Weidmüller

Auxiliary Powered Signal Converters

Section D

Auxiliary powered (or 4 wire) isolators are the most versatile of all. As they are powered from an external power source, they can be equipped with many options, including indication, alarms, instrument power supply, communications, and bi-directional outputs such as -10V to +10V. The term three port isolation is often used to describe these transmitters because input, output and power ports are all isolated from each other. The isolation can vary from a thousand volts up to many thousands of volts.

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Auxiliary Powered Products

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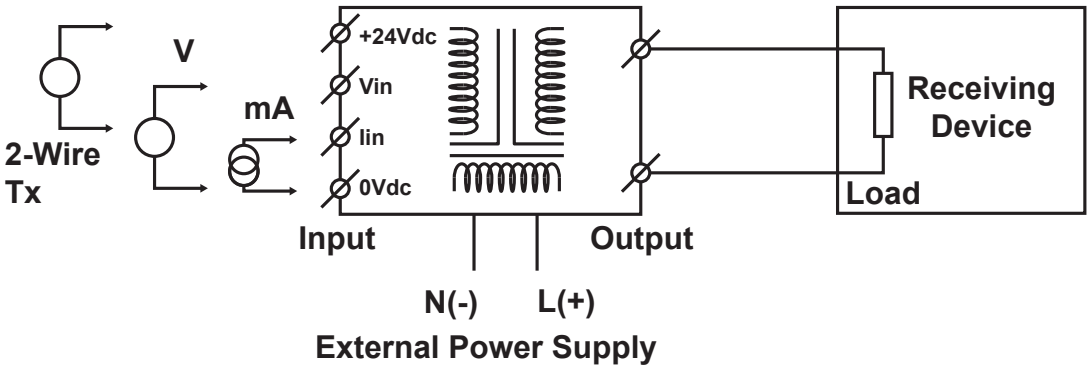
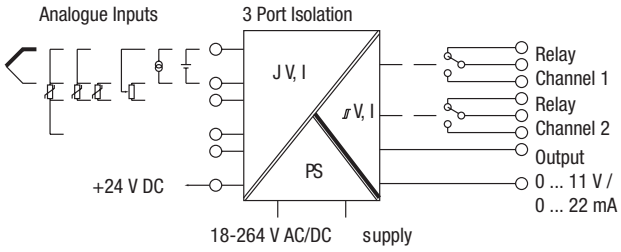
Typical connection for Auxiliary Powered Transmitter



Auxiliary powered isolators can be powered from low DC voltage from 9Vdc up to 240Vac. Some models such as the Wave TTA have universal power supplies from 18 – 264Vac/dc providing benefits in stocking the correct supply version. Another benefit is the provision of a field power supply. On digital input models, these could be 12Vdc for sensors, and analogue models used for powering field transmitters with 24Vdc. This provides a stable isolated supply ensuring a stable, error free output fully isolated.

Universal, Auxiliary Powered, Converter / Trip Amplifier



Universal Loop Powered Signal Isolator/Converter

Wave TTA

The Wave TTA is a Universal Transmitter/Isolator and Trip Amplifier in one compact housing. Similar to the ITXPlus, the Wave TTA will convert any input whether it be Thermocouples, RTD's, mV, V, mA , resistance, potentiometer or pulses. Analogue output is configurable between ±10Vdc or 0-22mA with up to 101 point linearisation. Two fully adjustable SPDT relays are provided for alarm or sensor fail outputs. Power supply operates between 18-264Vac or dc.

TTA Set software is easily configured, free, and uses the CBX100USB adaptor via PC USB port, or you can order a factory customised unit using the variable number.

Features

- Configurable input/Analogue output/Two alarms
- Universal Power Supply 18-264Vac/dc
- DIN Rail mounting
- Isolation 2.5kV

Applications

Use the Wave TTA for:

- **Tank level monitoring - analogue + level alarms**
- **Speed monitoring - analogue + Under/Over speed Alarms**
- **Any application requiring Analogue Isolation/Conversion and/or Alarms**

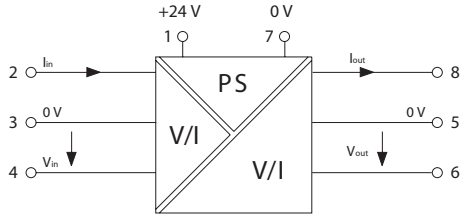
Technical Data

Inputs	
Input Type	Universal
Frequency	2Hz to 100kHz
Thermocouple	B, E, J, K, L, N, R, S, T
RTD	Pt100, Pt1000, Ni100, Ni1000, Cu10, Cu25, Cu50, Cu100 (2, 3 or 4-wire mode)
Milliamp	-20mA to +50mA (min. span 0.4mA)
Voltage	-20V to +50V (min. span 0.5V)
Millivolt	-200mV to +500mV (min. span 4mV)
Resistance	0 to 5kΩ (min. span 10Ω)
Potentiometer	100Ω to 100kΩ (end-to-end resistance)
Sensor Power Supply	24Vdc (to 22mA)
Analogue Output	
Output Type	Analogue Current/Voltage
Output Range	Inside the range 0-22.00 mA or ±10.00 V
Output Drive	10kΩ @ 10V (voltage outputs) or 700Ω @ 20mA (current outputs)
Alarm Outputs	
Type	Dual Channel, Change-over contact (gold plated)
Max. Switching Voltage	250V
Continuous Current	3A
Power Supply	
Power Supply Type	Universal Auxiliary Power Supply
Voltage Range	18 to 264Vac/dc
Power Consumption	3.5W
Performance	
Linearity	Typically ±0.1%
CJC	Better than ±1.0°C
Step Response	110ms Typically (Adjustable)
Operating Temperature	-40 to +70°C
Housing	
Dimensions (mm)	92.4 x 45.0 x 112.4
Terminals	Screw Type
Conductor Type	0.5mm^2 to 2.5mm^2

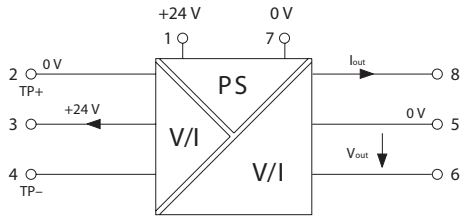
Ordering Data

Type	Order No.
WAS6 TTA	**8939670000**
WAS6 TTA Variable	**1138760000**
CBX100USB and Software (required for programming)	**7940025031**

Curent/Voltage Signal Isolator/Converter



For Current/Voltage Signal Inputs



For Loop Powered Sensors

WavePak DCDC

The Wavepak DC/DC is a field configurable 4 wire isolator. Its flexible input options of V or mA with push button programming allows for simple field adjustment utilising existing infrastructure and provides outputs of between 0-11V or 0-22mA. The unit is housed in a slim 12.5mm housing and is externally powered by a supply voltage of 12-60Vdc.
Moving an internal jumper makes 24Vdc available to power active input devices. The units are shipped as 4-20mA/4-20mA isolators, but can be ordered pre-configured for other input/output combinations when ordered as a variable model. This is a solid workhorse whose uses are endless.

Features

- 12-60Vdc supply
- Push button calibration adjustment
- Slim 12.5mm housing
- Isolation 2.5kV

Technical Data

Inputs	
Input Type	Analogue current or voltage signals Jumper select type and Calibrate to range
Range Limits	Inside the range 0-22.00 mA or 0-11.00 V
Input Impedance	100Ω (current inputs) or >1MΩ (voltage inputs)
Transducer Supply	24Vdc±10% (to 20mA)
Outputs	
Output Type	Analogue Current / Voltage Jumper select type and Calibrate to range
Output Range	Inside the range 0-22.00 mA or 0-11.00 V
Output Drive	500kΩ @ 10V (voltage outputs) or 1kΩ @ 20mA (current outputs)
Power Supply	
Power Supply Type	Auxiliary Powered
Voltage	12-60Vdc
Consumption	3W at 24Vdc
Performance	
Linearity	Better than ±0.1% (typical ±0.05%)
Step Response	350ms Typically
Operating Temperature	0 to 60°C
Housing	
Dimensions (mm)	75.5 x 12.5 x 119
Terminals	Screw Type
Conductor Type	12-28AWG wire

Applications

Use the Wavepak DC/DC to:

- **Isolate instrument runs between the field and the control system**
- **Convert Volt or mA inputs to mA or Volt output**
- **Invert signals, e.g.: 4-20mA to 20-4mA**

Ordering Data

Type	Order No.
WavePak DC/DC 4-20mA / 4-20mA	7940024139
WavePak DC/DC Variable	8945160000
WavePak DC/DC	7940024139

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.

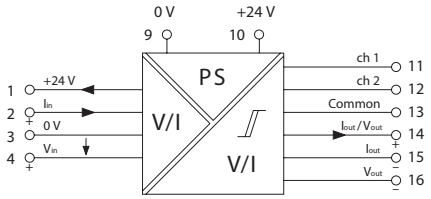
Available models include: Analogue Current/Voltage, RTD, Thermocouple, Frequency, Conductivity and CLCAR which incorporates multi-point curve linearisation for non-linear analogue inputs.

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.

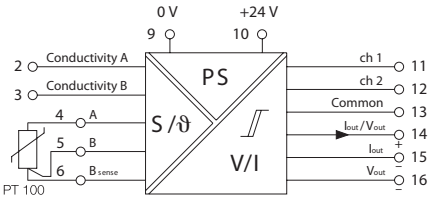
Features

- 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

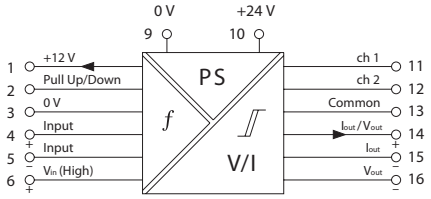
UCVAR & CLCAR



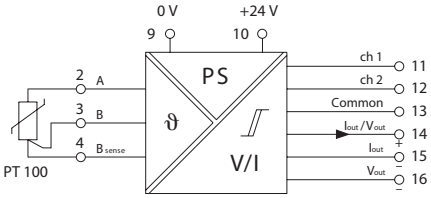
CNDAR



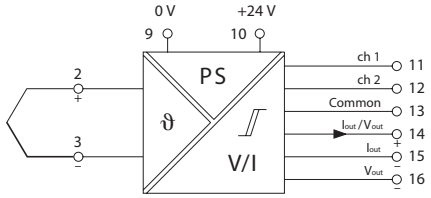
UHZAR



URTAR



UTCAR



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

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 ±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
CLCAR	Curve Lineariser	7940010489	7940017700
UCVAR	Universal Current/Voltage	7940010195	7940010170
CNDAR	Conductivity	7940010232	7940017701
UHZAR	Frequency	7940010184	7940010903
URTAR	Temperature (RTD)	7940010250	7940010197
UTCAR	Temperature (Thermocouple)	7940012190	7940011136

Introduction to the ACT20M Series

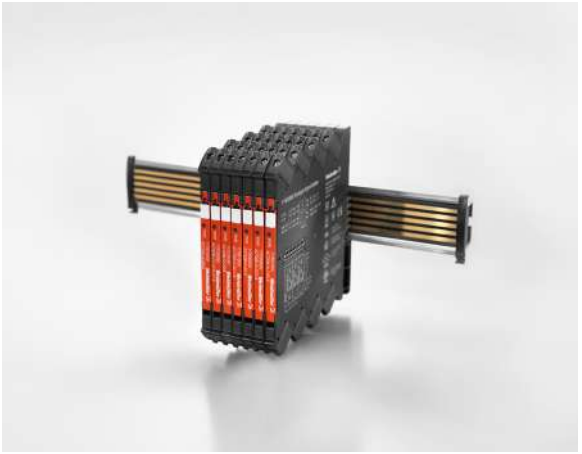
ACT20M Series

The Weidmüller ACT20M range of isolators and converters brings the benefits of technology development to signal isolators. This provides all the features required in isolators and converters in a space saving 6mm housing. Benefits include 2.5kV: 3 way isolation, accuracy to 0.05% with ambient operation of -25° to +70°C on most models. Simplified power supply wiring is achieved with direct connection or via the DIN Rail Bus to supply power to all modules.

Applications

Use the ACT20M Series for:

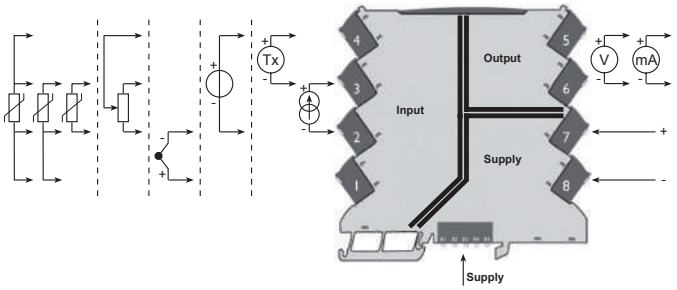
- Isolation and conversion of input signals prior to control system
- Splitting one input signal into two output signals for simultaneous outputs up to 300Ω per output
- Standardisation of control system input cards utilising converters for non-standard inputs
- Providing electrical safety between field device faults and control system
- Eliminating errors in the control signal caused by ground loops
- One product required for all signal requirements



Standard features of the ACT20M Range Include:

General Data	
Supply voltage	24V DC ± 30%
Storage temperature	-40°C ... +85°C
Insulation voltage	2.5kV
Rated voltage	300V
Pollution degree	2
Overvoltage category	III
IECEx ratings	Ex nA IIC T4 Gc
Length x Width x Height	114.3 x 6.1 x 112.5 mm
Clamping range	2.5 / 0.5 / 2.5 (nominal / min. / max.) mm²
Output load impedance	0-600Ω or 2 x 300Ω

Auxilary Powered, Universal Signal Isolator/Converter



ACT20M-UI-AO-S Connections

ACT20M-UI-AO-S

The ACT20M-UI-AO-S is the flagship model. With universal input, programmable output all in a 6.1mm wide housing. This provides isolation and conversion and is PC programmable via the new CBX200 programmer, and free WI Manager Software

Features

- Adjustable input for Thermocouples, RTD, V, mA, Resistance, Potentiometer
- Output selectable 0(4)-20mA or 0(2)-10V
- 15V sensor power supply
- Ambient operating temp -25°C to +70°C
- 3 way isolation of 300V continuous (2.5kV for 1 min)
- Accuracy better than 0.1% span (DC, RTD)
- 24Vdc supply via terminals or DIN Rail PCB Bus

Applications

Use the ACT20M Universal DC Converter for:

- Isolation and conversion of input signals prior to control system
- Standardisation of control system input cards utilising converters for non-standard inputs
- Providing electrical safety between field device faults and control system
- Eliminating errors in the control signal caused by ground loops
- One product required for all DC signal requirements

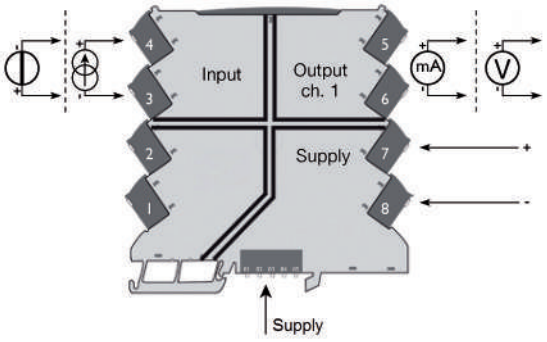
Ordering Data

Type	Description	Order No.
ACT20M-UI-AO-S	Universal Input/output with sensor supply	**1176030000**
CBX200 USB	USB Programmer for ACT20M-UI	**8978580000**

Analogue Signal Isolator/Converter

ACT20M-AI

The ACT20M-AI range consists of DIP Switch selectable models for customers wanting simpler range change functionality for mA/V input/output combinations. Available as a straight isolator and converter or with a signal splitter function providing 2 isolated parallel outputs from 1 input.



Features

- DIP Switch selection of mA/V input/output combinations
- Wide operating temperature
- Accuracy better than 0.05% on 2 models
- Sensor power supply available
- Isolation between input/output(s)/power supply
- 24Vdc supply via terminals or DIN rail PCB Bus

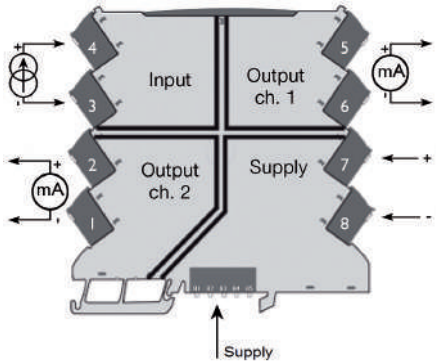
Ordering Data

Type	Description	Order No.
ACT20M-AI-AO-E-S	mA/V input/output, no sensor supply, 0-70°C operation, less approvals	1176010000
ACT20M-AI-AO-S	mA/V input/output with 17V sensor supply, -25°C to 70°C operation	1176000000
ACT20M-AI-2AO-S	mA/V input/2 x output with 17V sensor supply, -25°C to 70°C operation	1176020000

mA Isolator/Converter

ACT20M-CI

A range of isolators for 0/4-20mA inputs and outputs. All models are fixed with no adjustment and also available as a 1 input / 2 output splitter



Features

- No set up required
- -25°C to 70°C operation
- Accuracy better than 0.05%
- Isolation between input/output(s)/power supply
- 24Vdc supply via terminals or DIN rail PCB Bus

Ordering Data

Type	Description	Order No.
ACT20M-CI-CO-S	0(4)-20mA input/ 0(4)-20mA output, 600Ω load	1175980000
ACT20M-CI-2CO-S	0(4)-20mA input/ 2 x 0(4)-20mA output, 2 x 300Ω load	1175990000

ACT20M Power feed-in modules

ACT20M-FEED-IN-PRO-S

A power supply feed-in unit that supplies continuous 24Vdc power to our ACT20M range of signal converters using the ACT20 DIN Rail Bus. In the event of a malfunction, it immediately displays a power supply outage indicator and switches to the backup power supply. The built in alarm relay allows errors to be identified immediately.

Features

- Simple and Quick Installation
- Supplies up to 120 devices (up to 4A)
- Dual redundant supply operation
- Error relay contact
- Uninterrpted supply
- -20°C to 60°C operation
- Supplies 24Vdc DIN rail PCB Bus

ACT20M-FEED-IN-BASIC

A 6mm basic power supply feed-in unit that supplies continuous 24Vdc power to our ACT20M range of signal converters using the ACT20 DIN Rail Bus.

Features

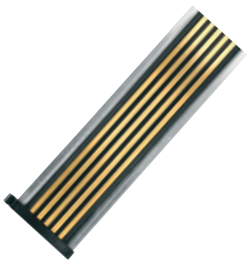
- Simple and Quick Installation
- Supplies up to 80 devices (up to 2.5A)
- Efficiency 100%
- -25°C to 70°C operation
- Supplies 24Vdc DIN rail PCB Bus

Ordering Data

Type	Description	Order No.
ACT20-Feed-In-PRO-S	Dual Redundant ACT20 Bus Power feed module with alarm	**8965500000**
ACT20-FEED-IN-BASIC	6mm wide, basic ACT20 Bus Power feed module	**1282490000**

Rail Bus Accessories

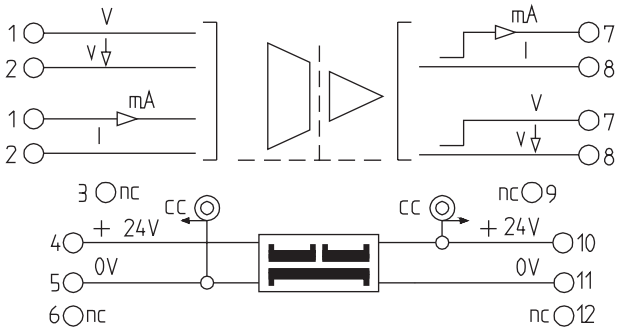
The Rail Bus allows the ACT20M modules to be powered from within the DIN rail avoiding parallel wiring of the power supply between modules. The profiles are made to suit TS35 rail for 7.5 and 15mm high profiles and consists of 3 parts and a cover plate for any exposed PCB bus for later use. Please select the Bus profile and end clips to suit rail profile, then the PCB Bus and cover if required.



Ordering Data

Type		250mm	500mm	750mm
CH20M Bus Profile TS35 x 7.5mm		**1248150000**	**1248160000**	**1248170000**
CH20M Bus Profile TS35 x 15mm		**1248180000**	**1248190000**	**1248210000**
CH20M Bus		**1248220000**	**1248230000**	**1248240000**
CH20M Bus Cover		**1248250000**	**1248260000**	**1248270000**
CH20M Bus End plate left	**1193160000**			
CH20M Bus End plate right	**1193170000**			

High Speed, Auxiliary Powered, Current/Voltage Isolators



High Speed, Auxiliary Powered, Current / Voltage Isolators

High Speed, Auxiliary Powered, Current / Voltage Isolators

The Wave Series High Speed, Auxiliary Powered Isolator is a fixed range Isolator for Current / Voltage signals. It has a rapid response time and is available in models to suit various input and output formats. The power supply to the unit can be supplied via cross connect bridges to simplify wiring and lower installation costs.

Features

- Very fast response (≤40µs)
- Auxiliary Powered
- Power Supply can be cross connected via plug in bridges
- Fixed Input and Output range
- Complete three port Isolation (Input to Output to Power supply)
- 0°C to 55°C operating temperature
- DIN Rail mounting

Applications

Use High Speed Isolators for:

- **Isolation and conversion of critical loops**
- **Isolation of sensitive equipment with high speed output**
- **Isolating high speed test equipment**

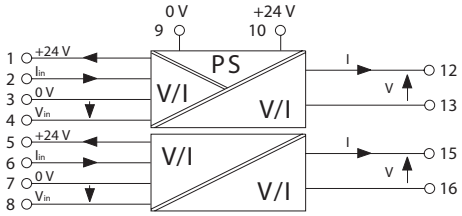
Technical Data

Inputs	
Input Type	Fixed Range Current/Voltage
Ranges	0-20mA / 4-20mA / 0-10V / ±10V
Input Impedance	50Ω (mA Current Input) / 500kΩ (Voltage Input)
Analogue Output	
Output Type	Fixed Range Current/Voltage
Ranges	0-20mA / 4-20mA / 0-10V / ±10V
Output Drive	≤500Ω (mA Current Output) / ≥2kΩ (Voltage output)
Power Supply	
Power Supply Type	Auxiliary Powered
Voltage Range	24Vdc ±25%
Power Consumption	≤1.3W @ I_{out} = 5mA
Performance	
Linearity	±0.2% of Span
Step Response	40µs
Operating Temperature	0°C to 55°C
Housing	
Dimensions (mm)	92.4 x 12.5 x 112.4
Terminals	Plug in, Screw or Tension Clamp
Conductor Clamping Range	0.5mm² to 2.5mm²

Ordering Data

Type	Description	Order No.
WAS5 CCC HF 0-20/0-20MA	0-20mA Input / 0-20mA Output	**8447160000**
WAS5 CVC HF 0-20/0-10V	0-20mA Input / 0-10V Output	**8447220000**
WAS5 CCC HF 4-20/0-20MA	4-20mA Input / 0-20mA Output	**8447250000**
WAS5 CVC HF 4-20/0-10V	4-20mA Input / 0-10V Output	**8447280000**
WAS5 VCC HF 0-10/0-20MA	0-10V Input / 0-20mA Output	**8447310000**
WAS5 VCC HF 0-10/4-20MA	0-10V Input / 4-20mA Output	**8447340000**
WAS5 VVC HF 0-10/0-10V	0-10V Input / 0-10V Output	**8447370000**
WAS5 VVC HF +-10V/+-10V	±10V Input / ±10V Output	**8561610000**

Dual Channel, Auxiliary Powered Isolator



Dual Auxiliary Powered Isolator

DFI

The DFI combines two isolators which can be used separately or as a signal splitter.

The outputs have a 1000Ω plus drive capability at 20mA output current which is ideal for signal boosting applications.

The standard package has a single 24Vdc sensor supply output. A second power supply (for DFI channel two) is also available as an option. AC and DC powered versions are available.

Features

- Auxiliary powered isolators
- Current/Voltage Input/Output
- Single and Dual channel versions
- Power for active input devices
- Bipolar inputs
- Highly accurate (±0.1% of span)
- Complete isolation to 1.5kV (ac and dc)
- Independent Zero and Span controls for each channel
- TS35 DIN rail mount housing
- Plug-in, screw type, terminal blocks

Technical Data

Housing	Dual DIN Rail mount
Input Type	4-20mA, 0-20mA, 0-10V or -10V to +10V (Switch Select)
Channels	Single/Dual
Analogue Output	Analogue Current/Voltage (As ordered)
Power supply	Auxiliary Powered
Adjustments	20-turn potentiometers
Linearity	Typically ±0.1% of span
Isolation	1.5kVrms for 60s (AC & DC)

Applications

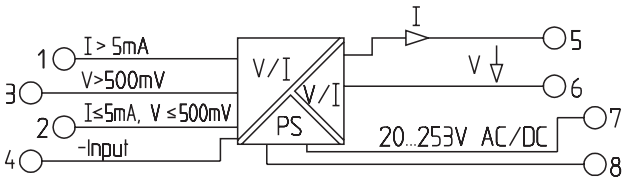
Use the DFI for:

- Isolating transmitter loop and providing up to 2 outputs
- Outputs fully isolated from each other unlike loop powered models
- Second loop can be used as 1-5V test point when used with a 250Ω resistor

Ordering Data

Type	Description	Order No.
DFI 0-10V/4-20mA	DFI with 0-10V Inputs / 4-20mA Outputs / 24Vdc Power Supply	**7940012275**
DFI 4-20mA/4-20mA	DFI with 4-20mA Inputs / 4-20mA Outputs / 24Vdc Power Supply	**7940010167**
DFI Variable	DFI Variable (specify Inputs, outputs and Power Supply)	**8944940000**

Pro Series Current/Voltage Converter/Isolator



Universal, Current/Voltage Isolator/Converter

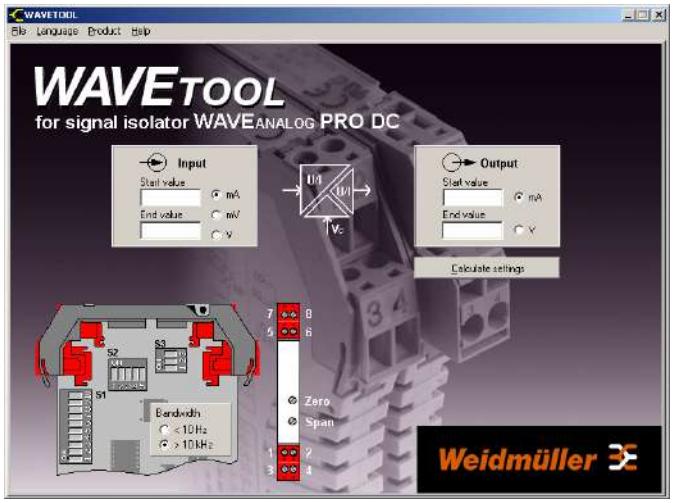
Pro DC/DC

The Wave Series Universal, Auxiliary Powered, Current/Voltage/mV Isolator has switch selectable input range, output range and response time. It accepts a wide range of power supply voltages and is supplied in a compact 12.5mm wide housing.

The Wave Pro DC/DC is supported by the free WaveTool software (available from our website) which instantly calculates and displays the switch settings and any adjustments required to suit your application.

Features

- DIP Switch Selectable Input / Output Ranges
- Selectable response time
- Accuracy better than 0.1% of Span
- Universal Power Supply
- Complete Isolation (Input to Output to Power Supply)
- -10°C to 70°C operating temperature
- DIN Rail mounting



Technical Data

Inputs	
Input Type	DIP Switch Selectable mA/ Volt/mV
Milliamp Limits	±50mA (includes 0-20mA / 4-20mA)
Voltage Limits	±100V (including 0-5V / 0-10V / ±10V)
Millivolt Limits	±500mV (min. 20mV)
Input Impedance	1MΩ (Volt/mV) / 100Ω (<5mA) / 5Ω (>5mA)
Analogue Output	
Output Type	DIP Switch Selectable mA/ Volt
Output Voltage Range	±10V (includes 0-5V / 0-10V / ±10V)
Output Current Range	±20mA (includes 0-20mA / 4-20mA)
Output Drive	≥1kΩ (Voltage output) / ≤600Ω (Current output)
Power Supply	
Power Supply Type	Auxiliary Powered, Universal AC/DC Supply
Voltage Range	20-253Vac/dc
Power Consumption	1W
Adjustments	
Type	Multiturn potentiometers and Switches
Span	33 to 330% of Span (for selected range)
Zero (Offset)	±125% of Span
Performance	
Accuracy	Better than 0.1% Span
Isolation	4 kV_{eff}
Bandwidth	Switch Selectable (10kHz or 10Hz)
MTBF	76 years
Operating Temperature	-10°C to +70°C
Housing	
Dimensions (mm)	92.4 x 12.5 x 112.4
Terminals	Screw Type
Conductor Clamping Range	0.5mm^2 to 2.5mm^2

Applications

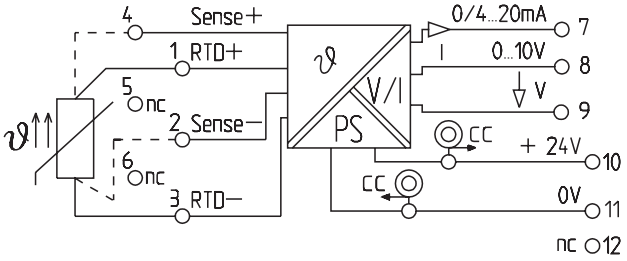
Use the Pro DC/DC for:

- DC/DC isolator with universal power supply
- Easy switch selectable converter/isolator for DC signals
- Reducted stocking of DC isolators/converters

Ordering Data

Type	Description	Order No.
WAS4 PRO DC/DC	Wave Series DC/DC 3-way Isolator, Screw Connections	**8560740000**

Universal, RTD Converter/Isolator



Universal, RTD Isolator/Converter

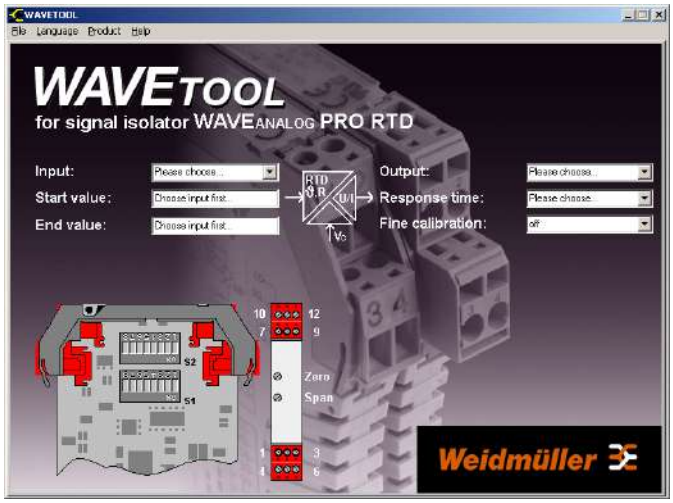
PRO RTD

The Wave Series PRO RTD accepts inputs from RTDs, resistance and potentiometer position sensors in two, three or four wire configuration and has switch selectable input range, input sensor type, output range and response time.

The Wave Series PRO RTD is supported by the free WaveTool software (available from our website) which instantly calculates and displays the switch settings and any adjustments required to suit your application.

Features

- DIP Switch Selectable Input / Output Ranges
- Selectable response time
- Automatic lead length compensation
- Complete Isolation (Input to Output to Power Supply)
- 0°C to 55°C operating temperature
- Power Supply can be cross connected using ZQV cross connect system
- DIN Rail mounting



Technical Data

Inputs	
Input Type	DIP Switch Selectable RTD, Potentiometer or Resistor
RTD Sensor Types	Pt100, Ni100
RTD Configuration	2, 3, or 4-wire connection
Temperature Range	Configurable
Potentiometer Sensor	min. 0-100Ω, max. 0-100kΩ
Resistance Range	0-450Ω
Sensor burnout action	Upscale (Status LED flashes)
Analogue Output	
Output Type	DIP Switch Selectable mA / Volt
Ranges	0-10V / 0-20mA / 4-20mA
Output Drive	≥1kΩ (Voltage output) / ≤600Ω (Current output)
Power Supply	
Power Supply Type	Auxiliary Powered, 24Vdc Supply
Voltage Range	18-30Vdc
Power Consumption	1W
Adjustments	
Type	Multiturn potentiometers and Switches
Performance	
Accuracy	Pt100: 0.3% of Span; Ni100: 0.8% of Span; Potentiometer: 0.2% of Span; Resistance: 0.3% of Span
Isolation	2 kV_{eff} / 5s
Response time	Switch Selectable (RTD: 1.2s / 2.2s; Pot: 0.5s / 1.1s)
MTBF	270 years
Operating Temperature	0°C to 55°C
Housing	
Dimensions (mm)	92.4 x 17.5 x 112.4
Terminals	Screw Type
Conductor Clamping Range	0.5mm^2 to 2.5mm^2

Applications

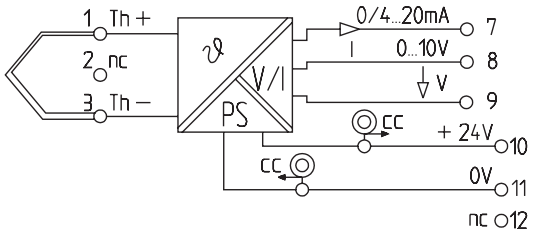
Use the Pro RTD for:

- Simple stocking of one product to meet RTD converstion and isolation requirements
- Conversion of Pt100 & Ni100 sensors

Ordering Data

Type	Description	Order No.
WAS5 PRO RTD	Universal, RTD Isolator/Converter, Screw connections	**8560700000**

Universal Thermocouple Converter/Isolator



Universal Thermocouple Converter/Isolator

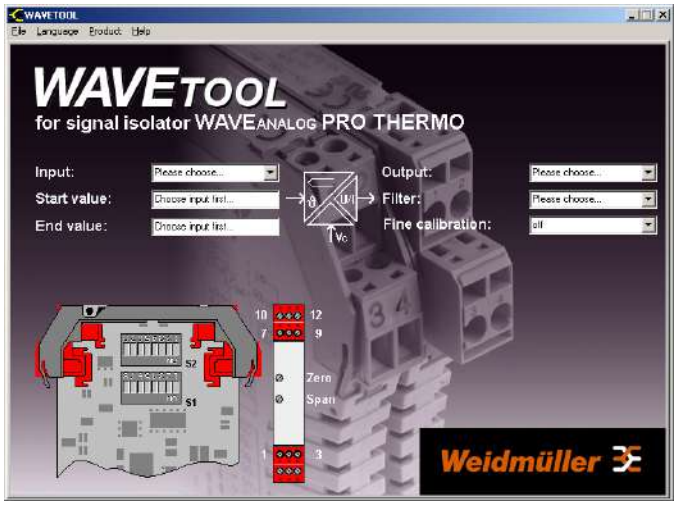
PRO Thermo

The Wave Series PRO Thermo accepts inputs from thermocouple sensors and has switch selectable input range, input sensor type, output range and response time. Cold junction compensation is automatic.

The Wave Series PRO Thermo is supported by the free WaveTool software (available from our website) which instantly calculates and displays the switch settings and any adjustments required to suit your application.

Features

- DIP Switch Selectable Input / Output Ranges
- Automatic cold junction compensation
- No calibration necessary
- Selectable response time
- Accuracy better than 0.1% of Span
- Complete Isolation (Input to Output to Power Supply)
- 0°C to 55°C operating temperature
- Power Supply can be cross connected using ZQV system
- DIN Rail mounting



Technical Data

Inputs	
Input Type	DIP Switch Selectable
Thermocouple Types	K, J, T, E, N, R, S, B
Temperature Range	-200°C to +1820°C
CJC	Automatic
Sensor burnout action	Upscale (Status LED flashes)
Analogue Output	
Output Type	DIP Switch Selectable mA / Volt
Ranges	0-10V / 0-20mA / 4-20mA
Output Drive	≥1kΩ (Voltage output) / ≤600Ω (Current output)
Power Supply	
Power Supply Type	Auxiliary Powered, 24Vdc Supply
Voltage Range	18-30Vdc
Power Consumption	1W
Adjustments	
Type	Multiturn potentiometers and Switches
Performance	
Accuracy	0.2...0.3 0.8 % of input (depending on TC Type)
Isolation	2 kVeff / 5 s
Step response time	without filter: max. 1.4 s; with filter: max. 7.5 s
Operating Temperature	0°C to 55°C
Housing	
Dimensions (mm)	92.4 x 17.5 x 112.4
Terminals	Screw Type
Conductor Clamping Range	0.5mm^2 to 2.5mm^2

Applications

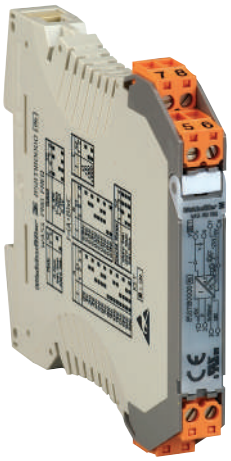
Use the PRO Thermo for:

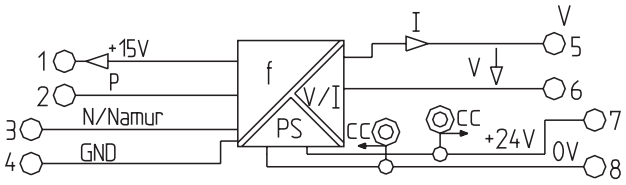
- Simple stocking of one product to meet thermocouple conversion and isolation requirements
- Eliminating specialised thermocouple PLC input cards
- Reducing signal errors by converting thermocouples to 4-20mA in the field

Ordering Data

Type	Description	Order No.
WAS5 PRO Thermo	Universal, Thermocouple Isolator/Converter, Screw connections	8560720000

Universal, Frequency Converter/Isolator





Universal, Frequency Isolator/Converter

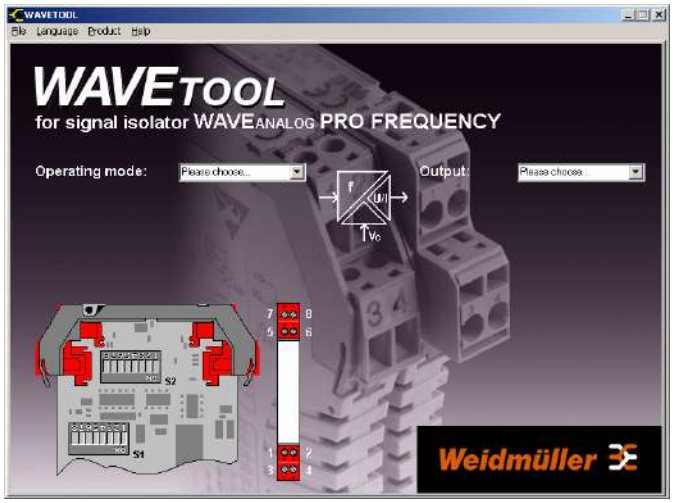
PRO Frequency

The Wave Series PRO Frequency converts the measured frequency into a proportional Current / Voltage output. It has switch selectable input frequency, output range and response time. The input circuit allows for a wide variety of commonly used industrial frequency sources.

The Wave Series PRO Frequency is supported by the free WaveTool software (available from our website) which instantly calculates and displays the switch settings and any adjustments required to suit your application.

Features

- DIP Switch Selectable Input frequency / Output Ranges
- Maximum input frequency 100kHz
- Accuracy better than 0.2% of Span
- Complete Isolation (Input to Output to Power Supply)
- 0°C to 55°C operating temperature
- DIN Rail mounting



Technical Data

Inputs	
Input Type	DIP Switch Selectable
Frequency Sources	2, 3-wire PNP/NPN, NAMUR, Push/Pull, and others
Maximum Frequency	100kHz
Sensor supply	15V
Analogue Output	
Output Type	DIP Switch Selectable mA / Volt
Ranges	0-10V / 0-20mA / 4-20mA
Output Drive	≥1kΩ (Voltage output) / ≤600Ω (Current output)
Power Supply	
Power Supply Type	Auxiliary Powered, 24Vdc Supply
Voltage Range	18-30Vdc
Power Consumption	1.6W
Adjustments	
Type	DIP Switches
Performance	
Accuracy	Better than 0.2% of Span
Isolation	4 kV_{eff} / 5s
Response time	360ms
MTBF	458 years
Operating Temperature	0°C to 55°C
Housing	
Dimensions (mm)	92.4 x 12.5 x 112.4
Terminals	Screw Type
Conductor Clamping Range	0.5mm^2 to 2.5mm^2

Applications

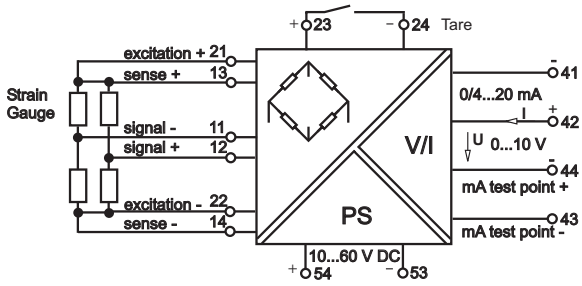
Use the Pro Frequency for:

- Conversion of digital pulses to analogue
- Proximity sensor speed monitoring to analogue value
- Flow speed to proportional analogue value

Ordering Data

Type	Description	Order No.
WAS4 PRO Freq	Universal, Frequency Isolator/Converter, Screw connections	**8581180000**

Strain Gauge Isolator / Converter



ACT20P Bridge

ACT20P Bridge

The ACT20P Bridge uses microprocessor technology to provide a one stop solution to strain gauge signal isolation and conversion. The simple and secure calibration method allows configuration to your requirements with ease. Calibration of Low and High points can be programmed independently to allow for site calibration requirements.

The ACT20P Bridge uses ratio-metric noise cancellation on its input circuit to provide accurate and stable measurement of the bridge signal. Suitable for 4 or 6 wire inputs, selectable excitation of 5 or 10V, with the ability to drive 4 x 350Ω load cells at 10V.

Features

- Operating Temperature of -40 to +70°C
- 10-60Vdc supply
- Dip Switch range selection
- Push button calibration
- Isolation 5.7kV

Applications

Use the ACT20P Bridge for:

- Strain gauge to analogue conversion
- Tank/silo weight measurement
- Strain gauge input to PLC
- Mobile Strain Gauge applications

Technical Data

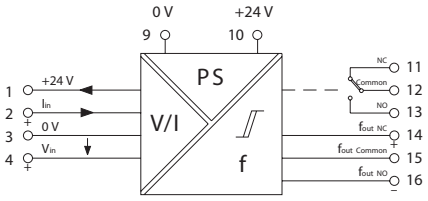
Inputs	
Input Type	Resistance bridge strain gauge
Bridge Sensitivity	1.0mV/V to 5.0mV/V
Input Range Limits	±10mV / ±20mV / ±30mV / ±50mV (Switch Selectable)
Bridge Excitation Supply	
Type	4-wire remote sensing
Excitation voltage	5V or 10V (switch selectable)
Drive capability	120mA @ 10V (equivalent to 4 x 350Ω load cells @ 10V)
Outputs	
Output Type	Analogue Current/Voltage Switch select type and Calibrate to range
Output Range	Inside the range 0-22.00 mA or 0-11.00 V
Output Drive	> 600Ω @ 10V (voltage outputs) or < 600Ω @ 20mA (current outputs)
Power Supply	
Power Supply Type	Auxiliary Powered
Voltage	10-60Vdc
Consumption	3W at 24Vdc
Performance	
Linearity	Typically ±0.05% of span
Step Response	125ms Typically
MTTF	543 years
Operating Temperature	-40 to +70°C
Housing	
Type	Double Insulated, TS35 DIN Rail Mount
Dimensions (mm)	113.7(D) x 22.5(W) x 105.7(H)
Terminals	Plug In, Screw Type

Ordering Data

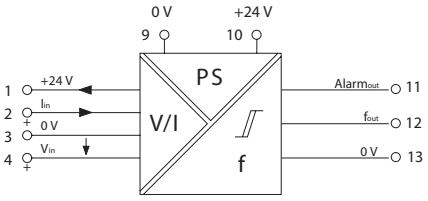
Type	Order No.
ACT20P-BRIDGE-S	1067250000

Micromann UPI Series (Analogue to Frequency Converters)

UPIR



UPIT



Micromann UPI Series

Micromann UPI Series Analogue to Frequency Converters accept current/voltage signals and convert to a proportional output frequency. They also have inbuilt linearisation for square law signals and programmable low cutout to prevent accumulated errors at low frequencies. A power supply connection is provided for a loop powered transmitter or other active input device.

They also have a single alarm channel for basic signal level monitoring applications.

In common with all Micromann units they have a four digit/character display, which you can scale to read in any engineering unit. All parameters then work off the displayed value. The user friendly software makes setting up operating parameters very easy: simply choose the settings you need using the display and the tactile keypad.

Features

- Convert current/voltage signals to proportional frequency
- Power for active input devices
- Low cut-out and linearisation for square law signals
- Single alarm channel with LED status indication
- Display in engineering units
- Complete isolation
- Auxiliary powered
- Full set-up from keypad

Technical data

Housing	TS35 DIN rail mount metal (coated Al) housing
Input Type	Analogue Current/Voltage
Input range limits	±55mA / ±55V
Input resolution	1µA / 1µV
Sensor supply	24Vdc (to 25mA)
Pulse output	UPIR - SPDT Relay (≤25Hz) / UPIT - Open Collector (<1kHz)
Channels	Single
Output	Frequency
Alarm Output	Relay/Solid State Switch
Power supply	Auxiliary Powered (AC or DC)
Adjustments	Fully programmable from keypad
Operating temperature	0-60°C
Linearity	To suit Linear or Square Law Signals
Isolation	2kVrms for 60s (AC & DC) - Input/Output/Power Supply

Applications

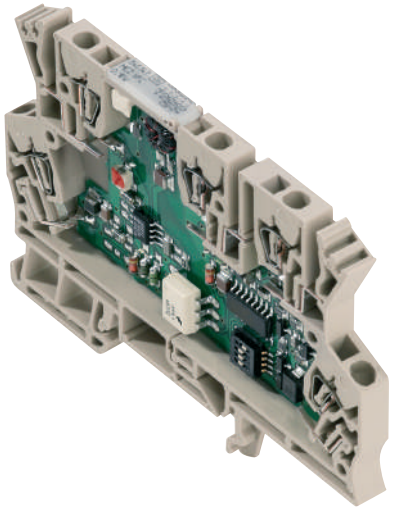
Use the Micromann UPI series for:

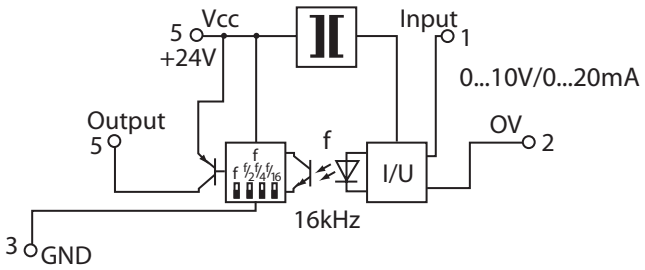
- Conversion of analogue signals to pulse based
- Frequency control of field devices
- Speed Pulse for multiple VSD speed inputs

Ordering Data

Type	Description	Order No.	
		24Vdc	240Vac
UPIR	Analogue to Frequency Converter (<25Hz)	7940010908	7940010249
UPIT	Analogue to Frequency Converter (<1kHz)	7940015988	7940010221

Analogue to Frequency Converters





MCZ VFC and MCZ CFC

MCZ Analogue to Frequency Converters

The conversion of analogue signals to frequeny based signals means that it is possible to import analogue signals from the field via the counter inputs of a controller.

Features

- Accuracy Typically 0.2%
- Switch Selectable Frequency Ranges: 0-1kHz / 0-4kHz / 0-8kHz/ 0-16kHz
- Available for 0-10V or 0-20mA signals
- Fully Isolated to 1 kVdc
- 24Vdc Supply Voltage

Technical data

Input	0-10V (into 1kΩ) / 0-20mA (into 50Ω)
Output range	0 to 1/4/8/16kHz (selectable)
Output type	PNP V_b-0.7V
Output drive	Maximum 20mA
Accuracy	0.2% of full scale
Connection	Tension clamp
Housing	DIN rail mount
Isolation	1kVrms for 60s (AC & DC) - Input/Output

Applications

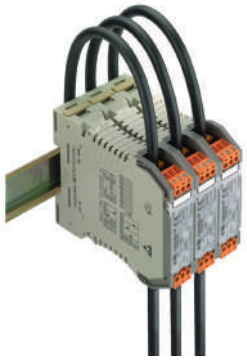
Use the MCZ VFC and MCZ CFCF for:

- Inporting analogue signals from the field using the counter inputs of a controller
- Frequency control of field devices
- Speed Pulse for multiple VSD speed inputs

Ordering Data

Type	Description	Order No.
MCZ VFC 0-10V	0-10V to Frequency Converter	**8461470000**
MCZ CFC 0-20mA	0-20mA to Frequency Converter	**8461480000**
APMCZ 1.5	End Plate for MCZ housing	**8389030000**

AC/DC Current Monitoring



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 ±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	0.5mm² to 2.5mm²

Applications

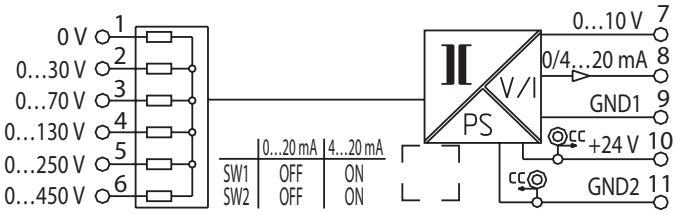
Use the Wave Series current monitors for:

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

Ordering Data

Type	Input Sensor	Input Range	AC/DC	Output Type	Description	Order No.
WAS1 CMA 1/5/10A	Inbuilt CT	0-1A / 0-5A / 0-10A	50-60Hz AC	0-20mA, 4-20mA or 0-10V	24Vdc Powered	**8523400000**
WAS1 CMA LP 1/5/10A	Inbuilt CT	0-1A / 0-5A / 0-10A	50-60Hz AC	4-20mA	Output Loop Powered	**8528650000**
WAS2 CMA 5/10A uc	Hall Effect	0-5A / 0-10A	True RMS to 2kHz	0-20mA, 4-20mA or 0-10V	24Vdc Powered	**8526610000**
WAS2 CMA 20/25/30A uc	Hall Effect	0-20A / 0-25A / 0-30A	True RMS to 2kHz	0-20mA, 4-20mA or 0-10V	24Vdc Powered	**8545830000**
WAS2 CMA 40/50/60A uc	Hall Effect	0-40A / 0-50A / 0-60A	True RMS to 2kHz	0-20mA, 4-20mA or 0-10V	24Vdc Powered	**8513330000**

AC Voltage Converters



WAS2 VMA V ac AC Voltage Converter

Wave Series AC Voltage Monitoring

Wave Series AC Voltage monitoring units convert AC voltage measurements to an analogue current/voltage output. They have switch selectable input and output 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 (40-400Hz sinusoidal)
Input ranges	30Vac/ 70Vac/ 130Vac/ 250Vac/ 450Vac
Input frequency range	40-400Hz
Phases	Single Phase
Outputs	
Output Type	Analogue Current/Voltage
Output Range	Switch Selectable 0-20mA, 4-20mA or 0-10V
Output Drive	< 600Ω (Current) / >1kΩ (Voltage)
Contact Rating	7A maximum / 3A Continuous
Power Supply	
Power Supply Type	Auxiliary Powered
Voltage	18-30Vdc (Auxiliary Powered)
Performance	
Accuracy	Better than 2% Full Scale error (1.3% for 40-60Hz)
Step Response	< 300mS
MTTF	371 years
Operating Temperature	0-50°C
Housing	
Dimensions	92.4mm x 22.5mm x 112.4mm
Terminals	Screw Type rated 2.5A
Conductor Diameter	0.5mm² to 2.5mm²

Applications

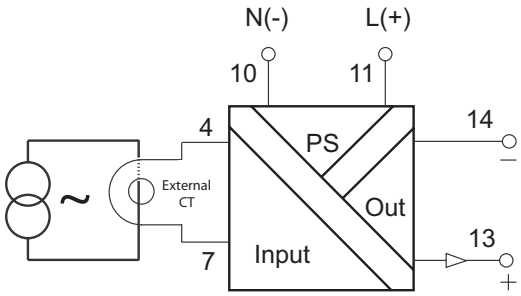
Use the Wave Series AC Voltage monitors for:

- 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.
WAS2 VMA V ac	Single Phase	To 450Vac	40 to 400Hz Sinusoidal	0-20mA, 4-20mA or 0-10V	18-30Vdc Powered	**8581220000**

Auxiliary Powered AC Current Converters



Auxiliary Powered AC Current Converter/Isolator

FTX/ACX

The FTX/ACX is a 4-wire, auxiliary (AC or DC) powered transmitter that isolates and converts AC Current inputs to a proportional DC mA or a proportional Voltage output capable of driving loads to 1000Ω.

Features

- Complete (input to output to power supply) isolation to 1.5kV
- Highly accurate (0.5%)
- AC or DC Powered
- Non-interacting Zero and Span controls
- Front panel mounted test points for output signal monitoring
- Wide Zero and Span adjustments
- Removable, screw type, terminal blocks
- Compact metal housing
- Low input circuit burden
- Class 0.5 device

Technical Data

Input type	Fixed range AC Voltage (01A or 0-5A as ordered)
Input Waveform	True sine wave Ac Current input with a frequency in the range 47-63HZ
Channels	Single
Analogue Ouput	Current/Voltage (Switch/Jumper Selectable)
Power Supply	Auxiliary Powered
Adjustments	Front panel, multi-turn potentiometers
Measurement Class	Class 0.5 device
Isolation	2kVrms for 60s (AC & DC)
Housing	Dual DIN rail mount metal housing

Applications

Use the FTX Series AC Current Transmitters for:

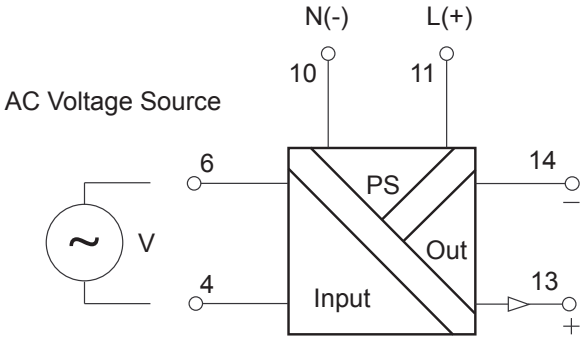
- Current monitoring, e.g. motor supply or lift
- AC current monitoring for PLC control
- Simple Electricity usage

For Current Transformers see page K.1

Ordering Data

Type	Description	Order No.
FTX/ACX 0-1A 240Vac	FTX/ACX/0-1A/4-20mA/240Vac/X	7940010893
FTX/ACX 0-5A 24Vdc	FTX/ACX/0-5A/4-20mA/24Vdc/X	7940010895
FTX/ACX 0-5A 240Vac	FTX/ACX/0-5A/4-20mA/240Vac/X	7940010188
FTX Variable	Please nominate: FTX/ACX/[Input]/[Output]/[Power Supply]/X	7940083962

Auxiliary Powered AC Voltage Converters



Auxiliary Powered AC Voltage Converter/Isolator

FTX/AVX

The FTX/AVX is a 4-wire, auxiliary (AC or DC) powered transmitter that isolates and converts AC Voltage inputs to a proportional DC mA or a proportional Voltage output capable of driving loads to 1000Ω.

Features

- Complete (input to output to power supply) isolation to 1.5kV
- Highly accurate (0.5%)
- AC or DC Powered
- Non-interacting Zero and Span controls
- Front panel mounted test points for output signal monitoring
- Wide Zero and Span adjustments
- Removable, screw type, terminal blocks
- Compact metal housing
- Class 0.5 device
- Optional "true RMS" input circuit for non-sinusoidal signals

Technical Data

Input Type	Fixed range AC Voltage (as ordered)
Input Waveform	True sine wave input with a frequency in the range 47-63HZ (see/RMS option for other waveforms)
Channels	Single
Analogue Ouput	Current/Voltage (Switch/Jumper Selectable)
Power Supply	Auxiliary Powered
Adjustments	Front panel, multi-turn potentiometers
Measurement Class	Class 0.5 device
Isolation	2kVrms for 60s (AC & DC)
Housing	Dual DIN rail mount metal housing

Applications

Use the FTX Series AC Voltage Transmitters for:

- Voltage monitoring, e.g. motor supply or lift
- AC Voltage monitoring for PLC control
- Simple Electricity usage

Ordering Data

Type	Description	Order No.
FTX/AVX 0-125Vac 24Vdc	FTX/AVX/0-125Vac/4-20mA/24Vdc/X	**7940017855**
FTX/AVX 0-125Vac 240Vac	FTX/AVX/0-125Vac/4-20mA/240Vac/X	**7940011288**
FTX/AVX 0-300V 240Vac	FTX/AVX/0-300Vac/4-20mA/240Vac/X	**7940020049**
FTX/AVX Variable	Please nominate: FTX/AVX/[Input]/[Output]/[Power Supply]/X	**7940083962**