



Weidmüller 

Alarm Modules Section E

Alarm modules or Trip amplifiers provide a relay output(s) for an alarm or control function associated with a process task. This could be level control (max./min.) or over-pressure or maybe to backup an existing control system in case of failure. Alarm modules can also have analogue outputs and displays providing a universal solution.

Alarm Modules

Process Alarm Modules

Weidmüller has a large range of Process Alarm modules (also known as Trip amplifiers or Signal alarms) including models from 6mm wide, models with universal inputs, with LED display and with universal AC/DC supplies.

Low Alarm Operation

Low alarms operate when the input drops below a set level called the setpoint. The relay will then be activated and stay active whilst the input is lower than the setpoint. The relay will only reset when the input value has risen above the low setpoint plus the deadband. A "Timer Delay" setting allows you to introduce a variable delay before the relay is activated.

Deadband (Hysteresis)

The deadband setting stops chattering of the alarm relay when the signal is close to the setpoint. Without a deadband, naturally occurring noise would cause the relay to continuously turn on and off. A deadband adjustment ensures that the relay does not reset after passing the setpoint until it is also outside of the deadband.

High Alarm Operation

High alarms operate when the input rises above the setpoint. The relay activates and stays active whilst the input is higher than the set-point. The relay will only reset when the input value is lower than the high set-point minus the hysteresis (deadband) adjustment. Again the "Timer Delay" setting allows you to introduce a variable delay before the relay is initially activated.

Window Alarm Operation

Window alarms allow you to use one set-point for a combined high and low alarm. For example if a normal signal value was 50%, you could set a window alarm with setpoint at 50% and window of 25%. This would trigger an alarm if the signal dropped below 25% or rose above 75%. A deadband can still be used to avoid chattering contacts when the alarms are crossing the trigger/reset points.

On/Off Delay

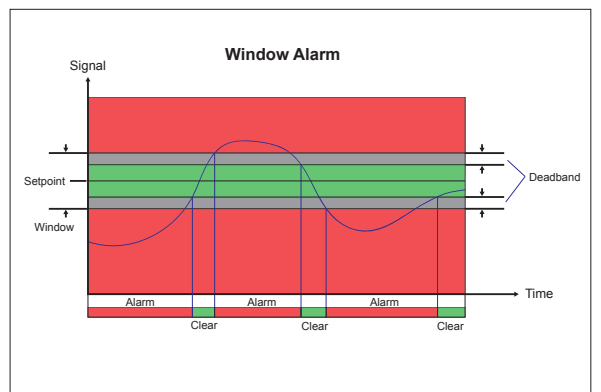
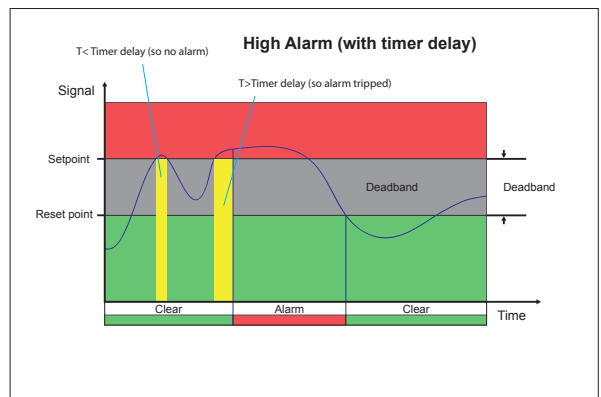
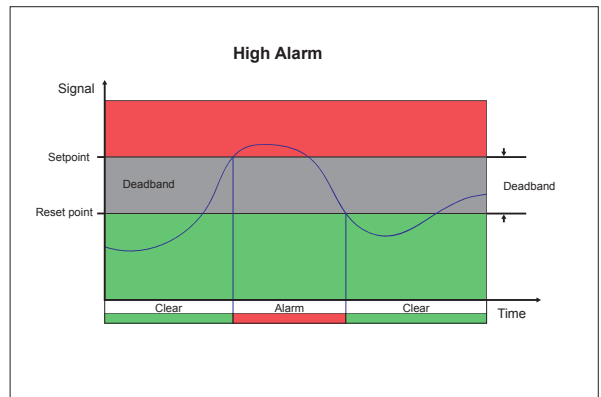
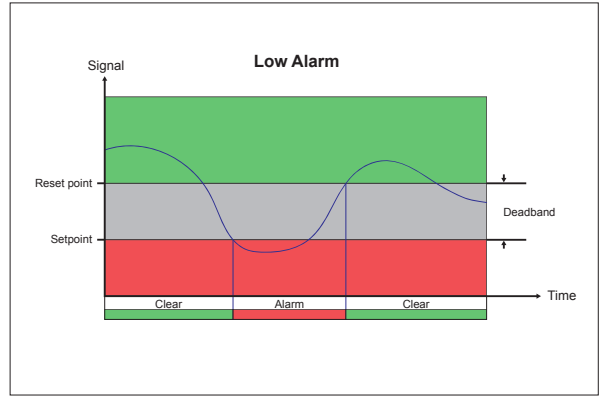
Some models have an ON or OFF delay for the relay output. An ON delay allows time between the input reaching the setpoint and the relay activating. This is used on processes where intermittent activation of setpoints may occur in the process, but pass quickly ie: within 2 seconds. Therefore a 3-4 second ON delay will avoid false triggering of interfaced components.

An OFF delay ensures that any triggering of the set-point will be active for a minimum period of time. This could be to ensure a quick pulse can be acknowledged by the control system, or that an alarm is activated for a set period.

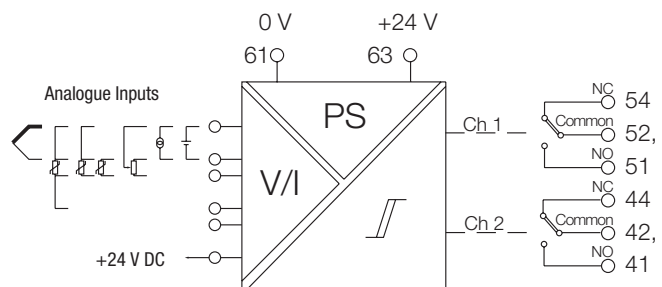
Alarm Outputs

Most Weidmüller Process Alarms have relays with Single Pole Double Throw contacts (SPDT). This provides a Normally Open (NO) & Normally Closed (NC) contact. In normal operation when the input value is above low alarm(s) and below high alarm(s), the contacts will remain unchanged (de-energised or non-failsafe). When the input value exceeds a setpoint, the relay contacts will change state.

Failsafe outputs can be set on most alarm units which ensures that during normal operation, the relay contacts are energized. In this mode, when a set-point operation occurs, or a power failure, the contacts will change state. If failsafe operation is selected, the labeled operation of the relays is reversed, i.e. Normally Open contacts become Normally Closed and vice versa.



Universal Dual Channel Alarm Modules



ACT20P-UI-2RCO-S Connection Diagram

ACT20P-UI-2RCO-S

The ACT20P-UI-2RCO-S is a universal, auxiliary powered, dual channel process alarm. It can monitor mA, Amps, mV, Volts, Resistance, Potentiometer, RTD or thermocouple signals and provides SPDT relay outputs. It can be used as a simple alarm that can be configured from the front panel using the front panel display, push-buttons and rotary encoder or as a versatile signal monitoring alarm programmable in engineering units from any PC with a USB port.

Features

- Universal Inputs
- Full range of alarm operating options (including window alarm, alarm timers, sensor break detect, fail-safe coil energisation, deadband and high/low action)
- 24Vdc Sensor Supply
- High Repeatability and Temperature Stability
- Complete Isolation to 3kVac
- Removable, coded, screw-type, terminal blocks

Technical Data

Inputs	
Type	Universal - see below for ranges
Current (DC)	±25mA, 0-5A
Voltage (DC)	±150mV; ±600mV; ±30V; ±300V
RTD	Pt100; Pt200; Pt1000; Ni120; Cu10
Thermocouple	B, E, J, K, L, N, R, S, T, V
Resistance	0-750Ω; 0-1k5Ω; 0-12kΩ
Potentiometer	1k2Ω to 500kΩ (end-to-end)
Power Supply	
Type	Auxiliary Powered
Operating voltage	According to model
Power Usage	3W @ 240Vac/24Vdc
Alarm Outputs	
Type	Dual SPDT Relay contact outputs
Rating	6A @ 24Vdc/240Vac
Minimum Switching Load	100mA @ 5Vdc
Environmental Conditions	
Operating temperature	-20 to +70°C
Storage temperature	-20 to +70°C
Pollution Degree	2
Relative humidity	10-90% (non-condensing)

Applications

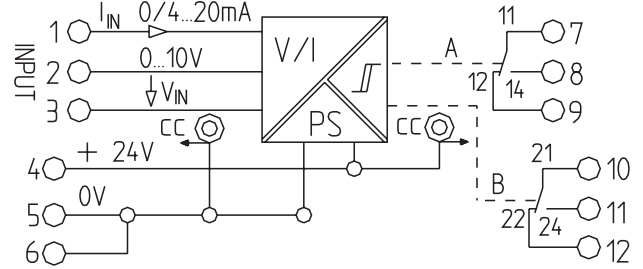
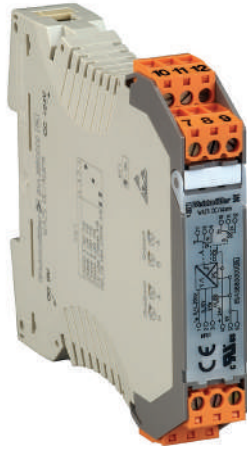
Use the ACT20P-UI-2RCO-S for:

- Tank level monitoring
- Temperature Alarm
- Any alarm application

Ordering Data

Type	Power Supply Voltage Range	Order No.
ACT20P-UI-2RCO-DC-S	9-60Vdc	7940045760
ACT20P-UI-2RCO-AC-S	90-264Vac (140-350Vdc)	1238910000
ACT20P-UI-2RCO-RAILWAY SPEC-S	55-140Vdc	7940049294
CBX200USB	USB Programming Cable	8978580000

Dual Channel Analogue Signal Alarm



Universal Analogue Signal Alarm

Wave Series DC / Alarm

The Wave Series DC Alarm accepts a standardised process signal input, and provides 2 user adjustable alarm points for warning or control. Each alarm point operates a fully isolated SPDT relay.

Alarm operation is independent for each relay, with high or low trip points, failsafe or non fail safe action adjusted via internal dip switches. Trip points and hysteresis are adjusted via multi turn potentiometers mounted under front cover.

Features

- Field adjustable
- Compact design
- 3 Amp switching capacity
- Visible alarm indication

Applications

Use the Wave Series DC / Alarm for:

- Monitoring of level alarms from field transmitters
- Under/Over flow, Temperature, pressure, flow monitoring
- Simple control applications using analogue current/voltage measurements
- Redundant Alarm Function

Technical Data

Input	
Type	Analogue current or voltage signals
Current range	0-20mA/4-20mA
Voltage range	0-10V
Input Impedance	≤ 110Ω (current inputs) or ≥ 100kΩ (voltage inputs)
Alarm Outputs	
Type	Dual Channel, Change-over contact (gold plated)
Max. Switching Voltage	253Vac
Power Supply	
Type	Auxiliary Power Supply
Voltage Range	18-30Vdc
Power Consumption	1W
Adjustments	
Type	Independent multi-turn potentiometers for each channel
Setpoint range	1 to 90% of Span
Deadband range	1 to 10% of Span
Performance	
Isolation	2kV (5s) Input to Output
Operating Temperature	0 to +55°C
MTTF	369 years
Temperature Drift	0.05% Span per °C
Housing	
Dimensions	92.4mm x 17.5mm x 112.4mm
Terminals	Screw Type rated 2.5A
Conductor Clamping Range	0.5mm ² to 2.5mm ²

Ordering Data

Type	Description	Order No.
WAS5 DC/Alarm	Screw Clamp Connection	8543820000

Micromann R Series (Dual Channel Alarm Modules)



Micromann R Series

Micromann R Series provides a highly flexible dual process alarm module with a 4-digit LED indicator and push button digital programming in a robust metal housing.

The Micromann R series provides all the benefits of the DPA, with the flexibility of a 4 digit display and front panel keypad to allow visual indication of the process and precise adjustment of all relay functions.

Models include: analogue current/voltage, RTD, Thermocouple, Frequency, Conductivity and XFAR which incorporates rate of change, deviation and loss of signal alarms with two alarm inhibit inputs.

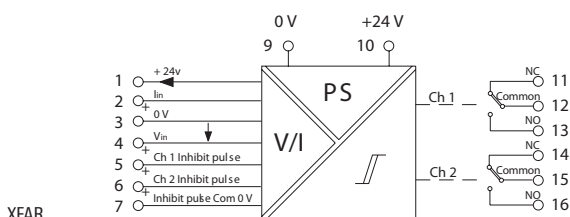
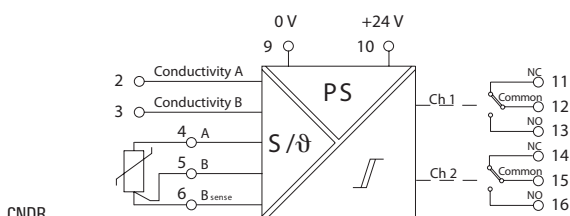
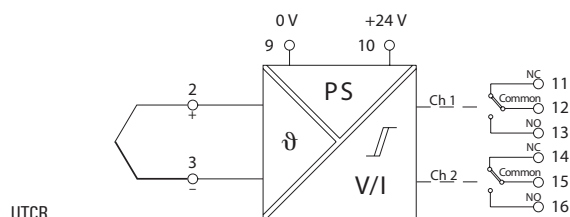
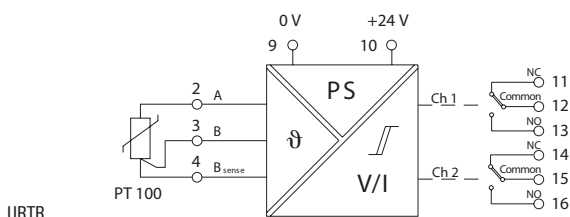
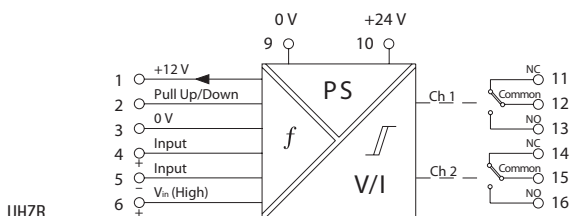
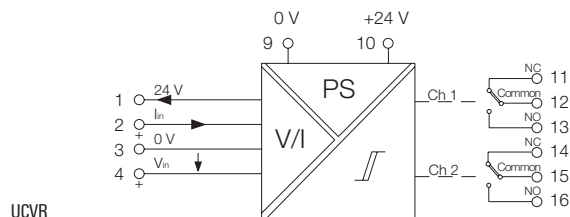
All units are available with DC or AC power supplies and are housed in a robust 46mm wide anodised aluminium case that mounts on TS35 DIN rail.

Features

- Two versatile alarm channels
- Independent setpoint, deadband, high low action, coil energisation and timer delay settings for each alarm
- Dual SPDT relay outputs
- Display in engineering units
- Complete isolation
- Auxiliary powered

Technical Data

Input Type	Programmable Current/Voltage, Thermocouple, Frequency, Rtd or Conductivity Cell
Channels	Dual Alarm
Alarm Output	Dual SPDT relay
Power supply	Auxiliary Powered
Adjustments	Fully programmable from keypad
Linearity	Typically $\pm 0.1\%$ of span
Isolation	1.5kVrms for 60s (AC & DC)
Housing	TS35 DIN rail mount metal housing



Ordering Data

Type	Description	Order No.	
		24Vdc	240Vac
UCVR	Universal Current/Voltage	7940010174	7940010191
UHZR	Frequency	7940015213	7940015970
URTR	Temperature (RTD)	7940011087	7940010222
UTCR	Temperature (Thermocouple)	7940014399	7940010654
CNDR	Conductivity	7940017921	-
XFAR	Extended Function Alarm	7940014450	7940012969

Micromann AR Series (Signal Conditioners with Dual Alarms)



Micromann AR Series

Micromann AR Series provides a highly flexible dual Process alarm module with isolated analogue retransmission, combined with a 4 digit LED indicator, push button digital programming in a robust, TS35 DIN rail mount, metal housing.

The Micromann AR Series provides all the benefits of the Micromann R Series with the addition of isolated analogue retransmission of the process input and Dual SPST relay output.

Also features the flexibility of a 4 digit display and front panel keypad to allow visual indication of the process and precise adjustment of setpoint and all other relay and analogue functions.

Available models include: Analogue Current/Voltage, RTD, Thermocouple, Frequency, Conductivity and CLCAR which incorporates multi-point curve linearisation for non-linear analogue inputs.

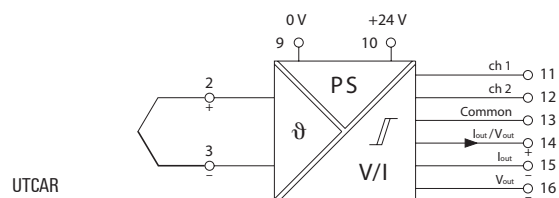
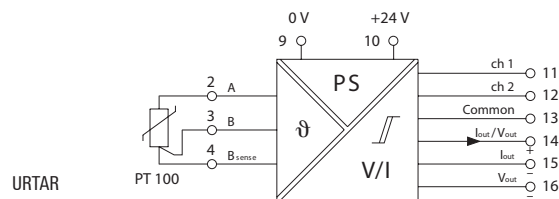
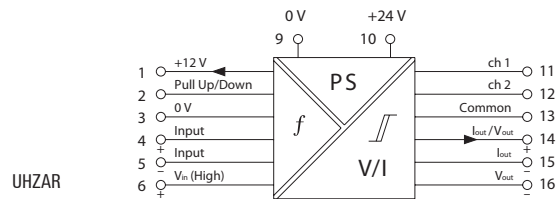
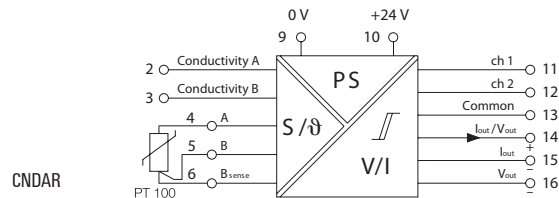
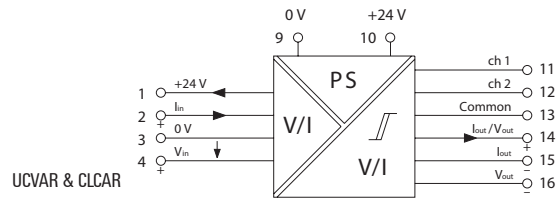
All units are available with DC or AC supplies and are housed in a robust, 46mm wide, anodised aluminium case with TS35 DIN rail mounting clip.

Features

- Programmable current/voltage output
- Two versatile alarm channels with LED status indication
- Display in engineering units
- Complete isolation
- Auxiliary powered
- Change configuration from front panel keypad
- No internal adjustments needed

Technical Data

Input Type	Programmable Current/Voltage, Thermocouple, Frequency, Rtd or Conductivity Cell
Channels	Single Input/Output, Dual Alarm
Analogue Output	Current/Voltage (Programmable)
Alarm Output	Dual SPST (N/O) relay
Power supply	Auxiliary Powered
Adjustments	Fully programmable from keypad
Linearity	Typically $\pm 0.1\%$ of span
Isolation	1.5kVrms for 60s (AC & DC)
Housing	TS35 DIN rail mount metal housing



Applications

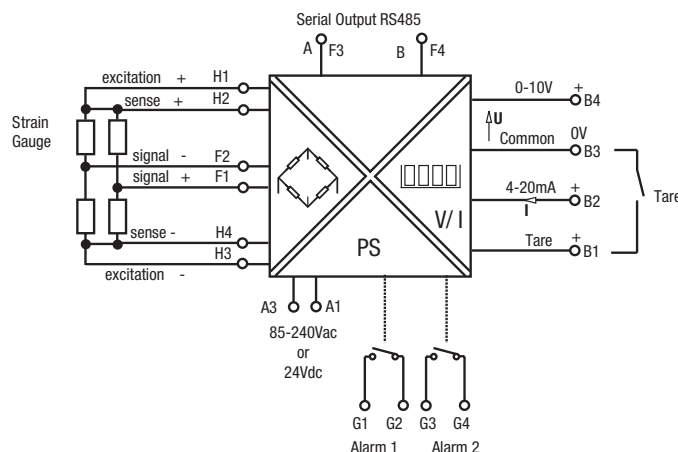
Use Micromann AR units for:

- Localised alarms with indication & re-transmission
- Temperature conversion & monitoring
- Speed conversion and local alarm
- Level indication with retransmission & pump control

Ordering Data

Type	Description	Order No.	
		24Vdc	240Vac
CLCAR	Curve Lineariser	7940010489	7940017700
UCVAR	Universal Current/Voltage	7940010195	7940010170
CNDAR	Conductivity	7940010232	7940017701
UHZAR	Frequency	7940010184	7940010903
UR TAR	Temperature (RTD)	7940010250	7940010197
UTCAR	Temperature (Thermocouple)	7940012190	7940011136

Strain Gauge Converter / Dual Channel Alarm



Strain Gauge Transmitter

Strain Gauge Transmitter

The 6841 Strain Gauge Transmitter provides stand alone measurement and control functions. With local display of measurement, two relays for alarms or controls for batching applications, analogue retransmission and RS485 communications supporting Modbus RTU and ACSII transmission.

Features

- Strain Gauge Sensors with 4 or 6-wire connection
- Excitation voltage 10 V to sensors, max 150 mA
- Red LED Display on the front panel
- Settings via front panel keys or from PC using USB Interface
- Output 0-20mA/4-20 mA/0-10 V
- RS485 Modbus RTU and ACSII communications
- Two alarm relays with freefall offset
- Tare via front panel keys or external switch
- Measuring accuracy < 0.05 %
- Power supply 12-32 Vdc or 85-240 Vac
- DIN rail mount

Applications

Use the 6841 for :

- Two speed filling applications
- Strain Gauge Isolator with display
- Tank filling with max/min
- Modbus communication converter

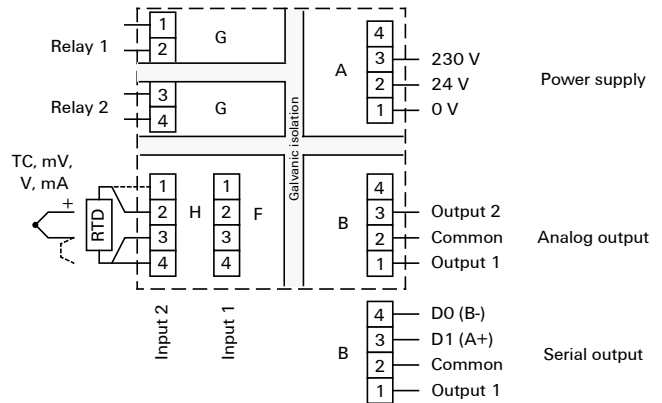
Technical Data

Inputs	
Type	Strain Gauge, max. 4 x 350Ω parallel
Bridge connection	4- or 6-wire connection
Excitation voltage	10V, max. 150mA
Measuring range	-40 to +100mV
Serial Interface	
Connection	RS485
Protocol	Modbus RTU, Nokeval SCL or Raw ASCII + CRLF
Baud rate	300, 600, 1200, 2400, 4800, 9600 or 19200
Analogue output	
Type	0-20mA / 4-20mA / 0-10Vdc
Isolation	2kVdc for 60s
Alarms	
Type	Dual relay NO contact
Rating	230Vac, 2A
Display	
Type	4-Digit red 7mm LED
Power Supply	
Type	85-240Vac or 12-32Vdc
Performance	
Operating Temperature	0-60°C
Accuracy	0.05% of Span
Housing	
Type	35mm DIN Rail mount Plastic Housing

Ordering Data

Type	Description	Order No.
6841-240Vac	Strain Gauge Transmitter 85-240Vac Version	7940084995
6841-24Vdc	Strain Gauge Transmitter 12-32Vdc Version	7940084996
DCS770	USB Programming Interface	7940085066
DCS771	USB Programming Interface and Power Supply	7940085067

6821 Dual Channel Analogue Converter with Modbus



6821 Programmable dual-channel transmitter

The 6821 Programmable dual-channel transmitter

The 6821 is a rail-mounted two-channel measurement unit for temperature sensors and other electrical inputs. The unit has two analog outputs or alternatively one analog and one serial output.

The serial output can accept Nokeval SCL and Modbus RTU commands. Up to four logical alarms can control two common alarm relays. The inputs are galvanically isolated from the outputs and the supply voltage, but not from each other. Mathematical and conditional operations may be realized with a simple programming language. There is a four-digit display and four pushbuttons, that can be used to monitor the readings and to change the settings. The settings can also be edited from a personal computer using the RS-485 serial connection.

Features

- 2 analog inputs, 0/4..20 mA or 0.5/10V, mV, Pt100, thermocouples
- 2 analog outputs 0/4..20 mA or 0..5/10V
- 2 alarm relays
- Mathematical and conditional operations using easy logic language (ELO)
- Serial communication RS-485
- Modbus RTU and Nokeval SCL protocols
- Power supply 90..240 VAC or 24 VDC
- Configuration using MekuWin PC program or using front panel buttons

Technical Data

Inputs	
Type	Dual Channel
Input types	Thermocouple (B, C,D,E,G,J, K, L, N, R, S, T), mV, V, mA, RTD (Pt100, Ni100, Cu10)
Serial Interface	
Connection	RS485
Protocol	Modbus RTU, Nokeval SCL or Raw ASCII + CRLF
Baud rate	1200, 2400, 4800, 9600, 19200, 38400 or 57600
Analogue output	
Type	0-20mA / 4-20mA / 0-10Vdc
Isolation	2kVdc for 60s
Alarms	
Type	Dual relay (1 NO contacts, 1 NC contacts)
Rating	230Vac, 2A
Display	
Type	4-Digit red 7mm LED
Power Supply	
Type (AC or DC powered versions)	27.6 to 20.4Vdc (< 200mA) or 85-260Vac (<5VA)
Performance	
Operating Temperature	-10 to 60°C
Housing	
Type	35mm DIN Rail mount Plastic Housing

Applications

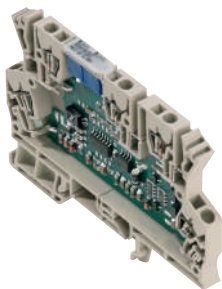
Use the 6821 for :

- Flow sensor pressure compensation
- Mathematical and conditional applications
- Heat flow measurements

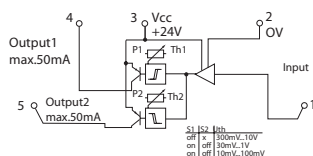
Ordering Data

Type	Description	Order No.
6821-230Vac	AC Powered version	7940086222
6821-24Vdc	DC Powered Version	7940086221
DCS770	USB Programming Interface	7940085066
DCS771	USB Programming Interface and Power Supply	7940085067

MCZ Analogue Current/Voltage Signal Alarms



MCZ SC 0-10V
MCZ SC 0-20mA



Analogue Current/Voltage Signal Alarms

The MCZ Current/Voltage alarms have two setpoints which operate digital PNP transistor switch outputs that can switch 50mA per channel. They are 24Vdc auxiliary powered devices. These units are perfect for implementing interlocks or where space is limited.

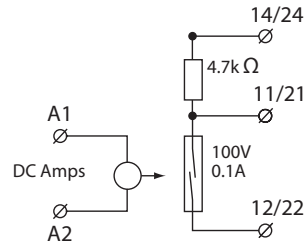
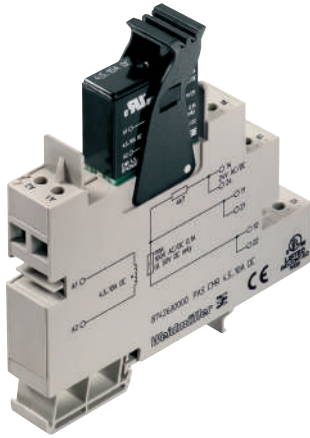
Features

- Available for 0-10V or 0-20mA signals
- Non-Isolated
- Operating Temperature range 0-50°C
- Setpoint adjustment via 12-turn potentiometers
- 24Vdc Supply Voltage

Ordering Data

Type	Description	Order No.
MCZ SC 0-10V	0-10V Alarm Module	8260280000
MCZ SC 0-20mA	0-20mA Alarm Module	8227350000
APMCZ 1.5	End Plate for MCZ housing	8389030000

DC Current Alarms



PAS CMR 0.5...2.5 A DC

PLUGcontrol current monitors

PLUGcontrol series modules are an uncomplicated and economical solution for monitoring currents up to 10Adc. The monitoring relay fits easily into a standard relay base.

Features

- Compact DIN Rail mount Housing
- Very small component
- Economical
- Suitable for PCB mounting
- In-built Pull Up/Down Resistor

Technical Data

Inputs	
Type	DC Current
Input Resistance	<50mΩ
Minimum pulse width	1ms
Alarm Output	
Type	1 NO Rh/Rd Reed Relay
Switching current/voltage	Min. 100μA / 1V Max. 100mA / 100V
Performance	
Operating Temperature	0-55°C
Storage Temperature	-40°C to +85°C
Isolation Voltage	4kV/60s
Housing	
Dimensions (mm)	92 x 15.3 x 95

Applications

Use the PLUGcontrol current monitor for:

- Current monitoring of valves, servo controls and DC motors

Ordering Data

Type	Description	Switch On Current	Max Current	Order No.
PAS CMR 0.5...2.5 A DC	DC Current Alarm	≤500mA	7.5A for 10s	8742610000
PAS CMR 2.0...5.0 A DC	DC Current Alarm	≤2A	15A for 10s	8742620000
PAS CMR 4.5...10 A DC	DC Current Alarm	≤4.5A	30A for 10s	8742630000

AC Current Alarms



Three Phase Current monitoring with Feed Thru conductors
(Hall effect sensor type shown)

Wave Series Current Monitoring

Wave Series Current monitoring units are available with either change-over relay output or analogue current/voltage output. They feature direct connection of lower currents (using an internal CT), or through-hole hall effect sensor connection for higher currents. All models have switch selectable input ranges.

All units provide greater than 4kV isolation.

Features

- Switch selectable input ranges
- Selectable mA or Volt output
- Slim 22.5mm housing



For Current Transformers see page K.1

Technical Data

Inputs	
Input Type	Sinusoidal AC Current (50-60Hz) or True RMS Measurement (0-2kHz)
Measurement Method	Using Feed-thru Conductor and Hall-effect sensor or Via Direct connection to Internal CT
Input Conductor	Maximum diameter 8mm (feed-thru type)
Current Range	Model dependent (see below)
Outputs	
Output Type	Analogue Current/Voltage or SPDT Relay Contact
Output Range	Switch Selectable 0-20mA, 4-20mA or 0-10V
Contact Rating	7A maximum / 3A Continuous
Power Supply	
Power Supply Type	Auxiliary Powered
Voltage	24Vdc \pm 10%
Consumption	50mA
Performance	
Accuracy	1% Full Scale
Step Response	700msTypically
Operating Temperature	0-50°C
Housing	
Dimensions	92.4mm x 22.5mm x 112.4mm
Terminals	Screw Type rated 2.5A
Conductor Diameter	0.5mm ² to 2.5mm ²

Applications

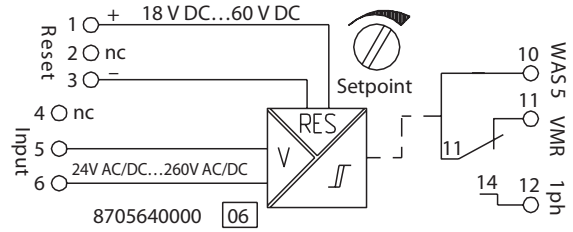
Use the Wave Series current monitors for:

- Under current monitoring, e.g. motor on/off
- Over current warning or monitoring, e.g. for switchboard incomer
- Simple Electricity usage

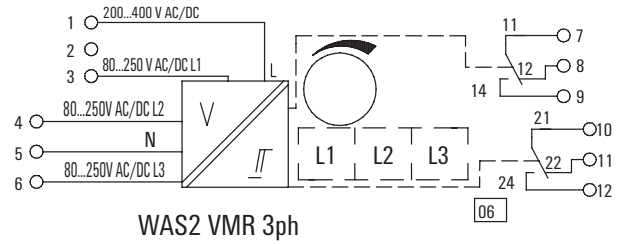
Ordering Data

Type	Input Sensor	Input Range	AC/DC	Output Type	Description	Order No.
WAS2 CMR 1/5/10A ac	Inbuilt CT	0-1A / 0-5A / 0-10A	50-60Hz AC	SPDT Relay	24Vdc Powered	8516560000
WAS2 CMR 20/40/60A ac	Hall Effect	0-20A / 0-40A / 0-60A	50-60Hz AC	SPDT Relay	24Vdc Powered	8513340000

AC Voltage Alarms



WAS5 VMR 1 ph AC Voltage Alarm



WAS2 VMR 3 ph AC Voltage Alarm

Wave Series AC Voltage Monitoring

Wave Series AC Voltage monitoring units are available with either change-over relay output or analogue current/voltage output. The relay version is also available for three phase power monitoring. All models have switch selectable input ranges.

All units provide greater than 4kV isolation.

Features

- Switch selectable input ranges
- Selectable mA or Volt output
- Slim 22.5mm or 17.5mm wide housing

Technical Data

Inputs	
Input Type	Sinusoidal AC Voltage (50-60Hz)
Phases	Single or Three Phase
Outputs	
Output Type	Analogue Current/Voltage or SPDT Relay Contact
Output Range	Switch Selectable 0-20mA, 4-20mA or 0-10V
Contact Rating	7A maximum / 3A Continuous
Power Supply	
Power Supply Type	Auxiliary Powered or Signal Powered
Voltage	18-30Vdc (Auxiliary Powered)
Performance	
Accuracy	Better than 2% Full Scale error
Step Response	< 300mS
Operating Temperature	0-50°C
Housing	
Dimensions	92.4mm x 22.5mm x 112.4mm
Terminals	Screw Type rated 2.5A
Conductor Diameter	0.5mm ² to 2.5mm ²

Applications

Use the Wave Series AC Voltage monitors for:

- AC/DC voltage conversion to DC mA or Volts
- AC/DC under/over voltage monitoring/phase fail
- AC/DC monitoring with manual reset

Ordering Data

Type	Phases	Input Range	AC/DC	Output Type	Description	Order No.
WAS5 VMR 1 ph	Single	Selectable to 260Vac	50 to 60Hz Sinusoidal	SPDT Contact	18-30Vdc Powered	8705640000
WAS2 VMR 3 ph	Single/Three	250Vac (3ph) / 400Vac (1ph)	50 to 60Hz Sinusoidal	Dual SPDT Contact	Signal Powered	8705630000