Micromann Universal, Auxiliary Powered, Isolated, Signal Conditioners with Alarms

UCVAR Current/Voltage Inputs
URTAR Resistive Temperature Detector Inputs
UTCAR Thermocouple Inputs
UHZAR Frequency Inputs
CLCAR Non-linear Current/Voltage Inputs
CNDAR Conductivity sensor Inputs

Micromann universal transmitters convert, filter, monitor, display and isolate measurement signals with a high degree of accuracy. Each model covers a range of similar signal and sensor types

- Programmable current/voltage output
- Two versatile alarm channels with LED status indication
- Display in Engineering units
- Complete isolation
- AC or DC powered
- Removable, screw-type, terminal blocks
- Compact metal housing

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Universal, Signal Conditioners with Alarms

Description

The Micromann series are fully isolated, microprocessor based, signal transmitters for use with process measurement signals and sensors. They also have two alarm channels.

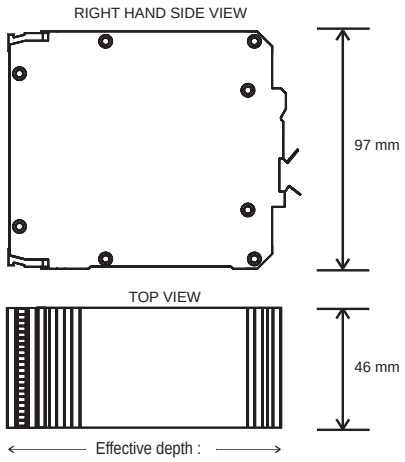
You can program all features of Micromann operation through the front panel keypad. When the set-up is complete, you simply remove the security link to protect the setup.

The analogue output calibration is simple and sets up both current and voltage outputs. So, you can use any current or voltage output range without recalibration.

You can tailor each alarm's operation individually during setup. If necessary, you can also allow setpoint adjustment (from the front panel) during normal operation.

The Micromann can be ordered with one SPDT contact alarm instead of the standard normally open relay contacts.

Alarm operation can be set to 'manual reset' so that active alarms will remain tripped until manually cleared.



General Technical Data

Display	
Type	Full 4 digit, red 7mm LED
Scaling	to display in % or engineering units
Display range	-999 to 9999
Status indicators	Trip1 /Trip 2 / Processor status
Analogue output	
Type	Programmable current/voltage
Current range	Inside the range 0.00-22.00 mA
Voltage range	Inside the range 0.00-11.00 V
Recommended minimum span	2mA or 1V
Current drive	up to 900Ω load
Voltage drive	True voltage source (up to 20mA)
Output action	Direct or reverse acting
Output ripple	less than 20mV P/P (voltage) less than 40µA P/P (current)
Alarm ouputs	
Type	Two normally open relay contact outputs with common – return and in-built sup-pression caps
Rating	3A at 250Vac/30Vdc
Setpoints	Any value within 25% of the display range
Deadband	From 1 display count
Alarm action	High alarm or Low alarm
Output sense	Normally de-energised or energised
Alarm reset	Automatic or manual
Alarm timer delay	From 0 to 4200 seconds
Power Supply	
Type	AC or DC powered
AC	110Vac (100-132Vac) at 47-63Hz or 240Vac (200-264Vac) at 47-63Hz
DC	12 to 50Vdc (other voltages on request)
Power Usage	AC 6VA or 6W at 24Vdc
Insulation Co-ordination	
Ports	Input / Output / Case
Rated Insulation Voltage	300Veff
Overvoltage Category	III
Impulse Withstand	4kV (1.2 / 50)
Isolation	2 kV (between ports)
Environmental Conditions	
Operating temperature	0 to 60 °C
Storage temperature	–25 to +70 °C
Pollution Degree	2
Relative humidity	10–90% (non–condensing)
Housing	
Type	Dual DIN rail mount, Aluminium Enclosure
Weight	0.5kg
Connection type	Plug in terminals with screw connections

Approvals	**Mark**	**Standard**
Micromann Series	E256486	CAN/CSA C22.2 No. 1010.1:92 UL61010-1: 2004
	LV Directive EMC	EN50178:1998 BS EN 61326:1998 + A2

Performance	
Linearity	Better than ±0.1% typical
Accuracy	Better than ±0.1% typical
Repeatability	±0.05% of span
Temperature drift	Less than 0.02% span per °C
Long term drift	0.1% per 10,000 hours
Reponse time	320ms for 10-90% output change
Input step response	Programmable (from 250mS to 32s)
Sampling rate	5 samples per second
Setup retention	100 years minimum
Options	
NT	No analogue output
DT	Single SPDT alarm output
FC	Factory configuration - specify values for all settings
FPS	Custom transducer power supply

Connections

Terminal	**Signal**	
1	See individual models	Input signals
2		
3		
4		
5		
6		
7	Link to change the set-up	Security Link
8		
9	Neutral (–)	Power supply
10	Live (+)	
11	Channel one	Alarm outputs
12	Channel two	
13	Common	
14	Output (+)	Analogue outputs
15	Current (–)	
16	Voltage (–)	
Case	Earthing is via a stud on lower side of case	

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Universal, Signal Conditioners with Alarms

UCVAR Current/Voltage

- Convert, filter and Isolate current and voltage signals
- Power for active input devices
- Linearises square law signals
- Bipolar inputs

UTCAR Temperature (T/C)

- Select J, K, N, T, E, B, S, R or mV inputs
- Temperature Display in °C/°F
- Burn-out alarm
- CJC Temperature display

URTAR Temperature (RTD)

- Accepts 2-wire and 3-wire PT100 RTD inputs
- Temperature Display in °C/°F
- Automatic lead length compensation

Technical Data

	UCVAR Current/Voltage	UTCAR Temperature (T/C)	URTAR Temperature (RTD)
Inputs			
Input Type	Analogue current/voltage signals	Thermocouple (type J, K, N, T, E, B, S, R) or millivolt signals	2-wire or 3-wire, Pt100 RTD (to BS1904:1984/IEC751:1983)
Standard range limits	–55.00mA to +55.00mA or –55.00V to +55.00V (without recalibration)	See table below	See table below
Input impedance	22Ω (current inputs) 1MΩ (voltage inputs)		
Resolution	1µA/1mV per bit for small ranges		
Minimum recommended span	1mA or 1V		
Linearisation	Linear or square root		
Transducer supply	24Vdc (to 25mA) output		
Maximum input impedance		1kΩ (e.g., IS barrier resistance)	30Ω (lead resistance)
Display			
Scaling	to display in % or engineering units	to display temperature (in °C or °F) or mV	to display temperature (in °C or °F)
Display range	-999 to 9999	See table above	See table above
Resolution	0.001 engineering units	1°C/°F or 0.01mV	1°C/°F or 0.1°C/°F
Performance			
Accuracy			<1°C for 1°C resolution or <0.25°C for 0.1°C resolution
CJC tracking error		Less than 0.02% per °C ambient change	
Lead length compensation			Better than 0.05% error for equal changes in lead resistance

UTCAR Temperature (T/C) — Display Limits

Input Type	Display Limits Upper	Display Limits Lower
J	870°C (1598°F)	–50°C (–58°F)
K	1372°C (2502°F)	
N	1300°C (2372°F)	
T	400°C (752°F)	
E	700°C (1292°F)	
B	1800°C (3272°F)	0°C (32°F)
S	1768°C (3214°F)	–50°C (–58°F)
R	1768°C (3214°F)	
mV	60.00mV	-9.99mV

URTAR Temperature (RTD) — Display Limits

Display Limits Upper	Display Limits Lower	Resolution
700°C	-200°C	1°C
1292°F	-328°F	1°F
200.0°C	-99.9°C	0.1°C
400.0°F	-99.9°F	0.1°F

Input Connections

UCVAR Current/Voltage

Terminal	Signal
1	24Vdc (out)
2	Current +
3	Common –
4	Voltage +
5	Not used
6	

UTCAR Temperature (T/C)

Terminal	mV Signal	T/C Signal
1		
2	mV +	CJC Board (white dot to terminal 2)
3	mV –	
4		
5		
6	Not used	

URTAR Temperature (RTD)

Terminal	Signal
1	Not used
2	A
3	B
4	B_{sense}
5	Not used
6	Not used

Ordering Information

Type (Model Supply)	**Cat. No.**
UCVAR 12-50Vdc	7940010195

Note: For other ranges please specify as UCVAR 1 where 1 = Power Supply Voltage

Type (Model Supply)	**Cat. No.**
UTCAR 12-50Vdc	7940012190

Note: For other ranges please specify as UTCAR 1 where 1 = Power Supply Voltage Default Burnout Action is Upscale. For Downscale please specify on order.

Type (Model Supply)	**Cat. No.**
URTAR 12-50Vdc	7940010250

Note: For other ranges please specify as URTAR 1 where 1 = Power Supply Voltage

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Universal, Signal Conditioners with Alarms

UHZAR Frequency

- Connects directly to a wide range of frequency sources
- Power for active input devices

CNDAR Conductivity

- Suits any conductivity probe
- Autoranging
- Probe temperature compensation
- Programmable cell constant
- Linearises probe characteristic

CLCAR Lineariser

- Generate any input to output characteristic
- Linearise measurements from non-linear sensors
- Tailor control signals to suit non-linear control elements

Technical Data

	UHZAR Frequency	CNDAR Conductivity	CLCAR Lineariser
Inputs			
Input Type	Programmable frequency (includes debouncing for voltfree contacts)	Conductivity cell, conductance and PT100 RTD (probe temperature compensation)	Process current or voltage signals
Standard range limits	Any range inside the limits 0 to 10kHz (0-10Hz for debounced volt-free contacts)	Any range inside the limits 0 to 20,000µS using 4 selectable ranges: 0-200µS; 0-1,000µS; 0-5,000µS; or 0-20mS.	Any range inside the limits -24.00mA to +24.00mA or -12V to 12V
Minimum recommended span	0.001Hz	20% of selected range	2mA or 1V
Input voltage range	50mV to 250V (ac and dc) others on request		
Sensor supply output	Nominally 12Vdc to 25mA others on request (see /FPS option)		Nominally 24Vdc to 25mA others on request (see /FPS option)
Temperature range		0-200°C (for RTD)	
Cell Constants		0-01 to 99.99/cm	
Excitation voltage		Less than 6V p/p @ 400Hz	
Lead length compensation		< 2% of change for equal changes in lead resistance (up to 30Ω)	
Temperature Compensation		Linear or user defined up to 5 points	
Input impedance			22Ω (Current) or 1mΩ (Voltage)
Display			
Scaling	to display in % or engineering units	µS, mS, µS/cm, mS/cm or °C	to display in % or engineering units
Display range	-999 to 9999	0-200.0µS (0.1µS resolution) 0-1,000µS (1µS resolution) 0-5,000µS (1µS resolution) 0-20.00mS (0.01mS resolution) 0-200.0°C (0.1°C resolution)	-999 to 9999
Resolution	0.001 engineering units		0.001 engineering units
Performance			
Accuracy	Better than 0.05% of span	±0.5% of full scale display	
Linearity	Better than 0.05% of span	±0.5% of span	To suit any signal using up to 101 break-point linerisation (programmable)
Repeatability	±0.02% of span	±0.05% of span	
Noise immunity		40dB CMRR (1.5kVrms limit)	

Input Connections

Terminal	Signal
1	12Vdc (out)
2	Pull Up/Down
3	0V
4	Low Voltage (<24Vdc) Signal +
5	Signal –
6	High Voltage (>24Vdc) Signal +

Terminal	Cell	Pt100 RTD
1	Not used	
2	A	
3	B	
4		A
5		B
6		B_{sense}

Terminal	Signal
1	24Vdc (out)
2	Current +
3	Input –
4	Voltage +
5	Not used
6	Not used

Ordering Information

Type (Model Supply)	**Cat. No.**
UHZAR 12-50Vdc	7940010184

Note: For other ranges please specify as UHZAR 1 where 1 = Power Supply Voltage

Type (Model Supply)	**Cat. No.**
CNDAR 12-50Vdc	7940010232

Note: For other ranges please specify as CNDAR 1 where 1 = Power Supply Voltage

Type (Model Supply)	**Cat. No.**
CLCAR 12-50Vdc	7940010489

Note: For other ranges please specify as CLCAR 1 where 1 = Power Supply Voltage

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