

TX9130 SERIES PROGRAMMABLE TRIP AMPLIFIER



**COMPLETE
VERSATILITY OF
UNDERGROUND
SENSOR MANAGEMENT
AND DATA
COMMUNICATIONS**

**in arduous,
industrial environments
and hazardous areas.**

application versatility...

GAS SENSORS
FLOW SENSORS
PRESSURE SENSORS
VIBRATION MONITORING
TEMPERATURE DEVICES
FREQUENCY INPUTS
DIGITAL SENSORS

direct fingertip programming...

of input and output functions
with full information display and
data communications for mine wide
sensor collecting networks or
local control and alarm
monitoring.



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M1
GROUP I
INTRINSICALLY
SAFE

MINING



TUNNELLING



**MACHINE
MONITORING**



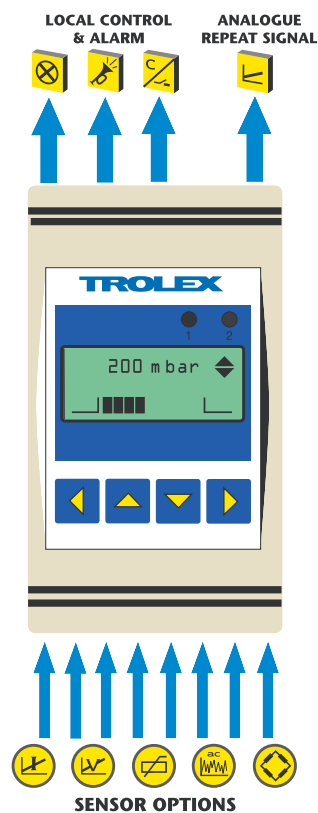
**CENTRALISED
MONITORING AND
ALARM SYSTEMS**



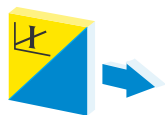
cost effective predictive maintenance...



- Programmable Trip Amplifier with dual set point relays and optional analogue repeater output signal.
- Compatible with standard sensor signals; 0.4...2V, 4...20mA, PT100.
- Repeater relay unit option.
- Microprocessor based, menu operated mode selection for all functions: Scale, units, offset, set points, time delays, relay phase, latching, hysteresis, etc.
- LCD information display of input signal status – also displays all operating mode information.
- Application flexibility with a choice of mounting formats:- Front of panel, DIN rail or 19" rack mounting.
- Certified intrinsically safe to EURONORM standards for underground mining.



choice of input signals...



TX9131 CURRENT SIGNALS

2 wire or 3 wire process signals. Fully floating differential input allows several units to be connected in series on the same loop with high noise immunity.

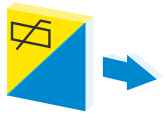
- 0...20mA • 4...20mA



TX9132 VOLTAGE SIGNALS

Differential input enables long signal lines with minimal signal loss.

- 0.4...2V



TX9134 PT100 INPUT

Input standard for platinum resistance temperature sensors. DIN43760. BS1904.

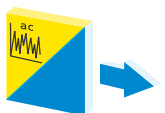
- -50°C...200°C • -50°C...400°C



TX9136 BRIDGE INPUT

Balanced four arm bridge input. Bridge measuring circuits. Pressure sensors and strain gauges.

- 15mV...50mV



TX9137 ac INPUT

ac input signals from load cells, ac generators, accelerometers and velocity sensors* or power measurement systems.

- ac Peak: 10Hz...10KHz, 10V pk/pk
- ac RMS: 10Hz...10KHz, 10V pk/pk

*Trolex TX5630 Vibration Sensors

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programmable output signals...

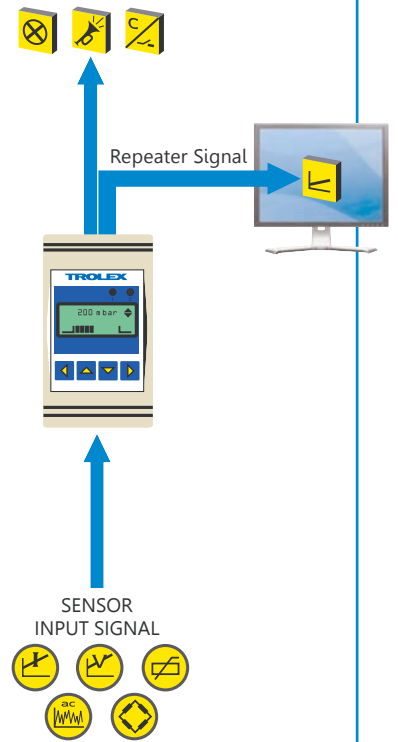


- TWO INDEPENDENT OUTPUT RELAYS.
- SET POINT ALARM LEVELS.
- RELAY FUNCTION – AUTO/LATCH/IMPULSE.
- HYSTERESIS DEAD BAND CONTROL.
- RISING/FALLING ALARM RELAY FUNCTION.
- POWER ON DELAY RUN-UP PERIOD.
- OUTPUT DELAY TIMERS.
- INPUT UPDATE PERIOD.
- PERMANENT MEMORY DATA RETENTION.

ANALOGUE REPEATER OUTPUT SIGNAL

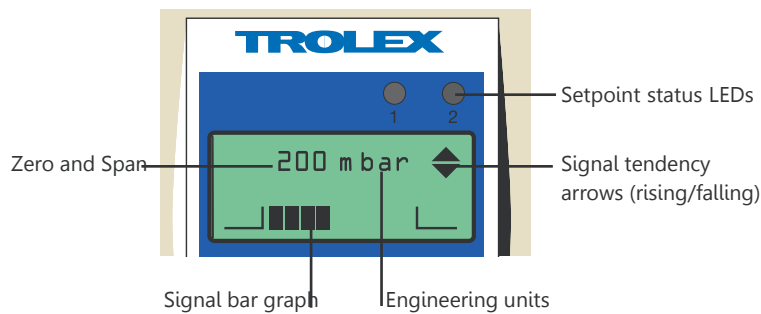
One of the output contacts may be substituted by an analogue repeater output signal for communication with data systems.

- 4...20mA repeater
- 0.4...2V repeater
- 5...15Hz repeater (opto isolated)



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information display...

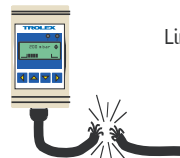


information security...



All essential information can be protected by a user security code, but still permits access to day to day functions.

signal fault alarm...



Line and input signal monitoring of system failure.

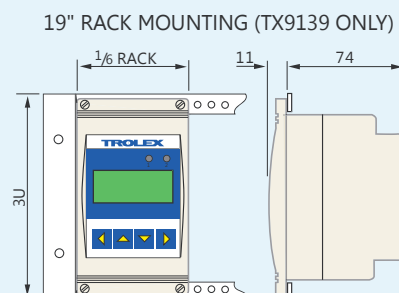
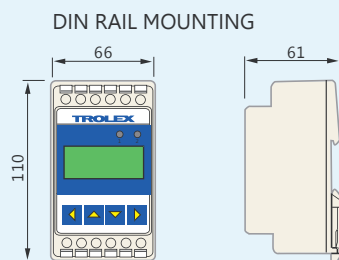


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technical details...

Display Accuracy:	±0.5% (Analogue Channels).
Set Point Accuracy:	±0.5%.
Ambient Temperature Limits:	-10°C...50°C.
Electrical Connections:	4mm barrier/clamp terminals.
Housing Material:	ABS.
Nett Weight:	300gms.
Environmental Protection:	IP55 (IP65 Panel Seal).
Information Display:	LCD. 16 characters x 2 lines ; 5mm high characters.
Mounting:	DIN Rail EN 50022, 19" Rack or Front of Panel.
Operation:	Microprocessor controlled menu operation, with non-data retention.
Set Point Adjustment:	0...99%.
Hysteresis Adjustment:	0...99%.
Power ON Delay Adjustment:	0...255 seconds.
Output Delay Adjustment:	0...25 seconds.
Engineering Units Menu:	mV, V, mA, °C, °F, g, kg, mbar, bar, Pa, kPa, PSI, %, ppm, %RH, mm, m, m/s, mm/s, m ³ /s, ft, ins, ft/sec, rpm, pps, Hz, kHz, g/m ³ (ASCII code user entry).
Input Signal Averaging Period Adjustment:	0...250 seconds.
Input Signal Failure Alarm:	Open or Short Circuit signal line will de-energise both output relays and display HIGH or LOW SIGNAL ERROR.

Dimensions:



ALL DIMENSIONS IN MM

NB. THE MODULES MUST BE HOUSED IN A PROTECTIVE METAL ENCLOSURE TO COMPLY WITH I.S. REQUIREMENTS.

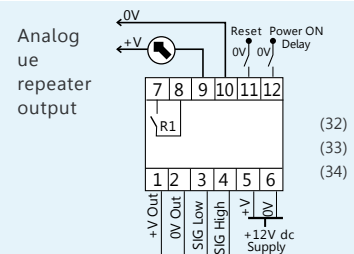
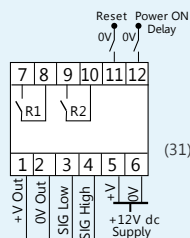


electrical details...

Supply Voltage:	7.5V dc...16.5V dc.
Supply Current:	50mA maximum.
Output Relays:	2 independent encapsulated reed relays.
Contact Rating:	200V. 0.25mA. 3W absolute maximum.
Contact Format:	NORMALLY OPEN or NORMALLY CLOSED (user selectable).
Repeater Output Signals:	4...20mA analogue. 0.4...2V analogue. 5...15Hz analogue with optical isolation.
Ex Certification:	EEx ia I.

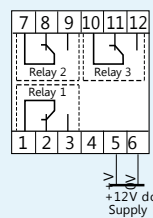
Connections for Analogue Inputs:

TX9131
TX9132
TX9134
TX9136
TX9137



Connections for Interposing Relay:

TX9139



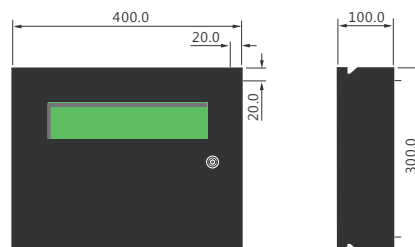
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housings for programmable trip amplifiers...



Environmentally protected housings for the DIN rail mounting version.

- Robust stainless steel enclosure.
- Stainless steel front cover with polycarbonate viewing window.
- Environmentally protected to IP66.
- Ample M20 cable entries.
- Mounting rail for TX9130 modules.



ALL DIMENSIONS IN MM

Entry holes Ø22.0 or M20 cable glands

HOUSING	X	Entry Holes
TX9024	400mm	10



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certification & approval...



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Designed to comply with the EC directive on EMC.
EMC directive 89/336/EEC.

order reference...

TX9131	PROGRAMMABLE TRIP AMPLIFIER	(4...20mA)
TX9132	PROGRAMMABLE TRIP AMPLIFIER	(0.4...2V)
TX9134	PROGRAMMABLE TRIP AMPLIFIER	(PT100)
TX9136	PROGRAMMABLE TRIP AMPLIFIER	(Bridge)
TX9137	PROGRAMMABLE TRIP AMPLIFIER	(ac)
TX9139	INTERPOSING RELAY	

Please specify output signal:

- Two Relay Contacts (31)
- One Relay Contact/4...20mA (32)
- One Relay Contact/0.4...2V (33)
- One Relay Contact/5...15Hz (34)

Please specify mounting options:

- Din Rail Mounting (41)
- 19" Rack Mounting (TX9139 Only) (42)

Please specify Vibration Sensor Input:

- a.c. rms (for TX9137) (51)
- a.c. peak (for TX9137) (52)

Please specify Bridge Input:

- Strain Gauge mV/V (for TX9136) (310)
- Bridge mV/V (for TX9136) (311)

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