configuration is finished by extracting the J6 and J7 jumpers. No reset is necessary for proper function. **X Reg = 8 bytů, ie 4 registers MODBUS**

	range of adresses 2	X Reg **
X Reg	[hex]	[dek]
X Reg 0	0x2001 ÷ 0x2004	8193 ÷ 8196
X Reg 1	0x2005 ÷ 0x2008	8197 ÷ 8200
X Reg 2	0x2009 ÷ 0x200C	8201 ÷ 8204

X Reg	volume X Reg							
	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
X Reg 0	2777////	TIT CELLOR	ZD_TEXT/0	ZD_TEXT/1	ZD_TEXT/2	ZD_TEXT/3	ZD_TEXT/4	ZD_TEXT/5
X Reg 1	ZD_TEXT/6	ZD_TEXT/7	ZD_TEXT/8	ZD_TEXT/9		ZD_INT	ZD_OFF/Hi	ZD_OFF/Lo
X Reg 2			SK_ADR	SK_SPD		-	-	11

REGMET s.r.o. • Bynina 186, 757 01 Valašské Meziříčí • tel.: 571 612 622 • fax.: 571 615 392 • mobil: 602 773 550 http://www.regmet.cz • e-mail: obchod@regmet.cz Interior temperature sensors in modern design - series AM9

ZD TEXT The custom text field, range is 10 bytes. It is determined for the client's identification of the device. ZD_INT Type of temperature sensor, The range is 1 byte. Takes the value 0 to 255. The number format is 16-bit unsigned integer

value ZD_INT [hex]	0x00	0x01	0x02 to 0xFF
value ZD_INT [dek]	0	1	2 to 255
sensor	Ni 1000/5000ppm	Ni 1000/6180ppm	Pt 1000/3850ppm

ZD_OFF Correction of temperature. Range is 2 bytes, form of number with sign (signed integer) multiplied by the constant 10. 0x0001 = 0,1°C, 0xFFFF = -0,1°C.

SK_ADR Network address. range is 1 byte. It acquires the values 0 ÷ 255 dek, whereas the address 0 is reserved for the broadcast and the sensor does not respond to it, the address 255 is reserved for the controller configuration. Thus the range of available addresses is 1 ÷ 254. The number format is unsigned integer.

SK_SPD Baud rate. range is 1 byte, It acquires the values 0 ÷ 4. The number format is unsigned integer.

value SK_SPD [hex]	0x00	0x01	0x02	0x03	0x04
value SK_SPD [dek]	0	1	2	3	4
speed [Bd]	1200	2400	4800	9600	19200

Examples of communication:

Command "03" (0x03) read N-registers

Master:

02 03 00 04 00 01 Crc Crc | | | L L Number of read registers (1 registers) Address of initially read register (0x0005**) ^L Command (Read Holding Registers)

Address of device (device with address 2)

Slave:

02 03 06 00 FF Crc Crc | | L L Data from register (0x00FF)

L Number of bytes (2)

Command (Read Holding Registers) Address of device (device with address 2)

The address of initial register is 0x0005** which is the address of measured temperature register.

Thus: the measured temperature 0x00FF = 25,5° C.

** During the transfer the addresses of registers are indexed from zero, i.e. register 0x0001 is physically sent through the bus bar as 0x0000... (zero based addressing).

Method of ordering:

State the quantity of pieces and the type and color of the design. An example of the order.

5 pcs AM9, UNICA TOP Aluminium, frame Tabaco