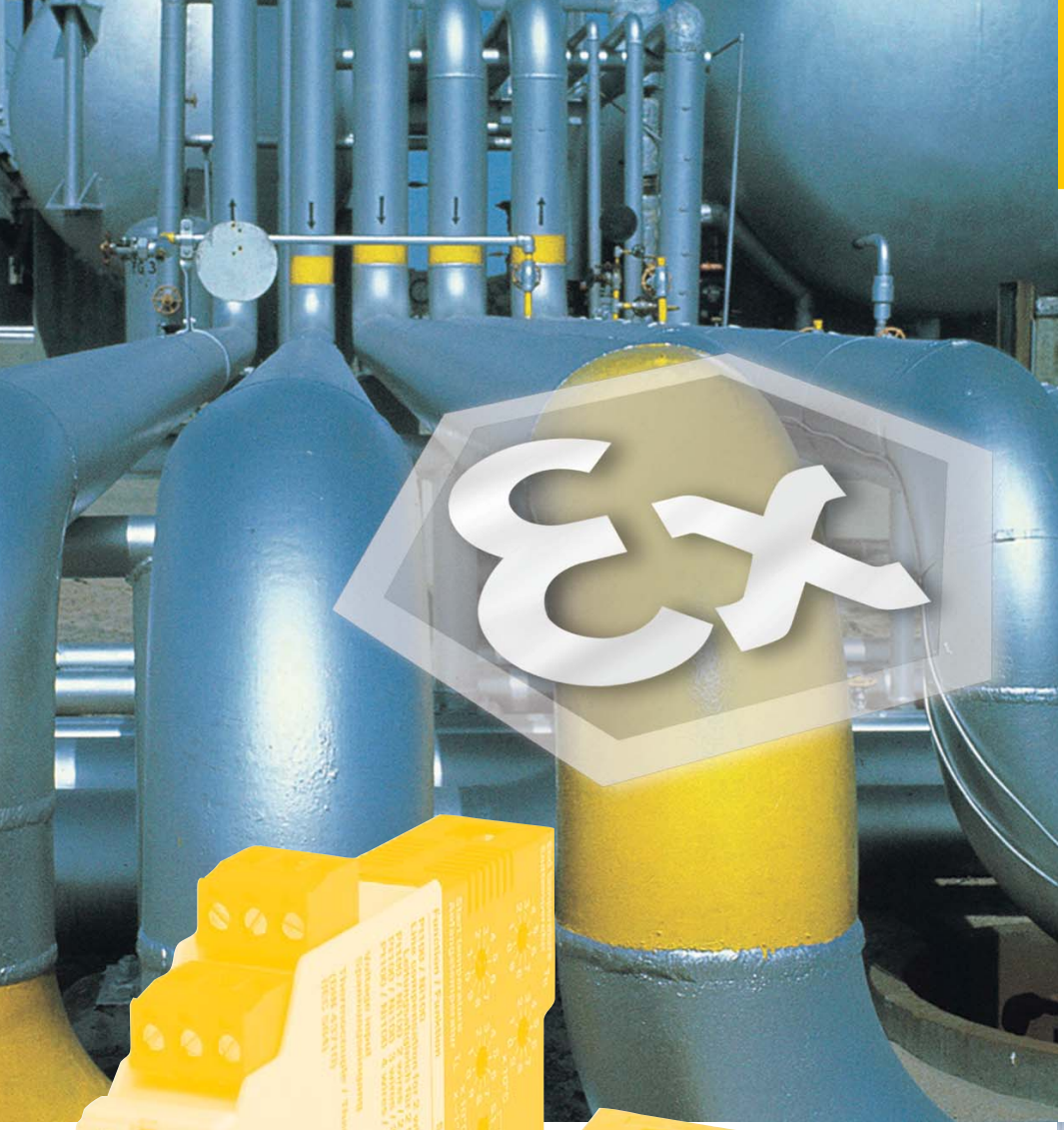
TURCK

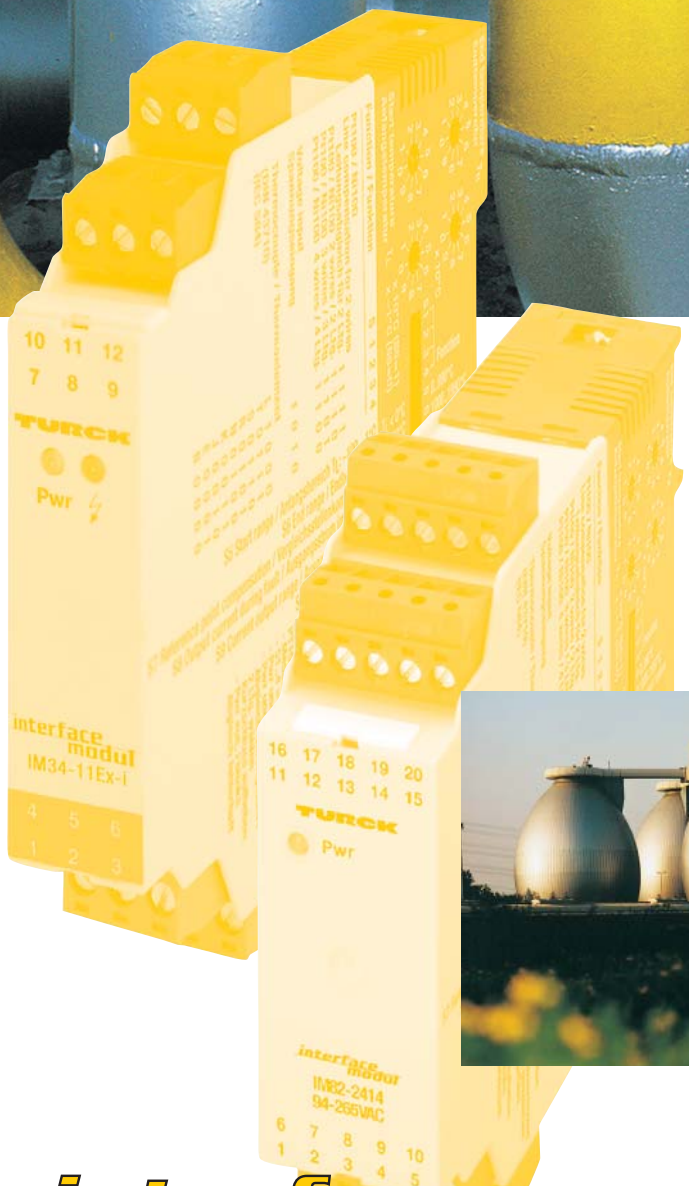
Industrial Automation

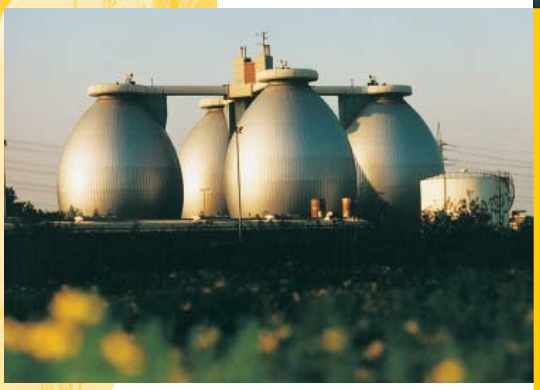
INTERFACE-TECHNOLOGY IN MODULAR HOUSINGS

interfacemodul

SERIES



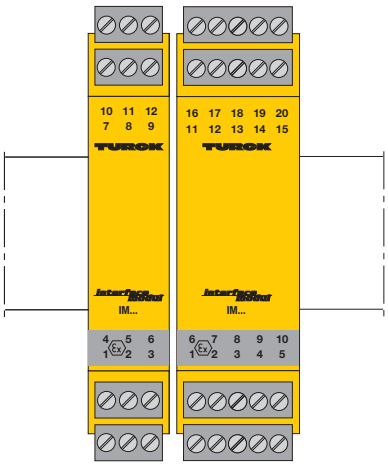


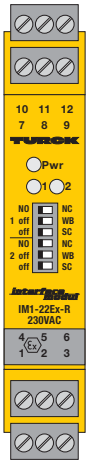


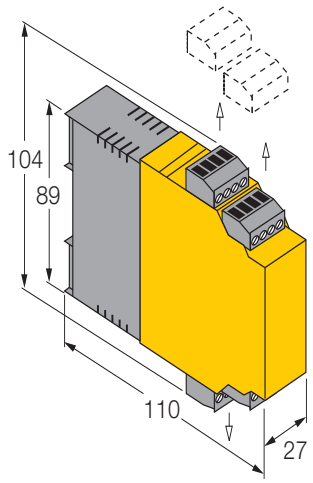
interface modul

Point to Point! Point to Bus! Bus to Bus!

Interface technology in modular housings – series IM
Functions and selection guide







The housing concept

Depending on the device's scope of functions, there are housingswith a width of 18 or 27 mm, while they are 104 mm high. All modules may be mounted directly next to each other and can be powered via the power bus.

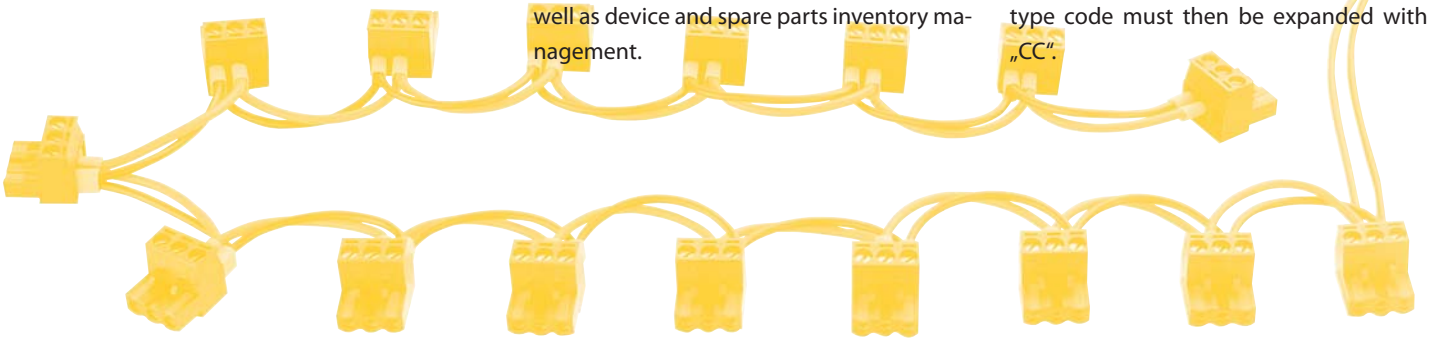
Universal power supply

With a universal power supply ranging from 20 ... 250 VUC, or 20 ... 250 VAC/20 ... 125 VDC for the intrinsically safe versions, the new IM-modules may be connected to practically all industrial power networks. The universal power supply facilitates device selection, as well as device and spare parts inventory management.

Removable terminal blocks

Removable terminal blocks simplify installation and device replacements significantly. The terminals are coded, thus preventing interchange errors.

Devices with standard functionality are also available with cage-clamp terminals. The type code must then be expanded with a „CC".



ATEX compliance

All interface devices of the IM series feature intrinsically safe input and output circuits and are approved according to the new framework directive 94/9/EC, regarding equipment and protective systems intended for use in potentially explosive atmospheres. They can thus be used as associated equipment.

The blue terminals are designated for connection of intrinsically safe signals.

Further information on the ATEX directive is available via the Internet:
http://ec.europa.eu/enterprise/atex/guide/index.htm

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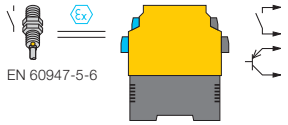
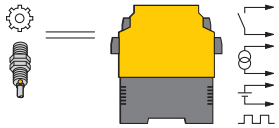


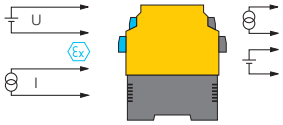
Isolating amplifiers
Processing of switching states of mechanical contacts and sensors according to EN 60947-5-6 (NAMUR).

(Page 4)



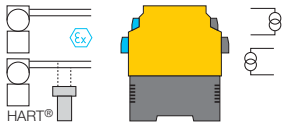
Rotational speed monitors/Frequency-current converters
Rotation speed monitoring for overspeed/under-speed and window function, operating range between 0.06…600000/min

(Page 5)



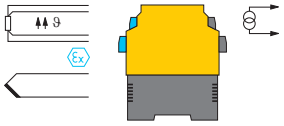
Analog data transmitters/intrinsically safe input isolators
Galvanic isolation and/or conversion of analog current and voltage signals. There are devices with intrinsically safe input and output circuits.

(Page 5)



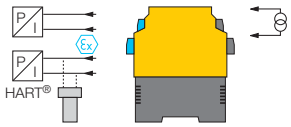
Isolating transducers
Supply and transmission of current signals of 2-wire transmitters located in explosion hazardous areas. HART® devices enable bi-directional communication. This range incorporates devices with and without auxiliary power and active or passive outputs. Series -FSD includes smoke and fire detectors.

(Page 6)



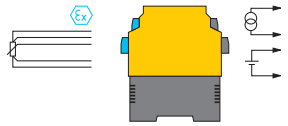
Temperature measuring amplifiers
Linear conversion of temperature values into standard current signals.
Linear conversion of temperature values, which are detected by a thermo-element, into standard current signals. All customary thermoelements or mV-signals may be connected. Types -Ci, -CRi = programmable via PC using software PACTware™.

(Page 7)



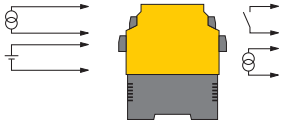
Analog data transmitters/intrinsically safe output isolators
Galvanic isolation and transfer of analog current signals into the explosion hazardous area. The family comprises a selection of devices with intrinsically safe output circuits. HART® devices enable bi-directional communication.

(Page 8)



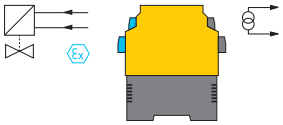
Potentiometer amplifiers
Conversion of the variable resistance values of a potentiometer into standard current and voltage signals. The input circuit is intrinsically safe, so that the potentiometer may be mounted in the explosion hazardous area.

(Page 9)



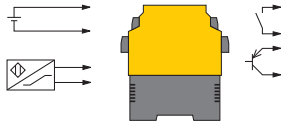
Limit value monitors
Monitoring of standard current and voltage signals relative to pre-set limit values. This series includes devices with three limit values and versions with current output. Types -SR, -SRi feature a manual teach function, whereas types -R and -Ri are adjustable via a coded rotary switch.

(Page 9)



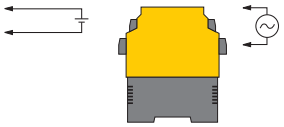
Valve control modules
Intrinsically safe supply of magnetic valves, pilot indicators, transmitters etc.

(Page 10)



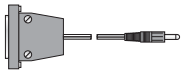
Coupling devices
Galvanically isolated transmission of binary switching states. These devices function as a reliable interface between different potentials.

(Page 10)



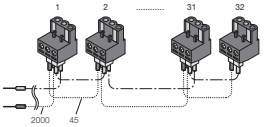
Power supplies
Power supply with galvanic isolation used to power low power consumers, particularly suited for powering the switching and monitoring devices of TURCK's *interfacemodul, multimodul* und *multisafe®* series.

(Page 11)



Programming adapter
For programming the IM-modules via a PC.

(Page 7)



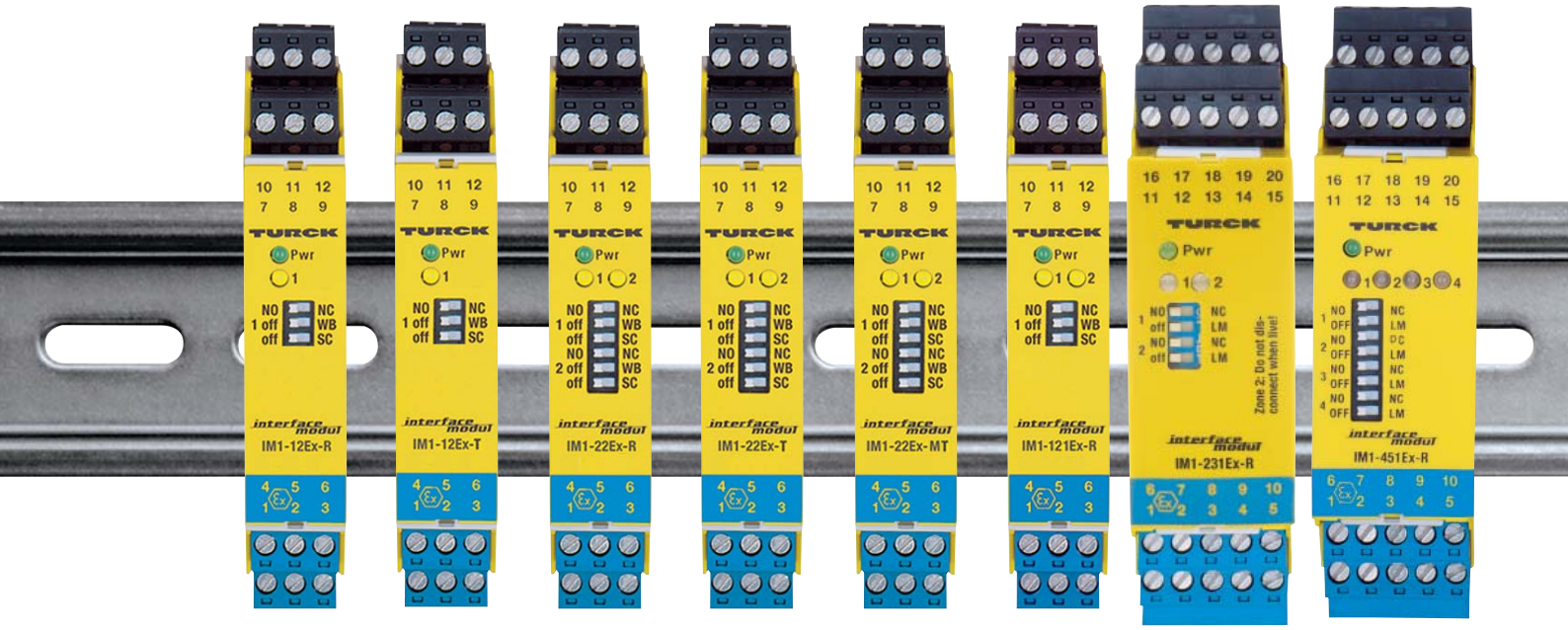
Power-bus for power distribution
Distribution of the power supply to several modules. „xx" in the type code stands for the number of modules, „03" for 3-pole terminals.

(Page 6)

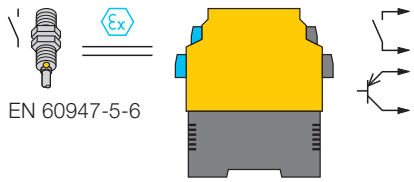
IM-CC
Removable cage-clamp terminals (3-pole) for IM modules.

(Page 8)

interface modul



Type	IM1-12Ex-R	IM1-12Ex-T	IM1-22Ex-R	IM1-22Ex-T	IM1-22Ex-MT	IM1-121Ex-R	IM1-231Ex-R	IM1-451Ex-R
	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]
Function	Isolating switching amplifier	Isolating switching amplifier	Isolating switching amplifier	Isolating switching amplifier	Isolating switching amplifier	Isolating switching amplifier	Isolating switching amplifier	Isolating switching amplifier
Voltage supply	20…250 VAC 20…125 VDC	20…250 VAC 20…125 VDC	20…250 VAC 20…125 VDC	20…250 VAC 20…125 VDC	20…250 VAC 20…125 VDC	20…250 VAC 20…125 VDC	20...250 VAC 20...125 VDC	20…250 VAC 20…125 VDC
Inputs	1 NAMUR sensor or contact	1 NAMUR sensor or contact	2 NAMUR sensors or contacts	2 NAMUR sensors or contacts	2 NAMUR sensors or contacts	1 NAMUR sensor or contact	2 NAMUR sensors or contacts	4 NAMUR sensors or contacts
Outputs	2 relays (N.O.)	2 transistors ≤ 30 V, 50 mA, ≤ 3 KHz	2 relays (N.O.)	2 transistors ≤ 30 V, 50 mA, ≤ 3 KHz	2 MOSFETS ≤ 250 VAC	2 relays (N.O.), incl. 1 alarm output	2 relays (change-over) additionally 1 alarm output (N.O.)	5 relays (N.O.), incl. 1 alarm output
Approvals	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM, NEPSI	ATEX, FM/CSA, IECEx, GOST
Special features	SIL 2	SIL 2	SIL 2	SIL 2	SIL 2	SIL 2	SIL2	–



Isolating amplifiers

Evaluation and processing of switching states of mechanical contacts and sensors according to EN 60947-5-6 (NAMUR).

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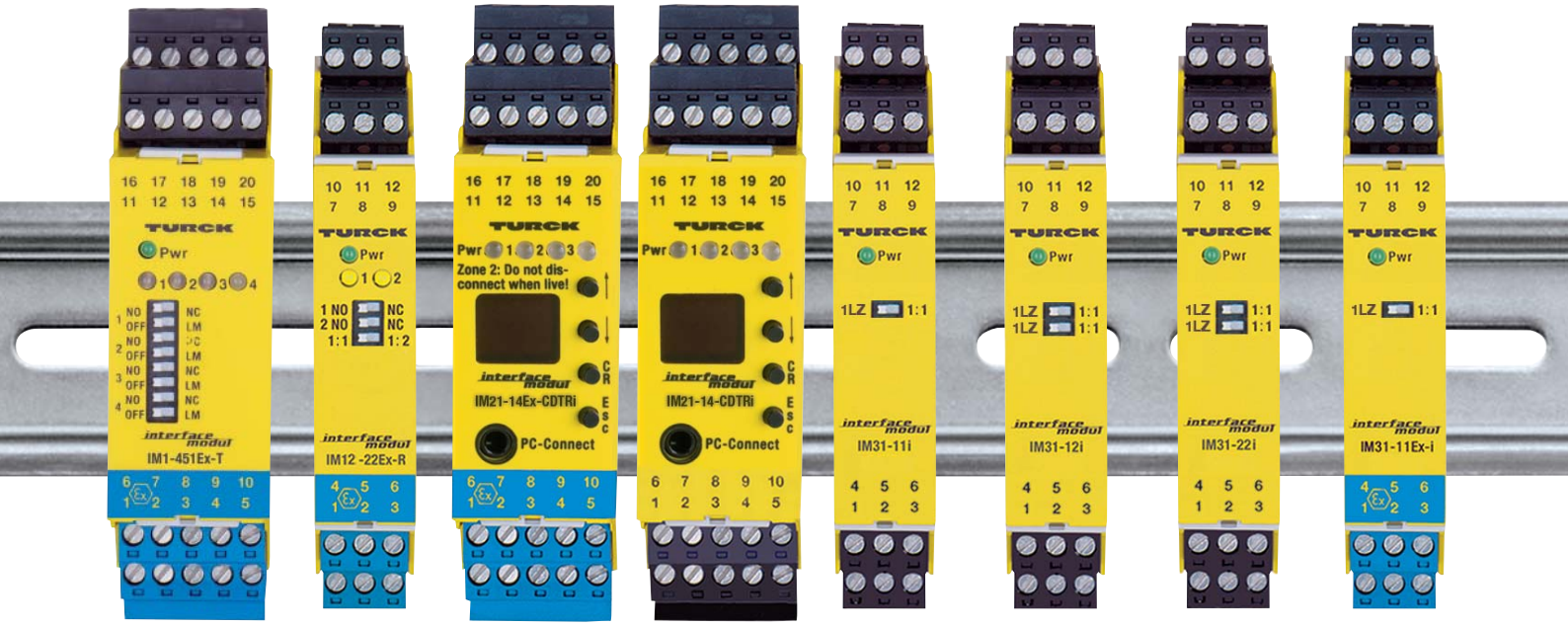
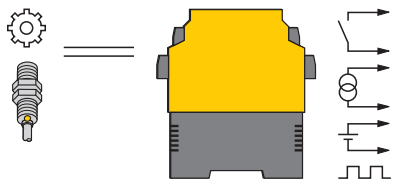
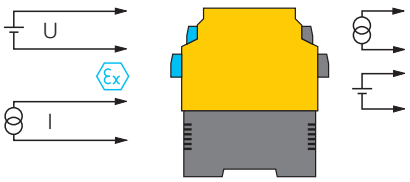


	IM1-451Ex-T	IM12-22Ex-R	IM21-14Ex-CDRi	IM21-14-CDRi	IM31-11-i	IM31-12-i	IM31-22-i	IM31-11Ex-i
	[Ex ia]	[Ex ia]	[Ex ia]					[Ex ia]
	Isolating switching amplifier	Isolating switching amplifier	Speed monitor/ Freq.-current converter	Speed monitor/ Freq.-current converter	Analog data transmitter	Analog data transmitter	Analog data transmitter	Analog data transmitter
	20…250 VAC 20…125 VDC	20…250 VAC 20…125 VDC	20…250 VAC 20…125 VDC	250 VUC	250 VUC	250 VUC	250 VUC	20…250 VAC 20…125 VDC
	4 NAMUR sensors or contacts	2 NAMUR sensors or contacts	1 NAMUR sensor	1 NAMUR or 3-wire sensor, 5...30 VDC	0/2…10 V 0/4…20 mA	0/2…10 V 0/4…20 mA	2 x 0/2…10 V 2 x 0/4…20 mA	0/2…10 V 0/4…20 mA
	5 transistors, incl. 1 alarm output	2 relays (N.O.)	2 relays (N.O.) 1 transistor 1 x 0/4...20 mA	2 relays (N.O.) 1 transistor 1 x 0/4...20 mA	1 x 0/4…20 mA	2 x 0/4…20 mA	2 x 0/4…20 mA	0/4…20 mA
	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, IECEx (available), GOST	–				ATEX, FM/CSA, IECEx, GOST
	–	–	Display, program. via PC (FDT/DTM), mounting in zone 2 possible	Display, program. via PC (FDT/DTM)	–	–	–	–



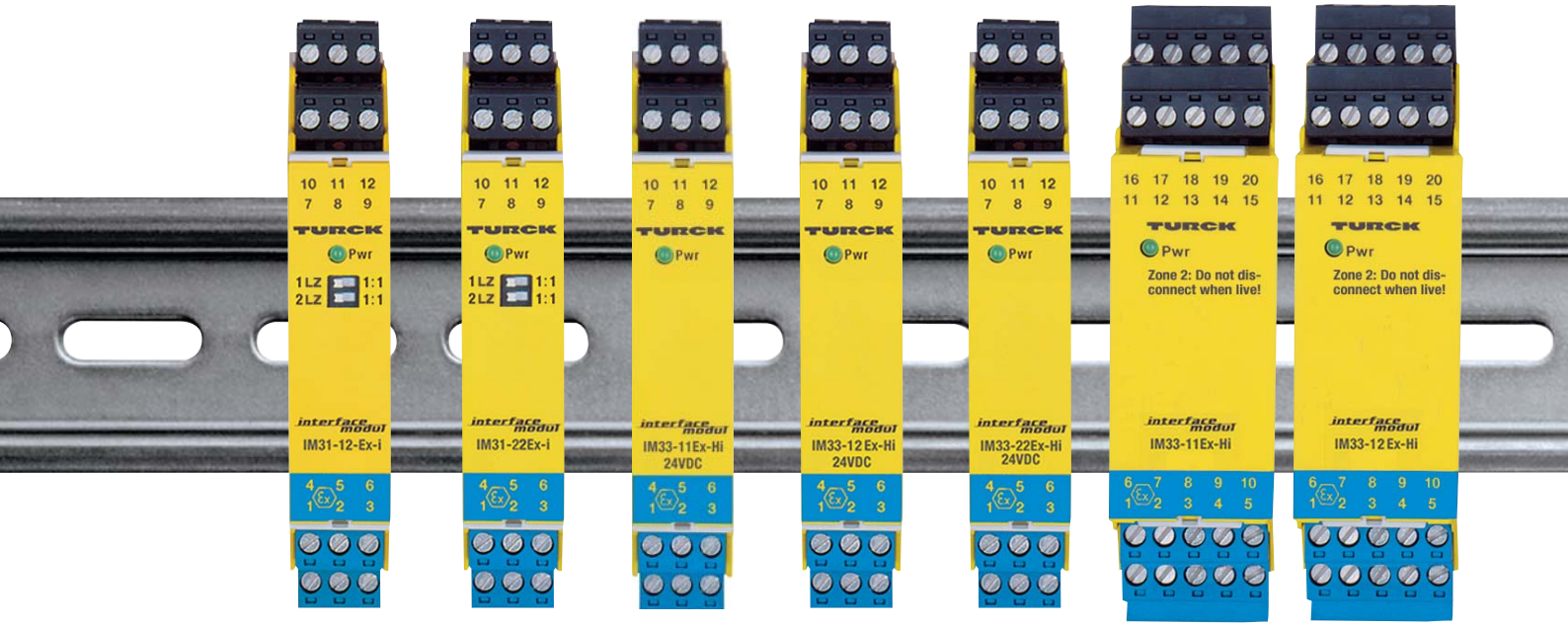
Speed monitors/Frequency-current converters

Selectable line monitoring for wirebreak/short-circuit (ON/OFF mode), galvanic isolation of input circuits, output circuits and supply voltage, rotation speed monitoring for overspeed/ underspeed and window function, operating range between 0.06…600000/min, sensor control acc. to EN 60947-5-6 (NAMUR), connection of 3-wire sensors and external voltage sources 5…30 VDC, 2 relay and one transistor output, pulse divider, current output 0/4…20 mA, reversible, pulse output, adjustable analog output in case of input circuit errors FDT/DTM with diagnostic function HART®, ring buffer for storing of measured values, removable terminal blocks, universal operating voltage (20…250 VAC/ 20…125 VDC for Ex-version, 20…250 VUC for non-Ex-version).

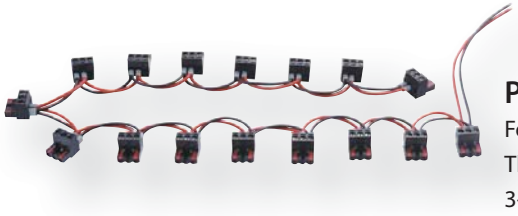


Analog data transmitters/ intrinsically safe input isolators

Galvanic isolation and/or conversion of analog current and voltage signals. There are devices with intrinsically safe input and output circuits..

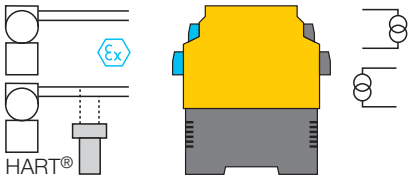


Type	IM31-12Ex-i	IM31-22Ex-U IM31-22Ex-i	IM33-11Ex-Hi/ 24VDC	IM33-12Ex-Hi/ 24VDC	IM33-22Ex-Hi/ 24VDC	IM33-11Ex-Hi	IM33-12Ex-Hi
	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]
Function	Analog data transmitter	Analog data transmitter	HART® isolating transducer	HART® isolating transducer	HART® isolating transducer	HART® isolating transducer	HART® isolating transducer
Voltage supply	20…250 VAC 20…125 VDC	20…250 VAC 20…125 VDC	24 VDC	24 VDC	24 VDC	20…250 VAC 20…125 VDC	20…250 VAC 20…125 VDC
Inputs	0/2…10 V 0/4…20 mA	2 x 0/2…10 V 2 x 0/4…20 mA	0/4…20 mA	1 x 0/4…20 mA	2 x 0/4…20 mA	1 x 0/4…20 mA	1 x 0/4…20 mA
Outputs	2 x 0/4…20 mA	2 x 0/4…20 mA 2 x 0/2...10V	0/4…20 mA	2 x 0/4…20 mA	2 x 0/4…20 mA	1 x 0/4…20 mA	2 x 0/4…20 mA
Approvals	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST
Special features	Signal multiplier	–	HART®-transmission possible/SIL 2	HART®-transmission possible/SIL 2	HART®-transmission possible/SIL 2	HART®-transmission possible/mounting in zone 2 possible	HART®-transmission possible/mounting in zone 2 possible



Power bus for energy distribution PB-xx/03

For distribution of the voltage supply to several modules.
The „xx“ in the type designation stands for number of modules, whereas the „03“ identifies 3-pole terminals.



Isolating transducers

These devices are suited for the supply and transmission of current signals of 2-wire transmitters located in explosion hazardous areas. HART® devices enable bi-directional communication. This range incorporates devices with and without auxiliary power and active or passive outputs. Series -FSD includes smoke and fire detectors. FDT/DTM with diagnostic function.

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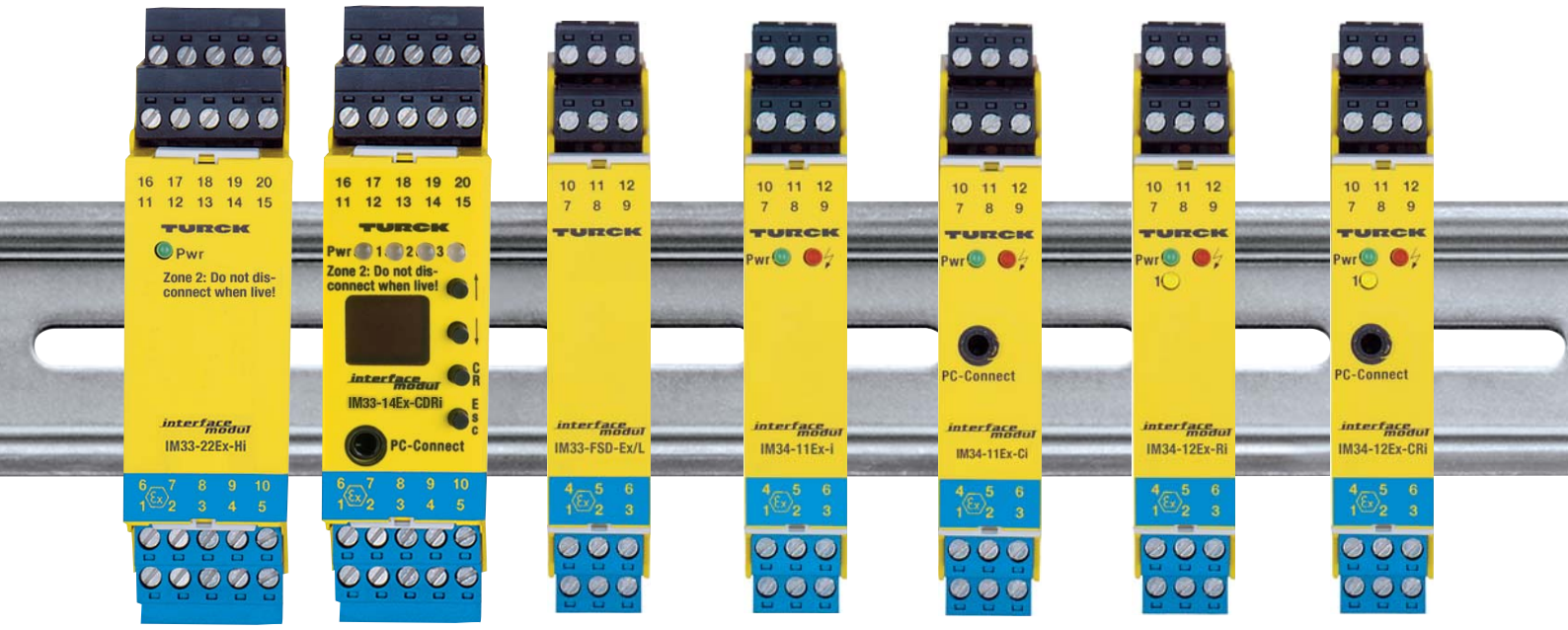
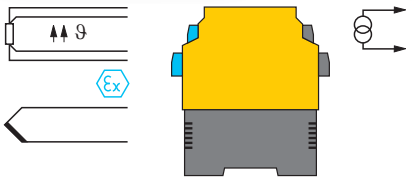
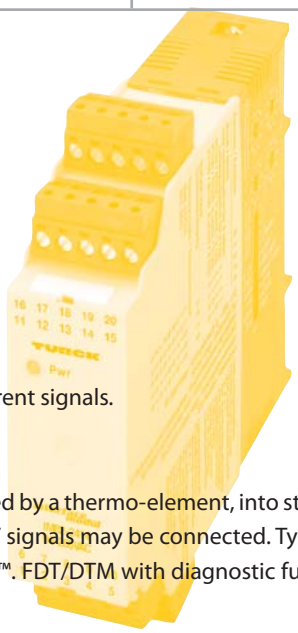
Industrial Automation



	IM33-12Ex-Hi	IM33-14Ex-CDRi	IM33-FSD-Ex/L	IM34-11Ex-i	IM34-11Ex-Ci	IM34-12Ex-Ri	IM34-12Ex-CRi
	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]
	HART® isolating transducer	Transmitter-power supply with trip amplifier	Isolating transducer	Temperature measuring amplifier	Temperature measuring amplifier	Temperature measuring amplifier	Temperature measuring amplifier
	20…250 VAC 20…125 VDC	20…250 VAC 20…125 VDC	without auxiliary energy	20…250 VAC 20…125 VDC	20…250 VAC 20…125 VDC	20…250 VAC 20…125 VDC	20…250 VAC 20…125 VDC
	2 x 0/4…20 mA	0/4...20 mA or 0/2...10 V or transmitter	2 x 0…20 mA	Ni/Pt100 or thermo-elements or mV-input	Ni/Pt100 or thermo-elements or mV-input	Ni/Pt100 or thermo-elements or mV-input	Ni/Pt100 or thermo-elements or mV-input
	2 x 0/4…20 mA	1 x 0/4…20 mA 3 relays (N.O.)	2 x 0…20 mA	1 x 0/4…20 mA	1 x 0/4…20 mA	1 x 0/4…20 mA 1 relay (N.O.)	1 x 0/4…20 mA 1 relay (N.O.)
	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST
	HART®-transmission possible/mounting in zone 2 possible	Display, program. via PC (FDT/DTM)/ mounting in zone 2 possible	Transducer for fire and smoke indi-cators	–	programmable via PC (FDT/DTM)	–	programmable via PC (FDT/DTM)





Programming adapter IM-PROG

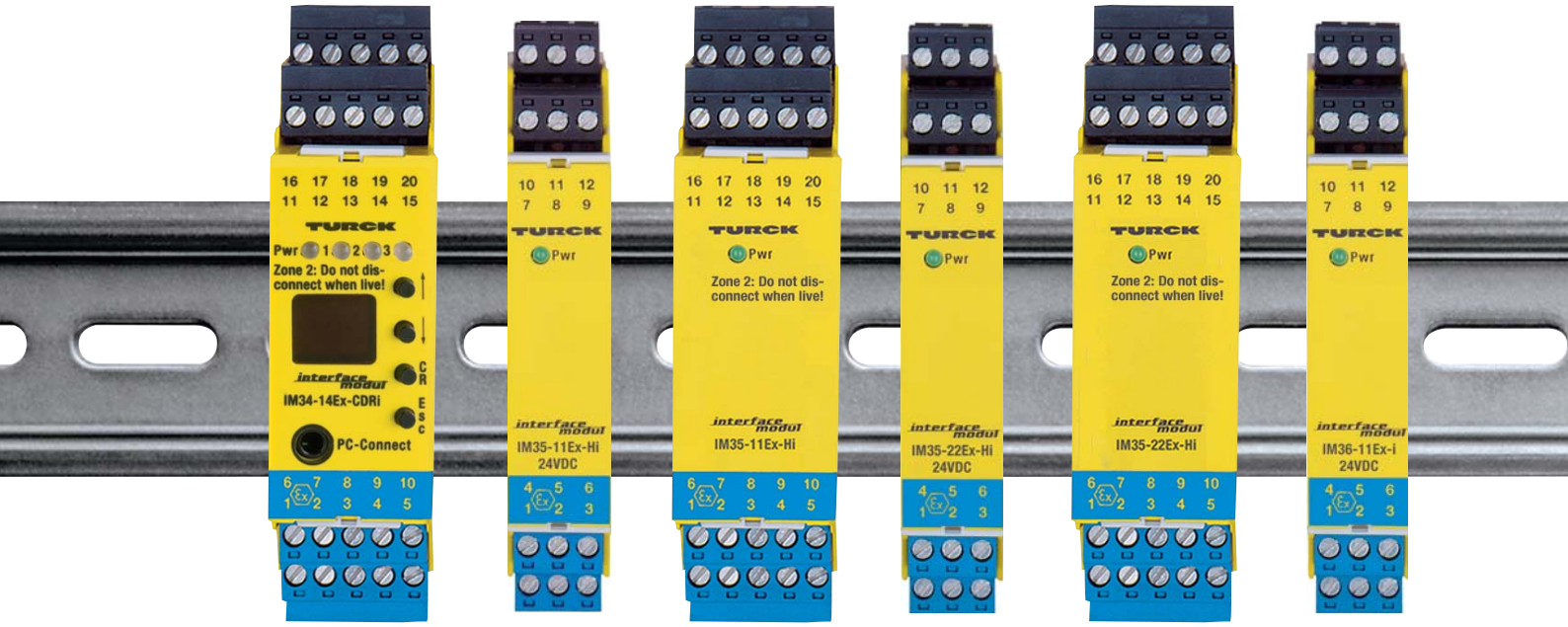
For programming of IM, IMB and IME modules via PC.

Temperature measuring amplifiers

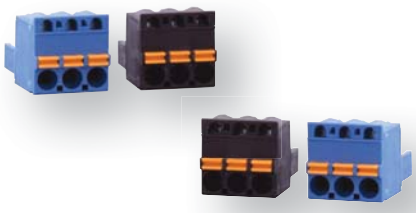
Linear conversion of temperature values into standard current signals.

Thermo-element measuring amplifiers

Linear conversion of temperature values, which are detected by a thermo-element, into standard current signals. All customary thermoelements or mV signals may be connected. Types -Ci, -CRi = programmable via PC using software PACTware™. FDT/DTM with diagnostic function. Hart®

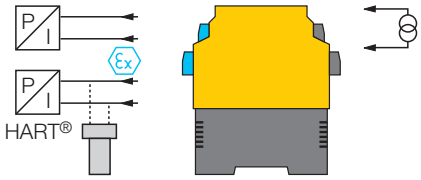


Type	IM34-14Ex-CDRi	IM35-11Ex-Hi/ 24VDC	IM35-11Ex-Hi	IM35-22Ex-Hi/ 24VDC	IM35-22Ex-Hi	IM36-11Exi/ 24VDC
	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]	[Ex ia]
Function	Temperature measuring amplifier	HART® Analog data transmitter	HART® Analog data transmitter	HART® Analog data transmitter	HART® Analog data transmitter	Potentiometer amplifier
Voltage supply	20…250 VAC 20…125 VDC	24 VDC	20…250 VAC 20…125 VDC	24 VDC	20…250 VAC 20…125 VDC	24 VDC
Inputs	Ni/Pt100 or thermo-elements or mV-input	0/4…20 mA	1 x 0/4…20 mA	2 x 0/4…20 mA	2 x 0/4…20 mA	800 Ω ... 20 kΩ
Outputs	3 relays (N.O.) 1 x 0/4...20mA	0/4…20 mA	1 x 0/4…20 mA	2 x 0/4…20 mA	2 x 0/4…20 mA	0…20 mA
Approvals	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST
Special features	Display, program-mable via PC (FDT/ DTM)/mounting in zone 2 possible	HART®-transmission possible/SIL 2	HART®-transmission possible/mounting in zone 2 possible	HART®-transmission possible/SIL 2	HART®-transmission possible/mounting in zone 2 possible	–



IM-CC

Removable cage-clamp terminals (3-pole) for IM modules



Analog data transmitters/ intrinsically safe output isolators

Galvanic isolation and transfer of analog current signals into the explosion hazardous area. The family comprises a selection of devices with intrinsically safe output circuits. HART® devices enable bi-directional communication.

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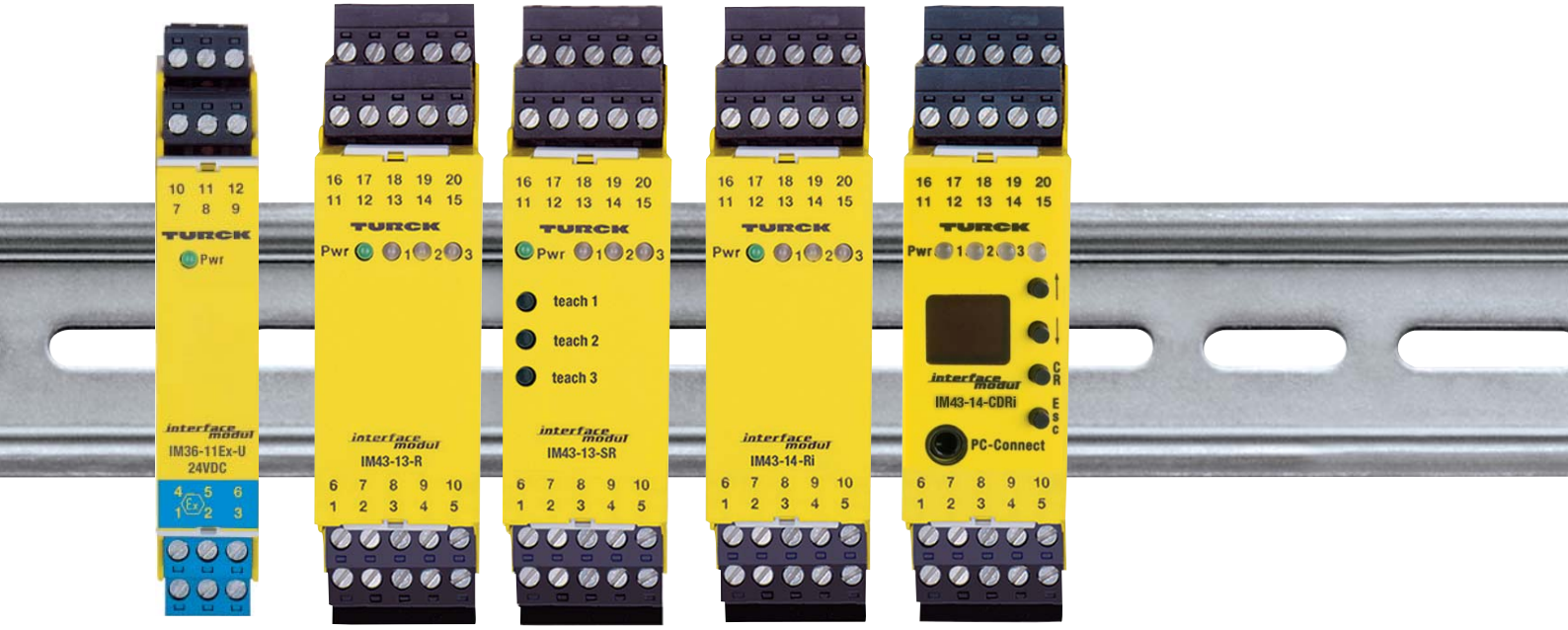
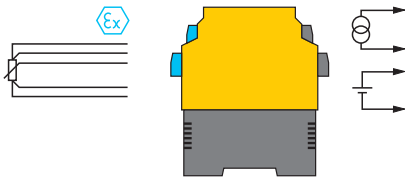
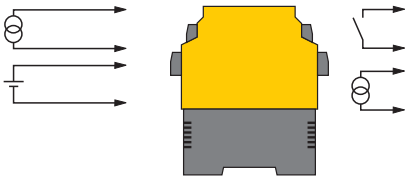


	IM36-11Ex-U/ 24VDC	IM43-13-R	IM43-13-SR	IM43-14-Ri	IM43-14-CDRi
	[Ex ia]				
	Potentiometer amplifier	Limit value monitor	Limit value monitor	Limit value monitor	Limit value monitor
	24 VDC	20…250 VUC	20…250 VUC	20…250 VUC	20…250 VUC
	800 Ω ... 20 kΩ	0/4…20 mA or 0/2…10 V or transmitter	0/4…20 mA or 0/2…10 V or transmitter	0/4…20 mA or 0/2…10 V or transmitter	0/4…20 mA or 0/2…10 V or transmitter
	0…10 V	3 relays (N.O.)	3 relays (N.O.)	3 relays (N.O.) 1 x 0/4…20 mA	3 relays (N.O.) 1 x 0/4…20 mA
	ATEX, FM/CSA, IECEx, GOST	–	–	–	–
	–	–	manual teach function	–	programmable via PC (FDT/DTM)



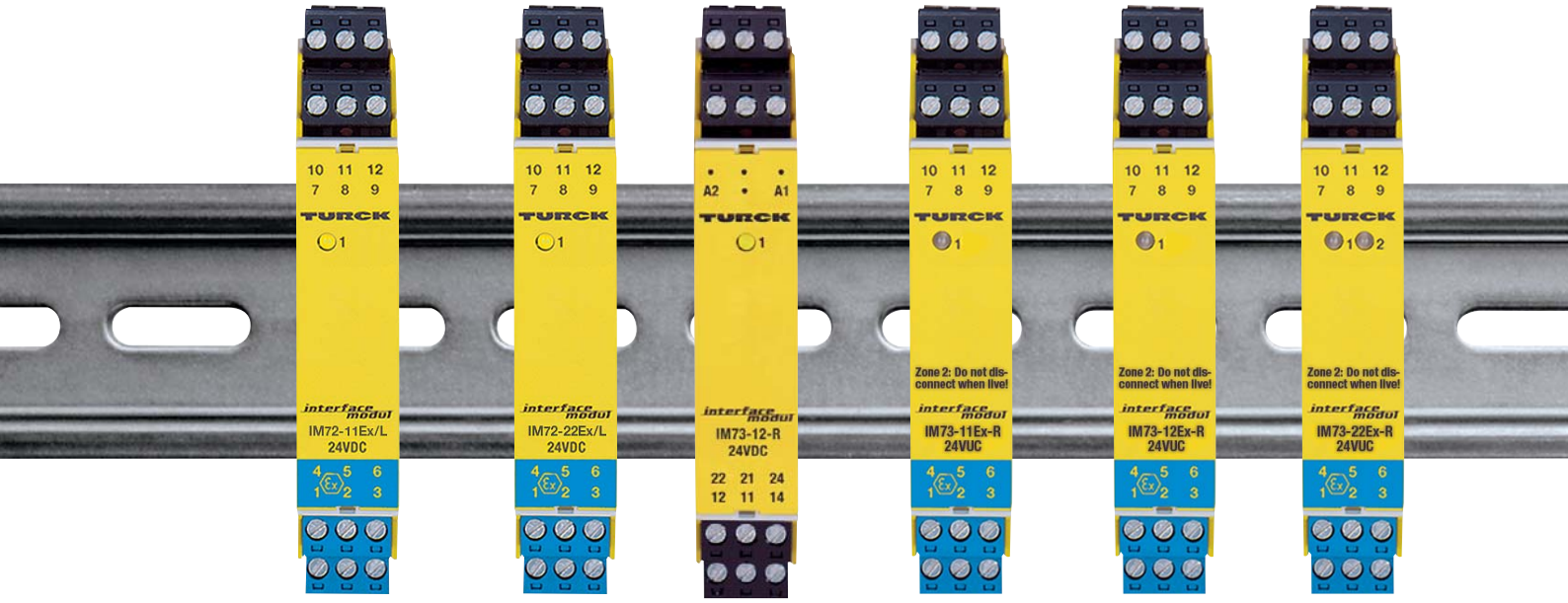
Potentiometer amplifiers

Conversion of the variable resistance values of a potentiometer into standard current and voltage signals. The input circuit is intrinsically safe, so that the potentiometer may be mounted in the explosion hazardous area.

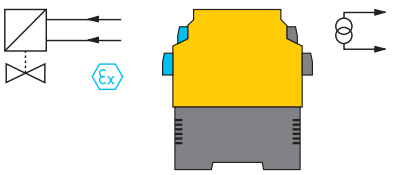


Limit value monitors

Monitoring of standard current and voltage signals relative to pre-set limit values. This series includes devices with three limit values and versions with current output. Types -SR and -SRi feature a manual teach function, whereas types -R and -Ri are adjustable via a coded rotary switch. FDT/DTM with diagnostic function. Hart®

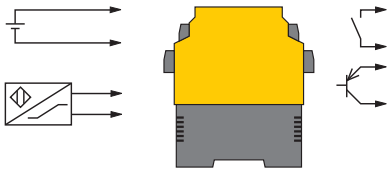


Type	IM72-11Ex/L	IM72-22Ex/L	IM73-12-R	IM73-11Ex-R/ 24VUC	IM73-12Ex-R/ 24VUC	IM73-22Ex-R/ 24VUC
	[Ex ia]	[Ex ia]		[Ex ia]	[Ex ia]	[Ex ia]
Function	Valve control module	Valve control module	Relay coupler	Relay coupler	Relay coupler	Relay coupler
Voltage supply	without power supply	without power supply	without auxiliary energy	10...30 VUC	10...30 VUC	10...30 VUC
Inputs	19...30 V	19...30 V 19...30 V	24 VDC 230 VAC	1 x 10...30 VUC	1 x 10...30 VUC	2 x 10...30 VUC
Outputs	24 V/45 mA 15 V/45 mA	24 V/45 mA 15 V/45 mA	2 relays (change-over)	1 relay (change-over)	2 relays (change-over)	2 relays (change-over)
Approvals	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	–	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST	ATEX, FM/CSA, IECEx, GOST
Special features	SIL 3, loop-powered	SIL 3, loop-powered	SIL 3	mounting in zone 2 possible	mounting in zone 2 possible	mounting in zone 2 possible



Valve control modules

Intrinsically safe supply of magnetic valves, pilot indicators, transmitters etc.



Coupling devices

Galvanically isolated transmission of binary switching states. These devices function as a reliable interface between different potentials.

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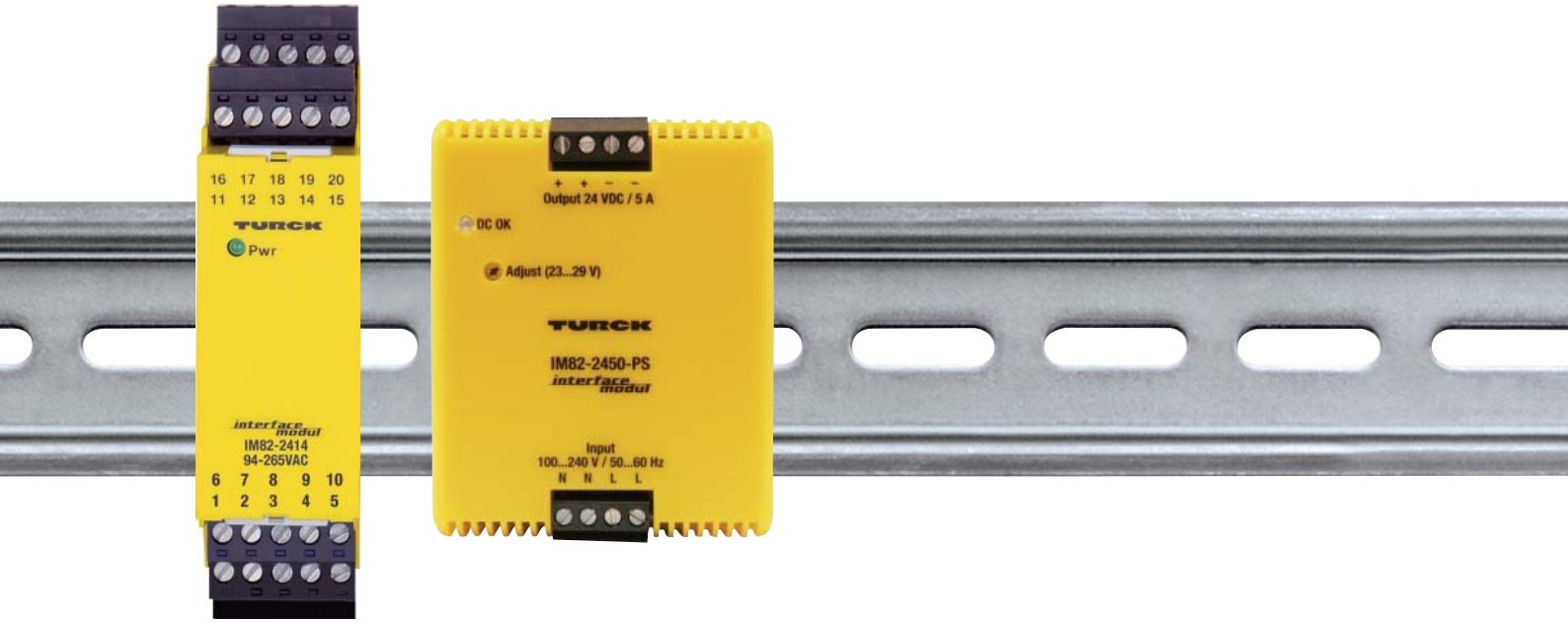
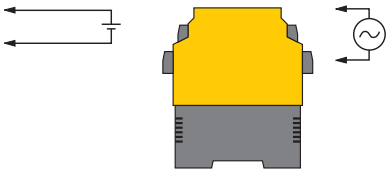


	IM82-2414	IM82-2450
	Power supply	Power supply
	94…265 VAC	25…132 VAC 176…265 VAC 85…264 VAC (47-63 Hz) 110…375 VDC
	24 V/1,4 A	24 V/5 A
	UL	–
	–	–



Power supplies

Power supply with galvanic isolation used to power low power consumers, particularly suited for powering the switching and monitoring devices of TURCK's *interfacemodul, multimodul* and *multisafe*® series.

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