


ANNOVEX

Temperature sensor/transmitter type GMA 10.10.xxx Temperature monitor type GMA 10.10.xxx

-  I M1 Ex ia I Ma
- Linearized measured value display from -20.0...+60.0 °C
- Platinum-resistance element PT 100 for a maximum of stability
- Special form of the sensor element results in low response times
- Data processing by microcontroller system
- Output range of the output signal is variable
- Illuminated four-digit display
- Adjustments or status enquiries by means of a press button unit or a magnetic pointer. The housing need not be opened
- Code lock to prevent unauthorized manipulation (can be switched off)
- Fault self diagnosis with alpha numeric display
- Test of the output signal by simulated temperature values
- Choice between normed analog or digital output signals (optional)
- Two built-in limit switches with optocouplers or relays in the monitor
- Audio visual alarm unit optional (Monitor)
- The sensor can be replaced on site
- Housing protection rating IP65



The economical, permanently installed temperature sensor/transmitter and temperature monitor are characterised by their stable measuring characteristics, simple and secure operation, robustness, low weight and compact construction.

These devices conform to the explosion protection rating of intrinsic safety „i“, category I M1 Ex ia I Ma. This means that this device can be used in the zone M1 of underground mines, even when unpermitted high concentrations of the methane gas are prevailing.

This certification conforms to the ATEX directive 2014/34/EU for devices and protective systems permitted for use in areas endangered by explosions.

The temperature monitor differs from the temperature sensor/transmitter because of an additional limit value unit which is equipped with optocouplers or relays.

The surroundings temperature is registered in the sensor block according to the change in the resistance of the platinum-resistor. The special design of the sensor block results in a quick response to the temperature changes.

The operation of the device is very simple: The operator places a small magnetic press button unit on the device. The housing need not be opened. As an alternative he can also use a magnetic pointer. A four digit code which can be entered initially, protects against unauthorized changing of the set values.

A self monitoring microcontroller system not only processes the measurement values precisely, it also carries out the operator specific instructions such as the entry of the code, signal instructions and messages, analog and digital outputs and test functions etc. A four digit back lit graphic display shows the measured values in 12 mm high digits.



These devices are placed in a fibre reinforced resin housing (impact strength 7 Joule) and are to be connected by means of a plug-in connector. The sensor block with the temperature sensor is located next to the connector and it can be replaced easily on the underground site.

For the suspension of the device a steel hanger is attached. Holes on the back of the device permit a rigid mounting.

In addition, the temperature monitor can be equipped with an audio visual alarm unit for giving alarms in the monitored area.

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Technical Data

Certification	 DMT 03 ATEX E 065 X according to directive 2014/34/EU
Zone, Explosion protection rating	 I M1 Ex ia I Ma
Principle of measurement	Thermoresistive, PT100-resistor
Range of measurement	-20...+60°C
Error of measurement	± 0.6 °C
Resolution	0.1°C
Measured value response time t_{90}	≤ 45 s at 1 m/s wind speed
Display sequence	0.5 s
Run in time	<1 minute
Adjustment range of the device code	0000...9999
Supply voltage	9...16 V–
Current consumption	
Sensor/transmitter with 1 mA- or 15 Hz output	15 mA
Sensor/transmitter with 20 mA output	35 mA
Monitor with Optocouplers and 1 mA- or 15 Hz output	17 mA
Monitor with relays and 1 mA- or 15 Hz output	27 mA
Monitor with Optocouplers and 20 mA output	37 mA
Monitor with relays and 20 mA output	47 mA
Current consumption of the audio visual alarm unit	additionally 100 mA max.
Frequency output	
Frequency range	6...15 Hz, switchable to 5...15 Hz
Output range adjustable between	-20...+100°C
Optocoupler output	max.: 30 V, 100 mA, 100 mW
Current output (alternative to the frequency output)	
Ranges and loads	0.1/0.2...1 mA / ≤200 Ω to 4...20 mA / ≤200 Ω
Output range adjustable from	-20...+100°C
Test function by simulated measured values	10 decimal steps from the start to the final value of the range of the data transmission output
Limit switch Alarm 1 and Alarm 2 (Monitor)	
Setting range	-20...+60°C
Optocoupler output (quiescent current principle)	max. 30 V, 100 mA, 100 mW
Relay output (quiescent current principle)	max. 30 V, 1 A, 30 W
Audio visual alarm unit optional (Monitor)	
Signal tone	Sweeping 2400-2850 Hz at 7 Hz
Sound intensity	max. 103 dB (1m)
Flashing light	10 red, ultra highbright, pulsed LEDs
Signal frequency Alarm 1, Alarm 2	0.5 Hz, 1 Hz
Surroundings temperature	-20°C...+60°C
Humidity, non condensing	0... 99% rel.
Dimensions without hanger, without alarm unit	W 122 mm, D 90 mm, H 179 mm
Dimensions without hanger, with alarm unit	W 122 mm, D 90 mm, H 310 mm
Weight without alarm unit	2 kg
Type of protection	IP 65
Material	Polyester, surface resistance <10 ⁹ Ohm
Impact strength	>7 Joule
Accessories to be ordered separately	
Connecting cable	VDL 4, 20m, max. length 100 m ($R_L \leq 7,8 \Omega$)
Press button device	TAS 3
Subject to technical updates	

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