

# Signal Conditioning & Communication Interfaces

## *Product Catalog*

PERFORMANCE  
MADE  
SMARTER



TEMPERATURE | I.S. INTERFACES | COMMUNICATION INTERFACES | MULTIFUNCTIONAL | ISOLATION | DISPLAY

**PR**  
electronics

# Our purpose

is to create market-leading site standard solutions with high signal integrity and simplicity for our customers, concentrating on innovation in six core business areas: Temperature, I.S. Interfaces, Communication Interfaces, Multifunctional, Isolation and Display.

Our products are individually outstanding, but when our point-to-point temperature measurement devices, I.S. interfaces, backplanes, multifunctional signal devices and future-proof communication interfaces are combined, our solutions are truly unrivalled.

# We will be

our customer's trusted partner for the best and most innovative signal conditioning solutions in the process and factory automation industries.

# We provide

a wide range of benefits to our customers through innovative solutions and close collaboration:

- The highest signal integrity from your measurement point to control system
- Maximum uptime based on our Install and Forget® philosophy
- Easy and cost-effective deployment and monitoring with intuitive communication interfaces
- Site standard devices that are easily programmable to suit your specific application
- Day-to-day delivery

Since 1974, we have been dedicated to perfecting our core competence of innovating high precision technology with low power consumption. With a dedicated R&D center that is integrated with our lean production facility at our headquarters in Denmark, we are today one of the leading companies within signal conditioning.



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# MULTIFUNCTIONAL TRANSMITTERS



## TYPE

3114

4104

4114

4116

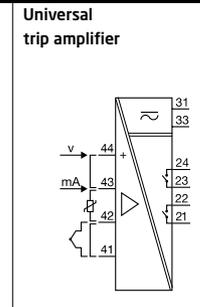
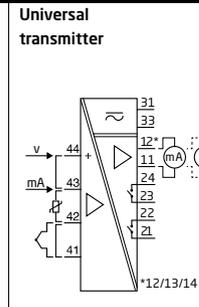
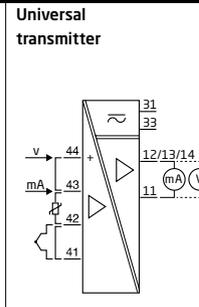
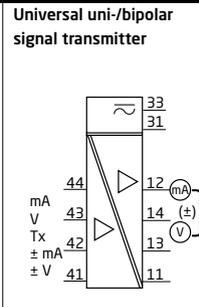
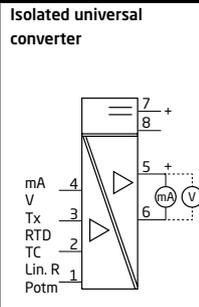
4131

### INPUT:

RTD, TC, linear resistance, mV, mA, V, potentiometer

### OUTPUT:

mA, V, relays



INPUT:	3114	4104	4114	4116	4131
mA, measurement range / min. span	0...23 mA / 16 mA	-23...+23 mA	0...23 mA / 16 mA	0...23 mA / 16 mA	0...23 mA / 16 mA
V, measurement range / min. span	0...12 VDC / 0.8 V	-12...+12 VDC / 0.8 V	0...12 VDC / 0.8 V	0...12 VDC / 0.8 V	0...12 VDC / 0.8 V
RTD, measurement range / min. span	-200...+850°C / 25°C		-200...+850°C / -	-200...+850°C / -	-200...+850°C / -
Lin. R, measurement range / min. span	0...10000 Ω / -		0...10000 Ω / -	0...10000 Ω / -	0...10000 Ω / -
Potentiometer	10 Ω...100 kΩ		10 Ω...100 kΩ	10 Ω...100 kΩ	10 Ω...100 kΩ
Sensor connection, wires	2 - 3 - 4		2 - 3 - 4	2 - 3 - 4	2 - 3 - 4
TC types	BEJLKNRSTUW3W5Lr		BEJLKNRSTUW3W5Lr	BEJLKNRSTUW3W5Lr	BEJLKNRSTUW3W5Lr
Cold junction compensation	Internal		Internal / external	Internal / external	Internal / external
Reference voltage / 2-wire supply	- / > 15 V	- / 16 VDC			
OUTPUT:					
mA, signal range / min. span	0...23 mA / 16 mA	-23...+23 mA / 16 mA	0...23 mA / 16 mA	0...23 mA / 16 mA	
Load (@ current output)	≤ 600 Ω	≤ 800 Ω	≤ 800 Ω	≤ 800 Ω	
V, signal range / min. span	0...10 VDC / 0.8 VDC	-10...+10 VDC / 0.8 VDC	0...10 VDC / 0.8 VDC	0...10 VDC / 0.8 VDC	
Load (@ voltage output)	≥ 10 kΩ	≥ 500 kΩ			
Relays				2 x SPST, AC: 500 VA	2 x SPST, AC: 500 VA
TECHNICAL SPECIFICATIONS:					
Ambient temperature	-25...+70°C	-20...+60°C	-20...+60°C	-20...+60°C	-20...+60°C
Supply voltage, universal AC / DC	- / 16.8...31.2 VDC	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V
Max. required power	1.2 W	2.5 W	2.0 W	2.5 W	2.0 W
Isolation voltage, test / operation	2.5 kVAC / 250 VAC	2.3 kVAC / 250 VAC	2.3 kVAC / 250 VAC	2.3 kVAC / 250 VAC	2.3 kVAC / 250 VAC
Response time	0.4 / 1.0 s	< 20 ms	< 400 ms	< 400 ms	< 400 ms
Signal dynamics, input / output	24 bit / 16 bit	20 bit / 18 bit	24 bit / 16 bit	24 bit / 16 bit	24 bit / -
Accuracy	< ±0.1% of span	< ±0.05% of span	< ±0.1% of span	< ±0.1% of span	< ±0.1% of span
Temperature coefficient	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C
NAMUR	NE21, NE43	NE21	NE21, NE43	NE21, NE43	NE21, NE43
Channels	1	1	1	1	1
Programming	4500 series devices	4500 series devices	4500 series devices	4500 series devices	4500 series devices

APPROVALS:	3114	4104	4114	4116	4131
ATEX, Zone 2	✓				
IECEX, Zone 2	✓				
UKEX, Zone 2	✓				
FM, Zone 2 - DIV 2	✓	✓	✓	✓	✓
UL 61010 / 508	✓ / -	- / ✓	- / ✓	- / ✓	- / ✓
DNV / EU-RO marine	✓ / -	✓ / -	✓ / ✓	✓ / ✓	✓ / ✓
EAC	✓	✓	✓	✓	✓
SIL 2, Hardware Assessment			✓	✓	
CCC	✓				

APPLICATION GUIDE:	3114	4104	4114	4116	4131
mA / V / temperature input	✓ / ✓ / ✓	✓ / ✓ / -	✓ / ✓ / ✓	✓ / ✓ / ✓	✓ / ✓ / ✓
Bipolar mA / V input		✓ / ✓			
Lin. R / potentiometer input	✓ / ✓		✓ / ✓	✓ / ✓	✓ / ✓
4...20 mA Tx input	✓	✓	✓	✓	✓
V-curve function		✓			
Buffered voltage output	✓				
Active / passive current output	✓ / -	✓ / ✓	✓ / -	✓ / -	
Analog / relay output	✓ / -	✓ / -	✓ / -	✓ / ✓	- / ✓
Custom sensor linearization					
Process signal calibration	✓	✓	✓	✓	✓
Power rail option	✓				

# MULTIFUNCTIONAL TRANSMITTERS



TYPE	4179	4179B	4184
	Universal AC/DC transmitter	Universal trip amplifier	Universal uni-/bipolar signal transmitter
<b>INPUT:</b> mV, mA, A, V, potentiometer			
<b>OUTPUT:</b> mA, V, relays			

<b>INPUT:</b>			
mA, measurement range / min. span			±100 mA / 0.5 mA
A, measurement range / min. span	0..5 AAC / 0.5 AAC	0..5 AAC / 0.5 AAC	
V, measurement range / min. span	0...300 VAC / 0.5 VAC	0...300 VAC / 0.5 VAC	±300 VDC / 25 mV
RTD, measurement range / min. span			
Lin. R, measurement range / min. span			
Potentiometer			0..100 %
Reference voltage / 2-wire supply			2.5 V / 16 V
3-wire supply			> 18...< 28 V
<b>OUTPUT:</b>			
mA, signal range / min. span	-23...+23 mA / 16 mA		±23 mA / 4 mA
Load (@ current output)	≤ 800 Ω		≤ 1000 Ω
V, signal range / min. span	-10...+10 VDC / 0.8 VDC		-10...+10 VDC / 0.8 VDC
Load (@ voltage output)	≥ 500 kΩ		≥ 500 kΩ
Buffered voltage output			± 23 V
Load, min. (buffered voltage output)			> 2 kΩ
Relays		2 x SPST, AC: 500 VA	
<b>TECHNICAL SPECIFICATIONS:</b>			
Ambient temperature	-20...+60°C	-20...+60°C	-20...+60°C
Supply voltage, universal AC / DC	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V
Max. required power	1.8 W	1.4 W	2.5 W
Isolation voltage, test / operation	2.3 kVAC / 250 VAC	2.3 kVAC / 250 VAC	2.3 kVAC / 250 VAC
Response time	< 0.75 s	< 0.75 s	< 20 ms
Signal dynamics, input / output	20 bit / 18 bit	20 bit / -	24 bit / 18 bit
Accuracy	< ±0.3% of span	< ±0.3% of span	< ±0.05% of span
Temperature coefficient	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C
NAMUR	NE21, NE43	NE21, NE43	NE21, NE43
Channels	1	1	1
Programming	4500 series devices	4500 series devices	4500 series devices

<b>APPROVALS:</b>			
ATEX, Zone 2			
IECEX, Zone 2			
FM, Zone 2 - DIV 2			
UL 61010 / 508	- / ✓	- / ✓	- / ✓
DNV			
EAC			
SIL 2, Hardware Assessment	✓	✓	✓

<b>APPLICATION GUIDE:</b>			
mA / V / temperature input	✓ / ✓ / -	✓ / ✓ / -	✓ / ✓ / -
Bipolar mA / V input			✓ / ✓
Lin. R / potentiometer input			- / ✓
4...20 mA Tx input			✓
V-curve function	✓		✓
Buffered voltage output			✓
Active / passive current output	✓ / ✓		✓ / ✓
Analog / relay output	✓ / -	- / ✓	✓ / -
Custom sensor linearization			
Process signal calibration	✓	✓	✓
Power rail option			

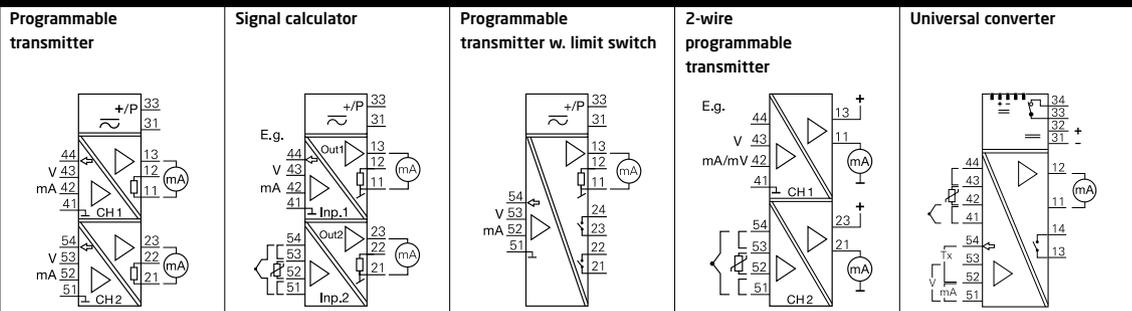
# MULTIFUNCTIONAL TRANSMITTERS



**TYPE**                      **5114A**                      **5115A**                      **5116A**                      **5131A**                      **9116A**

**INPUT:**  
RTD, TC, linear resistance, mV,  
mA, V, potentiometer

**OUTPUT:**  
mA, V, relays



INPUT:	5114A	5115A	5116A	5131A	9116A
mA, measurement range / min. span	0...100 mA / 4 mA	0...100 mA / 4 mA	0...100 mA / 4 mA	0...100 mA / 4 mA	0...23 mA / 16 mA
V, measurement range / min. span	0...250 VDC / 5 mV	0...250 VDC / 5 mV	0...250 VDC / 5 mV	0...250 VDC / 5 mV	0...12 VDC / 0.8 V
mV, measurement range / min. span	-150...+150 mV / 5 mV	-150...+150 mV / 5 mV	-2500...+2500 mV / 5 mV	-150...+150 mV / 5 mV	
RTD, measurement range / min. span	-200...+850°C / 25°C	-200...+850°C / 25°C	-200...+850°C / 25°C	-200...+850°C / 25°C	-200...+850°C / 25°C
Lin. R, measurement range / min. span	0...5000 Ω / 30 Ω	0...5000 Ω / 30 Ω	0...5000 Ω / 30 Ω	0...5000 Ω / 30 Ω	0...10000 Ω / -
Potentiometer	200 Ω...100 kΩ	200 Ω...100 kΩ	200 Ω...100 kΩ		10 Ω...10000 Ω
Sensor connection, wires	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4
TC types	BEJLNRSTUW3W5Lr	BEJLNRSTUW3W5Lr	BEJLNRSTUW3W5Lr	BEJLNRSTUW3W5Lr	BEJLNRSTUW3W5Lr
Max. offset	50% of selec. max. value	50% of selec. max. value	50% of selec. max. value	50% of selec. max. value	
Cold junction compensation	Internal / external	Internal / external	Internal / external	Internal / external	Internal / external
Reference voltage / 2-wire supply	2.5 VDC / > 17.1 VDC	2.5 VDC / > 17.1 VDC	2.5 VDC / > 16.5 VDC		- / > 16.5 VDC
<b>OUTPUT:</b>					
mA, signal range / min. span	0...23 mA / 10 mA	0...23 mA / 10 mA	0...23 mA / 10 mA	3.5...23 mA / 10 mA	0...23 mA / 16 mA
Load (@ current output)	≤ 600 Ω	≤ 600 Ω	≤ 600 Ω	≤ (V <sub>supply</sub> -7.5)/0.023 [Ω]	≤ 600 Ω
V, signal range / min. span	0...10 VDC / 0.5 VDC	0...10 VDC / 0.5 VDC	0...10 VDC / 0.5 VDC		
Load (@ voltage output)	≥ 500 kΩ	≥ 500 kΩ	≥ 500 kΩ		
Relays			2 x SPST, AC: 500 VA		1 x SPST, AC: 500 VA
<b>TECHNICAL SPECIFICATIONS:</b>					
Ambient temperature	-20...+60°C	-20...+60°C	-20...+60°C	-20...+60°C	-20...+60°C
Supply voltage, universal AC / DC	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V	21.6...253 V / 19.2...300 V	- / 7.5...35 VDC	- / 19.2...31.2 VDC
Max. required power, 1 / 2 channels	2.1 W / 2.8 W	2.1 W / 2.8 W	2.4 W / -	0.8 W	≤ 2.1 W
Isolation voltage, test / operation	3.75 kVAC / 250 VAC	3.75 kVAC / 250 VAC	3.75 kVAC / 250 VAC	3.75 kVAC / 250 VAC	2.6 kVAC / 250 VAC
Response time	250 ms...60 s	250 ms...60 s	250 ms...60 s	1...60 s	0.4 / 1...60 s
Signal dynamics, input / output	22 bit / 16 bit	22 bit / 16 bit	22 bit / 16 bit	22 bit / 16 bit	24 bit / 16 bit
Accuracy	< ±0.05% of span	< ±0.05% of span	< ±0.05% of span	≤ ±0.05% of span	< ±0.1% of span
Temperature coefficient	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C
NAMUR	NE21, NE43	NE21, NE43	NE21, NE43	NE21, NE43	NE21, NE43
Channels	1 or 2	2	1	1 or 2	1
Programming	5909 + DIP-switch	5909 + DIP-switch	5909	5909 + DIP-switch	4500 series devices

<b>APPROVALS:</b>					
ATEX, Zone 2					✓
IECEX, Zone 2					✓
UKEX, Zone 2					✓
FM, Zone 2 - DIV 2					✓
INMETRO, Zone 2					✓
UL 61010 / 508 / 913			- / ✓ / -		✓ / - / ✓
DNV	✓	✓	✓		✓
EAC	✓	✓	✓	✓	✓
SIL 2 Full Assessment IEC 61508					✓
CCC / KCs					✓ / ✓

<b>APPLICATION GUIDE:</b>					
mA / V / temperature input	✓ / ✓ / ✓	✓ / ✓ / ✓	✓ / ✓ / ✓	✓ / ✓ / ✓	✓ / ✓ / ✓
Bipolar mV input	✓	✓	✓	✓	✓
Lin. R / potentiometer input	✓ / ✓	✓ / ✓	✓ / ✓	✓ / -	✓ / ✓
4...20 mA Tx input	✓	✓	✓	✓	✓
Dual input - math functions		✓			
Buffered voltage output					
Active / passive current output	✓ / ✓	✓ / ✓	✓ / ✓	✓	✓ / ✓
Analog / relay output	✓ / -	✓ / -	✓ / ✓	✓ / -	✓ / ✓
Custom sensor linearization	✓	✓	✓		✓
Process signal calibration	✓	✓	✓	✓	✓
Power rail option					✓



TYPE	3202	3225	4222	4225
	Pulse isolator / switch amplifier	Universal frequency converter	Universal I/f converter	Universal f/I-f/f converter
<b>INPUT:</b> Frequency, pulse, V, mA, Pt100, TC, mV				
<b>OUTPUT:</b> mA, V, pulse, relays				

<b>INPUT:</b>				
Sensor type	NAMUR / NPN / switch	All standard sensors $\square$		All standard sensors $\square$
Hz, measurement range / min. span	0...5 kHz	0...100 kHz / 0.001 Hz		0...100 kHz / 0.001 Hz
Min. pulse width	> 100 $\mu$ s	4 $\mu$ s		4 $\mu$ s
mA, measurement range / min. span			0...23 mA / 16 mA	
V, measurement range / min. span			0...12 VDC	
RTD, measurement range / min. span			200...+850°C / -	
Lin. R, measurement range / pot.-meter			0 $\Omega$ ...10 k $\Omega$ / 10 $\Omega$ ...100 k $\Omega$	
Sensor connection, wires			2 - 3 - 4	
TC types			BEJLNRSTUW3W5Lr	
<b>OUTPUT:</b>				
mA, signal range / min. span		0...23 mA / 16 mA		0...23 mA / 16 mA
V, signal range / min. span		0...11.5 VDC / 0.8 VDC		0...11.5 VDC / 4 VDC
Hz, signal range / min. span			0...25000 Hz / 0.001 Hz	0.001 Hz...100 kHz / 0.001 Hz
Pulse output	NPN / relay		NPN / PNP / TTL	NPN / PNP (4225C)
Relays	2 x SPST, AC: 100 VA	1 (3225B)		1 (4225A) / 2 (4225B)
Max. output frequency	5 kHz		25 kHz	100 kHz
Sensor supply	8.2 VDC	5...17 VDC	> 16 VDC	5...17 VDC
<b>TECHNICAL SPECIFICATIONS:</b>				
Ambient temperature	-25...+70°C	-25...+70°C	-20...+60°C	-20...+60
Supply voltage, AC / DC	- / 16.8...31.2 VDC	- / 16.8...31.2 VDC	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V
Max. required power, 1 / 2 channels	1.2 W / -	1.2 W	2.5 W / -	2.6 W
Isolation voltage, test / operation	2.5 kVAC / 250 VAC	2.5 kVAC / 250 VAC	2.3 kVAC / 250 VAC	2.3 kVAC / 250 VAC
Response time	< 20 ms	< 30 ms	< 1 s	< 30 ms
Signal dynamics, input / output		- / 18 bit	24 bit / -	- / 18 bit
Accuracy		< 0.06% of span	$\leq \pm 0.1\%$ of span	< 0.06% of span
Temperature coefficient		0.006% / °C	< $\pm 0.01\%$ of span / °C	0.006% / °C
NAMUR	NE21, NE44	NE21, NE43	NE21	NE21, NE43
Channels	1	1	1	1
Programming	DIP-switch	DIP-switch, PR 4590	4500 series devices	4500 series devices

<b>APPROVALS:</b>				
ATEX, Zone 2	✓	✓		
IECEX, Zone 2	✓	✓		
UKEX, Zone 2	✓	✓		
FM, Zone 2 - DIV 2	✓		✓	
UL 61010 / 508 / 913	✓ / - / -	✓ / - / -	- / ✓ / -	- / ✓ / -
DNV				
EAC			✓	
SIL 2, Hardware Assessment				✓
SIL 2 Full Assessment IEC 61508				
CCC	✓	✓		

<b>APPLICATION GUIDE:</b>				
Frequency to analog converter		✓		✓
Analog to frequency converter			✓	
Lin. R / potentiometer input			✓ / ✓	
Concurrent f/I and f/f				
Pulse converter / scaler				
Pulse isolator 1:1 / splitter	✓ / ✓			
Dual input - math functions				
Digital output	✓		✓	✓
Relay output	✓			✓
Process signal calibration		✓	✓	✓
Power rail option	✓	✓		

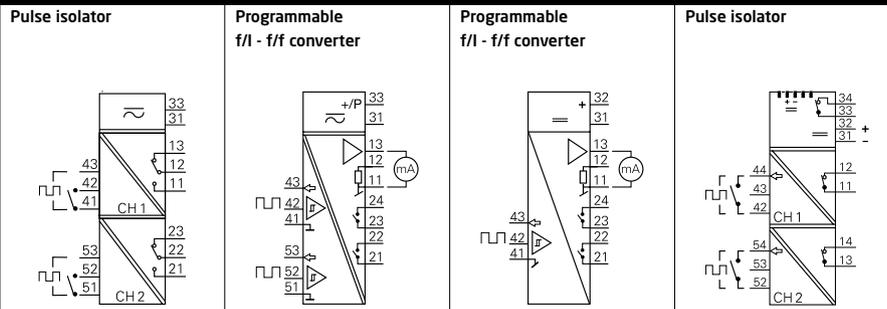
# ISOLATORS



**TYPE**                      **5202A**                      **5223A**                      **5225A**                      **9202A**

**INPUT:**  
Frequency, pulse

**OUTPUT:**  
mA, V, pulse, relays



<b>INPUT:</b>					
<b>Sensor type</b>	NAMUR / switch	All standard sensors $\square$	All standard sensors $\square$	NAMUR / switch	
<b>Hz, measurement range / min. span</b>	0...5 kHz	0...20 kHz / 0.001 Hz	0...20 kHz / 0.001 Hz	0...5 kHz	
<b>Min. pulse width</b>	> 100 $\mu$ s	25 $\mu$ s	25 $\mu$ s	> 100 $\mu$ s	
<b>OUTPUT:</b>					
<b>mA, signal range / min. span</b>		0...23 mA / 5 mA	0...23 mA / 5 mA		
<b>V, signal range / min. span</b>		0...10 VDC / 0.25 VDC	0...10 VDC / 0.25 VDC		
<b>Hz, signal range / min. span</b>	0...5 kHz / -			0...5 kHz	
<b>Pulse output</b>	NPN / relay	NPN / PNP or relays	NPN / PNP or relays	NPN / relay	
<b>Relays</b>	2 x SPDT, AC: 100 VA	2 x SPST, AC: 500 VA	2 x SPST, AC: 500 VA	1 x SPST, AC: 500 VA	
<b>Max. output frequency</b>		1000 Hz	1000 Hz		
<b>Sensor supply</b>		5...17 VDC	5...17 VDC		
<b>TECHNICAL SPECIFICATIONS:</b>					
<b>Ambient temperature</b>	-20...+60°C	-20...+60°C	-20...+60°C	-20...+60°C	
<b>Supply voltage, AC / DC</b>	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V	- / 19.2...28.8 VDC	- / 19.2...31.2 VDC	
<b>Max. required power, 1 / 2 channels</b>	- / 1.5 W or 1.8 W*	3 W	3.5 W	$\leq$ 1.1...1.3 W / $\leq$ 1.5...1.9 W	
<b>Isolation voltage, test / operation</b>	3.75 kVAC / 250 VAC	3.75 kVAC / 250 VAC	3.75 kVAC / 250 VAC	2.6 kVAC / 250 VAC	
<b>Response time</b>		60 ms...1000 s	60 ms...1000 s	200 ms	
<b>Signal dynamics, input / output</b>		- / 16 bit	- / 16 bit		
<b>Accuracy</b>		$\leq$ $\pm$ 0.1% of span	$\leq$ $\pm$ 0.1% of span		
<b>Temperature coefficient</b>		< $\pm$ 0.01% of span / °C	< $\pm$ 0.01% of span / °C		
<b>NAMUR</b>	NE21			NE21	
<b>Channels</b>	2	1	1	1 or 2	
<b>Programming</b>	DIP-switch	5909 + DIP-switch	5909 + DIP-switch	4500 series devices	

<b>APPROVALS:</b>					
ATEX, Zone 2 / UKEX, Zone 2				✓ / ✓	
IECEX, Zone 2				✓	
FM, Zone 2 - DIV 2				✓	
INMETRO, Zone 2				✓	
UL 61010 / 508 / 913	- / ✓ / -			✓ / - / ✓	
DNV				✓	
EAC	✓	✓	✓	✓	
SIL 2, Hardware Assessment	✓			✓	
SIL 2 Full Assessment IEC 61508				✓	
CCC / KCs				✓ / ✓	

<b>APPLICATION GUIDE:</b>					
Frequency to analog converter		✓	✓		
Analog to frequency converter					
Lin. R / potentiometer input					
Concurrent f/I and f/f			✓		
Pulse converter / scaler		✓	✓		
Pulse isolator 1:1				✓	
Dual input - math functions	✓	✓			
Digital output		✓	✓	✓	
Relay output	✓	✓	✓	✓ / ✓	
Process signal calibration	✓	✓	✓		
Power rail option				✓	

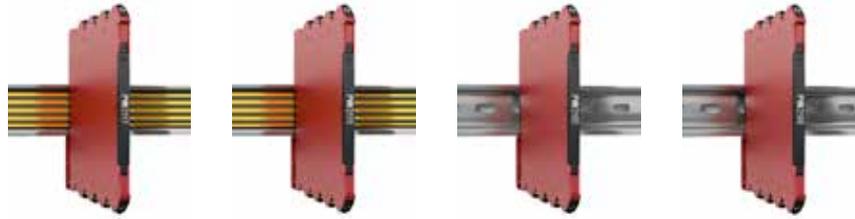
# ISOLATORS



TYPE	3103	3104	3105	3108	3109
	Isolated repeater	Isolated converter	Isolated converter	Isolated repeater / splitter	Isolated converter / splitter
<b>INPUT:</b> mA, V, potentiometer					
<b>INPUT:</b>					
mA, measurement range / min. span	0...23 mA / 1:1	0...23 mA / 16 mA	0...23 mA / 16 mA	0...23 mA / 1:1	0...23 mA / 16 mA
V, measurement range / min. span		0...10.25 VDC / 4 VDC	0...10.25 VDC / 4 VDC		0...10.25 VDC / 4 VDC
Reference voltage / 2-wire supply		- / > 17 V			- / > 17 V
<b>OUTPUT:</b>					
mA, signal range / min. span	0...23 mA / 1:1	0...23 mA / 16 mA	0...23 mA / 16 mA	0...23 mA / 1:1	0...23 mA / 16 mA
Load (@ current output)	≤ 600 Ω	≤ 600 Ω	≤ 600 Ω	≤ 300 Ω per channel	≤ 300 Ω per channel
V, signal range / min. span		0...10 VDC / 4 VDC	0...10 VDC / 4 VDC		0...10 VDC / 4 VDC
Load (@ voltage output)		≥ 10 kΩ	≥ 10 kΩ		≥ 10 kΩ
<b>TECHNICAL SPECIFICATIONS:</b>					
Ambient temperature	-25...+70°C	-25...+70°C	0...+70°C	-25...+70°C	-25...+70°C
Supply voltage, AC / DC	- / 16.8...31.2 VDC	- / 16.8...31.2 VDC	- / 16.8...31.2 VDC	- / 16.8...31.2 VDC	- / 16.8...31.2 VDC
Max. required power*	0.65 W	1.2 W	0.8 W	0.75 W	1.2 W
Isolation voltage, test / operation	2.5 kVAC / 250 VAC	2.5 kVAC / 250 VAC	2.5 kVAC / 250 VAC	2.5 kVAC / 250 VAC	2.5 kVAC / 250 VAC
Response time	< 7 ms	< 7 ms	< 7 ms	< 7 ms	< 7 ms
Signal dynamics, input / output	Analog signal chain	Analog signal chain	Analog signal chain	Analog signal chain	Analog signal chain
Accuracy	< ±0.05% of span	< ±0.05% of span	< ±0.2% of span	< ±0.05% of span	< ±0.05% of span
Temperature coefficient	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.015% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C
NAMUR	NE21	NE21	NE21	NE21	NE21
Channels	1	1	1	1	1
Programming	No	DIP-switch	DIP-switch	No	DIP-switch
<b>APPROVALS:</b>					
ATEX, Zone 2	✓	✓		✓	✓
IECEx, Zone 2	✓	✓		✓	✓
UKEX, Zone 2	✓	✓		✓	✓
FM, Zone 2 - DIV 2	✓	✓		✓	✓
UL 61010 / 508	✓ / -	✓ / -	✓ / -	✓ / -	✓ / -
DNV	✓	✓	✓	✓	✓
EAC	✓	✓	✓	✓	✓
CCC	✓	✓		✓	✓
<b>APPLICATION GUIDE:</b>					
Signal repeater	✓			✓	
Signal converter		✓	✓		✓
Signal splitter				✓	✓
mA / V bipolar input					
4...20 mA Tx input		✓			✓
Buffered voltage output		✓	✓		✓
mA / V output	✓ / -	✓ / ✓	✓ / ✓	✓ / -	✓ / ✓
Active / passive mA output	✓ / -	✓ / -	✓ / -	✓ / -	✓ / -
Mounting in Zone 2 / Div 2	✓	✓	✓	✓	✓
Power rail option	✓	✓	✓	✓	✓

\* = @ 24 VDC

Of span = Of the presently selected range



TYPE	3117	3118	3185	3186	
<b>INPUT:</b> mA, V, potentiometer <b>OUTPUT:</b> mA, V	Bipolar isolated converter 	Bipolar isolated converter / splitter 	Loop-powered isolator 	2-wire transmitter isolator 	
<b>INPUT:</b> mA, measurement range / min. span V, measurement range / min. span Reference voltage / 2-wire supply	-23...+23 mA ±5 and ±10 VDC	-23...+23 mA ±5 and ±10 VDC	0...23 mA / 1:1	3.5...23 mA / 1:1 - / V <sub>loop</sub> -2.5 VDC	
<b>OUTPUT:</b> mA, signal range / min. span Load (@ current output) V, signal range / min. span Load (@ voltage output)	0...23 mA / 16 mA ≤ 600 Ω 0...10 VDC / 4 VDC ≥ 10 kΩ	0...23 mA / 16 mA ≤ 300 Ω per channel 0...10 VDC / 4 VDC ≥ 10 kΩ	0...23 mA / 1:1 ≤ 600 Ω	3.5...23 mA / 1:1	
<b>TECHNICAL SPECIFICATIONS:</b> Ambient temperature Supply voltage, AC / DC Max. required power Isolation voltage, test / operation Response time Signal dynamics, input / output Accuracy Temperature coefficient NAMUR Channels Programming	-25...+70°C - / 16.8...31.2 VDC *0.8 W 2.5 kVAC / 250 VAC < 7 ms Analog signal chain < ±0.05% of span < ±0.01% of span / °C NE21 1 DIP-switch	-25...+70°C - / 16.8...31.2 VDC *0.8 W 2.5 kVAC / 250 VAC < 7 ms Analog signal chain < ±0.05% of span < ±0.01% of span / °C NE21 1 DIP-switch	-25...+70°C ≤ 1.25 V + (0.015 x V <sub>out</sub> ) 30 mW per channel 2.5 kVAC / 250 VAC < 5 ms Analog signal chain < ±0.1% of span < ±0.01% of span / °C NE21 1 or 2 No	-25...+70°C - / 6...35 VDC 50 mW per channel 2.5 kVAC / 250 VAC < 5 ms Analog signal chain < ±0.05% of span < ±0.01% of span / °C NE21 1 or 2 No	
<b>APPROVALS:</b> ATEX, Zone 2 IECEX, Zone 2 UKEX, Zone 2 FM, Zone 2 - DIV 2 UL 61010 / 508 DNV EAC CCC	✓ ✓ ✓ ✓ ✓ / - ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ / - ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ / - ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ / - ✓ ✓ ✓	

<b>APPLICATION GUIDE:</b>					
Signal repeater			✓	✓	
Signal converter	✓	✓			
Signal splitter		✓			
mA / V bipolar input	✓	✓ / ✓			
4...20 mA Tx input				✓	
Buffered voltage output	✓	✓			
Active / passive input signal			✓ / -	✓ / ✓	
mA / V output	✓ / ✓	✓ / ✓	✓ / -	✓ / -	
Active / passive mA output	✓ / -	✓ / -	✓ / -	- / ✓	
Mounting in Zone 2 / Div 2	✓	✓	✓	✓	
Power rail option	✓	✓			

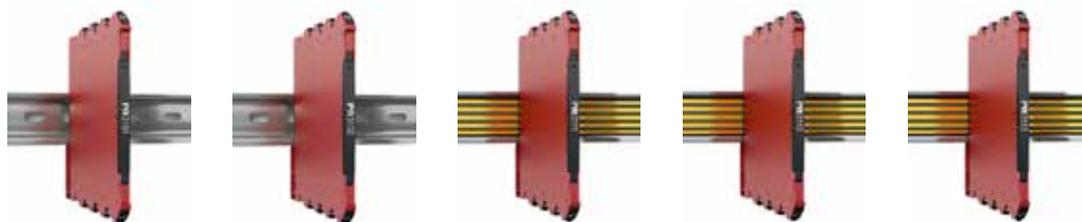


TYPE	5104A	5106A	6185		
	Repeater / power supply	HART transparent repeater	Loop-powered isolator		
<b>INPUT:</b> mA, mV, V, HART transparent					
<b>OUTPUT:</b> mA, V, HART transparent					
<b>INPUT:</b>					
mA, measurement range / min. span	0...23 mA / 16 mA	3.5...23 mA / 1:1	0...23 mA / 1:1		
V, measurement range / min. span	0...10 VDC / 8 VDC				
Max. offset	20% of selec. max. value				
Reference voltage / 2-wire supply	- / > 17.1 VDC	- / > 17 VDC			
<b>OUTPUT:</b>					
mA, signal range / min. span	0...23 mA / 16 mA	3.5...23 mA / 1:1	0...23 mA / 1:1		
Load (@ current output)	≤ 600 Ω	≤ 600 Ω	≤ 600 Ω		
V, signal range / min. span	0...10 VDC / 0.8 VDC				
Load (@ voltage output)	≥ 500 kΩ				
Max. offset	20% of selec. max. value				
<b>TECHNICAL SPECIFICATIONS:</b>					
Ambient temperature	-20...+60°C	-20...+60°C	-20...+60°C		
Supply voltage, AC / DC	21.6...253 V / 19.2...300 V	21.6...253 V / 19.2...300 V	- / ≤ 1.8 VDC		
Max. required power, 1 / 2 channels	2.0 W / 2.8 W	2.0 W / 2.8 W	40 mW per channel		
Isolation voltage, test / operation	3.75 kVAC / 250 VAC	3.75 kVAC / 250 VAC	2 kVAC / -		
Response time	< 25 ms	< 25 ms	< 4 ms		
Signal dynamics, input / output	Analog signal chain	Analog signal chain	Analog signal chain		
Accuracy	≤ ±0.1% of span	≤ ±0.1% of span	≤ ±0.1% of span		
Temperature coefficient	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C		
NAMUR	NE21	NE21			
Channels	1 or 2	1 or 2	1, 2 or 4		
Programming	DIP-switch	No	No		
<b>APPROVALS:</b>					
ATEX, Zone 2					
IECEX, Zone 2					
FM, Zone 2 - DIV 2					
UL 61010 / 508	- / ✓	- / ✓			
DNV	✓				
EAC	✓	✓	✓		
<b>APPLICATION GUIDE:</b>					
Signal repeater		✓	✓		
Signal converter	✓				
Signal splitter					
mA / V bipolar input					
4...20 mA Tx input	✓	✓			
Buffered voltage output					
Active / passive input signal				✓ / -	
mA / V output	✓ / ✓	✓ / -		✓ / -	
Active / passive mA output	✓ / ✓	✓ / ✓		✓ / -	
Mounting in Zone 2 / Div 2					
Power rail option					

# ISOLATORS



TYPE	9106A	9107A	9203A		
<b>INPUT:</b> mA, HART communication	HART transparent repeater	HART transparent driver	Solenoid / alarm driver		
<b>OUTPUT:</b> mA, HART communication					
<b>INPUT:</b> mA, measurement range / min. span V, measurement range / min. span Max. offset Reference voltage / 2-wire supply Sensor type	3.5...23 mA / 16 mA - / 19.2...31.2 VDC - / > 16 VDC	3.5 ...23 mA / 16 mA	NPN / PNP / switch		
<b>OUTPUT:</b> mA, signal range / min. span Pulse output	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA	Valves etc.		
<b>TECHNICAL SPECIFICATIONS:</b> Ambient temperature Supply voltage, AC / DC Max. required power, 1 / 2 channels Isolation voltage, test / operation Response time Signal dynamics,input Accuracy Temperature coefficient NAMUR Channels Programming	-20...+60°C - / 19.2...31.2 VDC ≤ 1.1 W / ≤ 1.9 W 2.6 kVAC / 250 VAC < 5 ms Analog signal chain ≤ ±16 µA ≤ ±1.6 µA / °C NE21 1 or 2 4500 series devices	-20...+60°C 19.2...31.2 VDC ≤ 1.0 W / ≤ 1.8 W 2.6 kVAC / 250 VAC < 5 ms Analog signal chain < ±16 µA < ±0.01% of span / °C NE21 1 or 2 4500 series devices	-20...+60°C 19.2...31.2 VDC ≤ 1.9...2.5 W / ≤ 3.1 W 2.6 kVAC / 250 VAC < 10 ms NE21 1 or 2 4500 series devices		
<b>APPROVALS:</b> ATEX, Zone 2 IECEX, Zone 2 UKEX, Zone 2 FM, Zone 2 - DIV 2 INMETRO, Zone 2 UL 61010 / 913 DNV EAC SIL 2/3 Full Assessment IEC 61508 CCC / KCs	✓ ✓ ✓ ✓ ✓ ✓ / ✓ ✓ ✓ ✓ ✓ / ✓	✓ ✓ ✓ ✓ ✓ ✓ / ✓ ✓ ✓ ✓ ✓ / ✓	✓ ✓ ✓ ✓ ✓ ✓ / ✓ ✓ ✓ ✓ ✓ / ✓		
<b>APPLICATION GUIDE:</b> Signal repeater Signal driver Signal splitter Solenoid / alarm driver mA input 4...20 mA Tx input Active / passive mA output HART signal transparent Mounting in Zone 2 / Div 2 Power rail option	✓ ✓ ✓ ✓ ✓ ✓ ✓ / ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ / - ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		



TYPE	3101	3102	3111	3112	3113
<b>INPUT:</b> RTD, linear resistance, TC, mV, mA, potentiometer	TC converter	Pt100 converter	TC converter - isolated	Pt100 converter - isolated	HART 7 temperature converter
<b>OUTPUT:</b> mA, HART communication					
<b>INPUT:</b>					
RTD, measurement range / min. span		-200...+850°C / 10°C		-200...+850°C / 10°C	-200...+850°C / 10°C
Lin. R, measurement range / min. span					
Sensor connection, wires		2 - 3 - 4		2 - 3 - 4	2 - 3 - 4
TC types	J & K		J & K		J & K
Max. offset					
Cold junction compensation	Internal		Internal / external		Internal / external
<b>OUTPUT:</b>					
mA, signal range / min. span	0...23 mA / 16 mA	0...23 mA / 16 mA	0...23 mA / 16 mA	0...23 mA / 16 mA	0...23 mA / 16 mA
Load (@ current output)	≤ 600 Ω	≤ 600 Ω	≤ 600 Ω	≤ 600 Ω	≤ 600 Ω
V, signal range / min. span	0..10 VDC / 4 VDC	0..10 VDC / 4 VDC	0..10 VDC / 4 VDC	0..10 VDC / 4 VDC	
Load (@ voltage output)	≥ 10 kΩ	≥ 10 kΩ	≥ 10 kΩ	≥ 10 kΩ	
<b>TECHNICAL SPECIFICATIONS:</b>					
Ambient temperature	-25...70°C	-25...70°C	-25...70°C	-25...70°C	-25...70°C
Supply voltage, DC	16.8...31.2 VDC	16.8...31.2 VDC	16.8...31.2 VDC	16.8...31.2 VDC	16.8...31.2 VDC
Max. required power*	0.52 W	0.52 W	0.7 W	0.7 W	0.7 W
Isolation voltage, test / operation			2.5 kVAC / 250 VAC	2.5 kVAC / 250 VAC	2.5 kVAC / 250 VAC
Response time	< 30 ms	< 30 ms	< 30 ms	< 30 ms	< 60 ms
Signal dynamics, input / output	23 bit / 18 bit	23 bit / 18 bit	23 bit / 18 bit	23 bit / 18 bit	23 bit / 18 bit
Accuracy	≤ ±0.1% of span	≤ ±0.1% of span	≤ ±0.05% of span	≤ ±0.05% of span	≤ ±0.05% of span
Temperature coefficient	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C
NAMUR	NE21, NE43	NE21, NE43	NE21, NE43	NE21, NE43	NE21, NE43
Channels	1	1	1	1	1
Programming	DIP-switch	DIP-switch	DIP-switch	DIP-switch	DIP-switch / HART
<b>APPROVALS:</b>					
ATEX, Zone 2	✓	✓	✓	✓	✓
IECEX, Zone 2	✓	✓	✓	✓	✓
UKEX, Zone 2	✓	✓	✓	✓	✓
FM, Zone 2 - DIV 2	✓	✓	✓	✓	✓
UL 61010 / 508	✓ / -	✓ / -	✓ / -	✓ / -	✓ / -
DNV	✓	✓	✓	✓	✓
EAC	✓	✓	✓	✓	✓
<b>APPLICATION GUIDE:</b>					
RTD / TC / mV input	- / ✓ / -	✓ / - / -	- / ✓ / -	✓ / - / -	✓ / ✓ / -
mA / V output	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / -
Loop-powered					
Galvanically isolated			✓	✓	✓
HART protocol					✓
Mounting in Zone 2 / DIV 2	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓
Process signal calibration					✓
Power rail option			✓	✓	✓

\* = @ 24 VDC

Of span = Of the presently selected range

# TEMPERATURE TRANSMITTERS



## TYPE

### 3331

### 3333

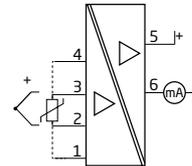
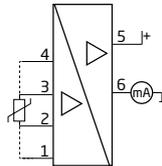
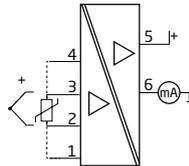
### 3337

Temperature converter,  
loop-powered - isolated

Pt100 converter, loop-  
powered

HART 7 temperature  
converter, loop-powered

**INPUT:**  
RTD, linear resistance,  
TC, mV  
**OUTPUT:**  
mA, V,  
HART communication



<b>INPUT:</b>					
RTD, measurement range / min. span	-200...+850°C / 10°C	-200...+850°C / 10°C	-200...+850°C / 10°C		
Lin. R, measurement range / min. span					
Sensor connection, wires	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4		
TC types	J & K		J & K		
Max. offset					
Cold junction compensation	Internal / external		Internal / external		
<b>OUTPUT:</b>					
mA, signal range / min. span	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA		
Load (@ current output)	$\leq (V_{\text{supply}} - 5.5) / 0.023 [\Omega]$	$\leq (V_{\text{supply}} - 3.3) / 0.023 [\Omega]$	$\leq (V_{\text{supply}} - 6.2) / 0.023 [\Omega]$		
<b>TECHNICAL SPECIFICATIONS:</b>					
Ambient temperature	-25...70°C	-25...70°C	-25...70°C		
Supply voltage, DC	5.5...35 VDC	3.3...35 VDC	6.2...35 VDC		
Max. required power	0.8 W	0.8 W	0.8 W		
Isolation voltage, test / operation	2.5 kVAC / 250 VAC		2.5 kVAC / 250 VAC		
Response time	< 30 ms	< 30 ms	< 60 ms		
Signal dynamics, input / output	23 bit / 18 bit	23 bit / 18 bit	23 bit / 18 bit		
Accuracy	$\leq \pm 0.05\%$ of span	$\leq \pm 0.1\%$ of span	$\leq \pm 0.05\%$ of span		
Temperature coefficient	$< \pm 0.01\%$ of span / °C	$< \pm 0.01\%$ of span / °C	$< \pm 0.01\%$ of span / °C		
NAMUR	NE21, NE43	NE21, NE43	NE21, NE43		
Channels	1	1	1		
Programming	DIP-switch	DIP-switch	DIP-switch / HART		

<b>APPROVALS:</b>					
ATEX, Zone 2	✓	✓	✓		
IECEX, Zone 2	✓	✓	✓		
UKEX, Zone 2	✓	✓	✓		
FM, Zone 2 - DIV 2	✓	✓	✓		
UL 61010 / 508	✓ / -	✓ / -	✓ / -		
DNV	✓	✓	✓		
EAC	✓	✓	✓		

<b>APPLICATION GUIDE:</b>					
RTD / TC / mV input	✓ / ✓ / -	✓ / - / -	✓ / ✓ / -		
mA / V output	✓ / -	✓ / -	✓ / -		
Loop-powered	✓	✓	✓		
Galvanically isolated	✓		✓		
HART protocol			✓		
Mounting in Zone 2 / DIV 2	✓ / ✓	✓ / ✓	✓ / ✓		
Process signal calibration			✓		

# TEMPERATURE TRANSMITTERS



TYPE	5331A	5332A	5333A	5334A
<b>INPUT:</b> RTD, linear resistance, TC, mV, potentiometer	2-wire programmable transmitter	2-wire programmable RTD transmitter	2-wire programmable transmitter	2-wire programmable transmitter
<b>OUTPUT:</b> mA				

<b>INPUT:</b>				
mV, measurement range / min. span	-12...800 mV / 5 mV			-12...150 mV / 5 mV
RTD, measurement range / min. span	-200...+850°C / 25°C	-200...+850°C / 25°C	-200...+850°C / 25°C	
Lin. R, measurement range / min. span	0...5000 Ω / 30 Ω	0...5000 Ω / 30 Ω	0...10 kΩ / 30 Ω	
Potentiometer				
Sensor connection, wires	2 - 3 - 4	2 - 3 - 4	2 - 3	
TC types	BEJKLNRSTUW3W5Lr			BEJKLNRSTUW3W5Lr
Max. offset	50% of selec. max. value			
Cold junction compensation	Internal / external			Internal
<b>OUTPUT:</b>				
mA, signal range / min. span	3.5...23 mA / 16 mA			
<b>TECHNICAL SPECIFICATIONS:</b>				
Ambient temperature	-40...+85°C	-40...+85°C	-40...+85°C	-40...+85°C
Supply voltage, DC	7.2...35 VDC	7.2...35 VDC	8...35 VDC	7.2...35 VDC
Max. required power	0.8 W	0.8 W	0.8 W	0.8 W
Isolation voltage, test / operation	1500 VAC / 50 V			1500 VAC / 50 V
Response time	1...60 s	1...60 s	0.33...60 s	1...60 s
Signal dynamics, input / output	20 bit / 16 bit	20 bit / 16 bit	19 bit / 16 bit	18 bit / 16 bit
Accuracy	≤ ±0.05% of span	≤ ±0.05% of span	≤ ±0.1% of span	≤ ±0.05% of span
Temperature coefficient	< ±0.01% of span / °C			
NAMUR	NE21, NE43	NE43	NE43	NE21, NE43
Channels	1	1	1	1
Programming	5909	5909	5909	5909

<b>APPROVALS:</b>				
ATEX, Zone 2	✓	✓	✓	✓
IECEx, Zone 2	✓	✓	✓	✓
CSA, Zone 2 - DIV 2	✓	✓	✓	
FM, Zone 2 - DIV 2				
INMETRO, Zone 2	✓	✓	✓	✓
NEPSI				
DNV	✓		✓	✓
EAC	✓		✓	✓
SIL Hardware Assessment				

<b>APPLICATION GUIDE:</b>				
RTD / TC / mV input	✓ / ✓ / ✓	✓ / - / -	✓ / - / -	- / ✓ / ✓
Lin. R / potentiometer input	✓ / -	✓ / -	✓ / -	
Dual input (4 terminals)				
Custom sensor linearization	✓	✓	✓	✓
mA output	✓	✓	✓	✓
Loop-powered	✓	✓	✓	✓
Galvanically isolated	✓			✓
HART protocol				
Mounting in Zone 2 / DIV 2	✓ / -	✓ / -	✓ / -	✓ / -
Process signal calibration	✓	✓	✓	✓

# TEMPERATURE TRANSMITTERS



TYPE	5335A	5337A	5343A	5437A	5450A
<b>INPUT:</b> RTD, linear resistance, TC, mV, potentiometer	2-wire transmitter with HART 5 protocol	2-wire transmitter with HART 7 protocol	2-wire level transmitter	2-wire HART 7 temperature transmitter	PROFIBUS PA temperature transmitter
<b>OUTPUT:</b> mA, HART communication, PROFIBUS PA					
<b>INPUT:</b>					
mV, measurement range	-800...+800 mV	-800...+800 mV		± 800 mV, -0.1...+1.7 V	± 800 mV, -0.1...+1.7 V
mV, min. span	2.5 mV	2.5 mV		2.5 mV	2.5 mV
RTD, measurement range / min. span	-200...+850°C / 10°C	-200...+850°C / 10°C		-200...+850°C / 10°C	-200...+850°C / 10°C
Lin. R, measurement range / min. span	0...7000 Ω / 25 Ω	0...7000 Ω / 25 Ω		0...100 kΩ / 25 Ω	0...100 kΩ / 25 Ω
Potentiometer			0...100 kΩ / 1 kΩ	10 Ω...100 kΩ / 10%	10 Ω...100 kΩ / 10%
Sensor connection, wires	2 - 3 - 4	2 - 3 - 4		2 - 3 - 4	2 - 3 - 4
TC types	BEJKNRSTUW3W5	BEJKNRSTUW3W5		BEJKNRSTUW3W5Lr	BEJKNRSTUW3W5Lr
Max. offset	50% of selec. max. value	50% of selec. max. value	50% of selec. max. value		
Cold junction compensation	Internal / external	Internal / external	Internal / external	Internal / external	Internal / external
<b>OUTPUT:</b>					
mA, signal range / min. span	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA	PROFIBUS PA
<b>TECHNICAL SPECIFICATIONS:</b>					
Ambient temperature	-40...+85°C	-40...+85°C	-40...+85°C	-50...+85°C	-40...+85°C
Supply voltage, DC	8...35 VDC	8...35 VDC	8...35 VDC	7.5...48 VDC	9...32 VDC
Max. required power	0.8 W	0.8 W	0.8 W	< 850 mW	< 352 mW
Isolation voltage, test / operation	1500 VAC / 50 V	1500 VAC / 50 V		2.5 kVAC / 55 VAC	2.5 kVAC / 55 VAC
Response time	1...60 s	1...60 s	0.33...60 s	75 ms	< 400 ms
Signal dynamics, input / output	22 bit / 16 bit	22 bit / 16 bit	19 bit / 16 bit	24 bit / 18 bit	24 bit / -
Accuracy	≤ ±0.05% of span	≤ ±0.05% of span	≤ ±0.1% of span	≤ ±0.05% of span	≤ ±0.05% of reading
Temperature coefficient	< ±0.005% of span / °C	< ±0.005% of span / °C	≤ ±0.01% of span / °C	< ±0.005% of span / °C	< ±0.005% of reading / °C
NAMUR	NE21, NE43, NE89	NE21, NE43, NE89	NE43	NE 21/43/44/89/95/107/130	NE 21/44/89/107
Channels	1	1	1	1 or 2*	1 or 2*
Programming	5909/HART 5	5909/HART 7/HART 5	5909	5909 / HART 7 / HART 5	PROFIBUS PA
<b>APPROVALS:</b>					
ATEX, Zone 2	✓	✓	✓	✓	✓**
IECEX, Zone 2	✓	✓	✓	✓	✓**
CSA, Zone 2 - DIV 2	✓	✓		✓	✓**
FM, Zone 2 - DIV 2				✓	✓**
INMETRO, Zone 2	✓	✓	✓	✓	✓**
NEPSI				✓	✓**
DNV / EU-RO marine	✓ / -	✓ / -	✓ / -	- / ✓	
EAC	✓	✓	✓	✓	✓**
SIL Hardware Assessment	✓	✓			
SIL 2/3 Full Assessment IEC 61508				✓ / ✓	
<b>APPLICATION GUIDE:</b>					
RTD / TC / mV input	✓ / ✓ / ✓	✓ / ✓ / ✓		✓ / ✓ / ✓	✓ / ✓ / ✓
Lin. R / potentiometer input	✓ / -	✓ / -	✓ / ✓	✓ / ✓	✓ / ✓
Dual input (4 terminals)	✓	✓			
True dual input (7 terminals)				✓	✓
Custom sensor linearization	✓	✓	✓	✓	✓
mA output	✓	✓	✓	✓	
Loop-powered	✓	✓	✓	✓	
Galvanically isolated	✓	✓		✓	✓
HART protocol / bus communication	✓ / -	✓ / -		✓ / -	- / ✓
Mounting in Zone 2 / DIV 2	✓ / -	✓ / -	✓ / -	✓ / ✓	✓ / ✓
Process signal calibration	✓	✓	✓	✓	✓

# TEMPERATURE TRANSMITTERS



TYPE	6331A	6333A	6334A	6335A	6337A
<b>INPUT:</b> RTD, linear resistance, TC, mV, potentiometer	2-wire programmable transmitter	2-wire programmable transmitter	2-wire programmable transmitter	2-wire HART 5 transmitter	2-wire HART 7 transmitter
<b>OUTPUT:</b> mA, HART communication					
<b>INPUT:</b>					
mV, measurement range / min. span	-12...800 mV / 5 mV		-12...+150 mV / 5 mV	-800...+800 mV / 2.5 mV	-800...+800 mV / 2.5 mV
RTD, measurement range / min. span	-200...+850°C / 25°C	-200...+850°C / 25°C		-200...+850°C / 10°C	-200...+850°C / 10°C
Lin. R, measurement range / min. span	0...5000 Ω / 30 Ω	0...10 kΩ / 30 Ω		0...7000 Ω / 25 Ω	0...7000 Ω / 25 Ω
Potentiometer					
Sensor connection, wires	2 - 3 - 4	2 - 3		2 - 3 - 4	2 - 3 - 4
TC types	BEJKLNRSTUW3W5Lr		BEJKLNRSTUW3W5Lr	BEJKLNRSTUW3W5	BEJKLNRSTUW3W5
Max. offset	50% of selec. max. value	50% of selec. max. value	50% of selec. max. value	50% of selec. max. value	50% of selec. max. value
Cold junction compensation	Internal / external		Internal	Internal / external	Internal / external
<b>OUTPUT:</b>					
mA, signal range / min. span	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA
<b>TECHNICAL SPECIFICATIONS:</b>					
Ambient temperature	-40...+85°C	-40...+85°C	-40...+85°C	-40...+85°C	-40...+85°C
Supply voltage, DC	7.2...35 VDC	8...35 VDC	7.2...35 VDC	8...35 VDC	8...35 VDC
Max. required power, 1 / 2 channels	0.8 W / 1.6 W	0.8 W / 1.6 W	0.8 W / 1.6 W	0.8 W / 1.6 W	0.8 W / 1.6 W
Isolation voltage, test / operation	1500 VAC / 50 V		1500 VAC / 50 V	1500 VAC / 50 V	1500 VAC / 50 V
Response time	1...60 s	0.33...60 s	1...60 s	1...60 s	1...60 s
Signal dynamics, input / output	20 bit / 16 bit	19 bit / 16 bit	18 bit / 16 bit	22 bit / 16 bit	22 bit / 16 bit
Accuracy	≤ ±0.05% of span	≤ ±0.1% of span	≤ ±0.05% of span	≤ ±0.05% of span	≤ ±0.05% of span
Temperature coefficient	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.005% of span / °C	< ±0.005% of span / °C
NAMUR	NE21, NE43	NE43	NE21, NE43	NE21, NE43, NE89	NE21, NE43, NE89
Channels	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2
Programming	5909	5909	5909	5909/HART 5	5909/HART 7/HART 5
<b>APPROVALS:</b>					
ATEX, Zone 2	✓	✓	✓	✓	✓
IECEX, Zone 2	✓	✓	✓	✓	✓
CSA, Zone 2 - DIV 2	✓	✓	✓	✓	✓
FM, Zone 2 - DIV 2				✓	✓
INMETRO, Zone 2	✓	✓	✓	✓	✓
UL 61010 / 508				✓	✓
DNV					
EAC	✓	✓	✓	✓	✓
SIL Hardware Assessment				✓	✓
SIL 2 Full Assessment IEC 61508				✓	✓
<b>APPLICATION GUIDE:</b>					
RTD / TC / mV input	✓ / ✓ / ✓	✓ / - / -	- / ✓ / ✓	✓ / ✓ / ✓	✓ / ✓ / ✓
Lin. R / potentiometer input	✓ / -	✓ / -		✓ / -	✓ / -
Dual input (4 terminals)				✓	✓
Custom sensor linearization	✓	✓	✓	✓	✓
mA output	✓	✓	✓	✓	✓
Loop-powered	✓	✓	✓	✓	✓
Galvanically isolated	✓		✓	✓	✓
HART protocol				✓	✓
Mounting in Zone 2 / DIV 2	✓ / -	✓ / -	✓ / -	✓ / -	✓ / -
Process signal calibration	✓	✓	✓	✓	✓

# TEMPERATURE TRANSMITTERS



TYPE	6437A	7501	9113A		
<b>INPUT:</b> RTD, linear resistance, TC, mV, mA, potentiometer	2-wire HART 7 temperature transmitter	Field mounted HART temperature transmitter	Temperature / mA converter		
<b>OUTPUT:</b> mA, HART communication					
<b>INPUT:</b>					
mA, measurement range / min. span			0...23 mA / 16 mA		
mV, measurement range	± 800 mV, -0.1...+1.7 V	-800...+800 mV			
mV, min. span	2.5 mV	2.5 mV			
RTD, measurement range / min. span	-200...+850°C / 10°C	-200...+850°C / 10°C	-200...+850°C / 25°C		
Lin. R, measurement range / min. span	0...100 kΩ / 25 Ω	0...7000 Ω / 25 Ω			
Potentiometer	10 Ω...100 kΩ / 10%				
Sensor connection, wires	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4		
TC types	BEJLNRSTUW3W5Lr	BEJLNRSTUW3W5	BEJLNRSTUW3W5Lr		
Cold junction compensation	Internal / external	Internal / external	Internal / external		
<b>OUTPUT:</b>					
mA, signal range / min. span	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA	0...23 mA / 16 mA		
<b>TECHNICAL SPECIFICATIONS:</b>					
Ambient temperature	-50...+85°C	-40...+85°C	-20...+60°C		
Supply voltage, DC	7.5...48 VDC	10 / 12...35 VDC	19.2...31.2 VDC		
Max. required power, 1 / 2 channels	< 850 mW / -		≤ 0.8 W / ≤ 1.4 W		
Isolation voltage, test / operation	2.5 kVAC / 55 VAC	1500 VAC / 50 VAC	2.6 kVAC / 250 VAC		
Response time	75 ms	1...60 s	0.4 / 1...60 s		
Signal dynamics, input / output	24 bit / 18 bit	22 bit / 16 bit	24 bit / 16 bit		
Accuracy	≤ ±0.05% of span	≤ ±0.05% of span	≤ ±0.1% of span		
Temperature coefficient	< ±0.005% of span / °C	< ±0.005% of span / °C	< ±0.01% of span / °C		
NAMUR	NE21 / 43 / 44 / 89 / 107	NE21, NE43	NE21, NE43		
Channels	1 or 2*	1	1 or 2		
Programming	5909 / HART 7 / HART 5	LOI / HART	4500 series devices		
<b>APPROVALS:</b>					
ATEX, Zone 2 / IECEx, Zone 2	✓ / ✓	✓ / ✓	✓ / ✓		
UKEX, Zone 2			✓		
CSA, Zone 2 - DIV 2 / FM, Zone 2 - DIV 2	✓ / ✓		- / ✓		
INMETRO, Zone 2 / NEPSI	✓ / ✓	✓ / ✓	✓ / -		
UL 61010 / 913			✓ / ✓		
DNV / EU-RO marine	- / ✓	- / ✓	✓ / -		
EAC	✓	✓	✓		
SIL Hardware Assessment		✓			
SIL 2/3 Full Assessment IEC 61508	✓ / ✓		✓ / -		
CCC / KCs			✓ / ✓		
<b>APPLICATION GUIDE:</b>					
RTD / TC / mV input	✓ / ✓ / ✓	✓ / ✓ / ✓	✓ / ✓ / -		
Lin. R / potentiometer input	✓ / ✓	✓ / -			
Dual input (4 terminals)		✓			
True dual input (8 terminals)	✓				
Custom sensor linearization	✓	✓			
mA output	✓	✓	✓		
Loop-powered	✓	✓			
Galvanically isolated	✓	✓	✓		
HART protocol	✓	✓			
Process signal calibration	✓	✓	✓		
Power rail option			✓		



TYPE	5331D	5332D	5333D	5334B
<b>INPUT:</b> RTD, linear resistance, TC, mV, potentiometer	2-wire programmable transmitter	2-wire programmable RTD transmitter	2-wire programmable transmitter	2-wire programmable transmitter
<b>OUTPUT:</b> mA				

<b>INPUT:</b>					
mV, measurement range / min. span	-12...800 mV / 5 mV	-200...+850°C / 25°C	-200...+850°C / 25°C	-200...+850°C / 25°C	-12...150 mV / 5 mV
RTD, measurement range / min. span	-200...+850°C / 25°C				
Lin. R, measurement range / min. span	0...5000 Ω / 30 Ω	0...5000 Ω / 30 Ω	0...5000 Ω / 30 Ω	0...10 kΩ / 30 Ω	0...10 kΩ / 30 Ω
Potentiometer					
Sensor connection, wires	2 - 3 - 4	2 - 3 - 4	2 - 3	2 - 3	2 - 3
TC types	BEJKNRSTUW3W5Lr				BEJKNRSTUW3W5Lr
Max. offset					
Cold junction compensation	Internal / external	Internal / external			Internal
<b>OUTPUT:</b>					
mA, signal range / min. span	3.5...23 mA / 16 mA				
<b>TECHNICAL SPECIFICATIONS:</b>					
Ambient temperature	-40...+85°C	-40...+85°C	-40...+85°C	-40...+85°C	-40...+85°C
Supply voltage, DC	7.2...30 VDC	7.2...30 VDC	8...30 VDC	7.2...30 VDC	7.2...30 VDC
Max. required power	0.7 W				
Isolation voltage, test / operation	1500 VAC / 50 V				
Response time	1...60 s	1...60 s	0.33...60 s	1...60 s	1...60 s
Signal dynamics, input / output	20 bit / 16 bit	20 bit / 16 bit	19 bit / 16 bit	18 bit / 16 bit	18 bit / 16 bit
Accuracy	≤ ±0.05% of span	≤ ±0.05% of span	≤ ±0.1% of span	≤ ±0.05% of span	≤ ±0.05% of span
Temperature coefficient	< ±0.01% of span / °C				
NAMUR	NE21, NE43	NE21, NE43	NE43	NE43	NE21, NE43
Channels	1	1	1	1	1
Programming	5909	5909	5909	5909	5909

<b>APPROVALS:</b>				
ATEX	✓	✓	✓	✓
IECEx	✓	✓	✓	✓
FM	✓	✓	✓	✓
CSA	✓	✓	✓	✓
INMETRO	✓	✓	✓	✓
DNV	✓	✓	✓	✓
EAC Ex	✓	✓	✓	✓
NEPSI	✓	✓	✓	✓
SIL Hardware Assessment	✓	✓	✓	✓

<b>APPLICATION GUIDE:</b>				
RTD / TC / mV input	✓/✓/✓	✓/✓/✓	✓/✓/✓	✓/✓/✓
Lin. R / potentiometer input	✓/✓	✓/✓	✓/✓	✓/✓
Dual input (4 terminals)	✓	✓	✓	✓
Custom sensor linearization	✓	✓	✓	✓
mA output	✓	✓	✓	✓
Loop-powered	✓	✓	✓	✓
Galvanically isolated	✓	✓	✓	✓
HART protocol	✓	✓	✓	✓
Process signal calibration	✓	✓	✓	✓

# I.S. TEMPERATURE TRANSMITTERS



## TYPE

## 5335D

## 5337D

## 5343B

## 5437D

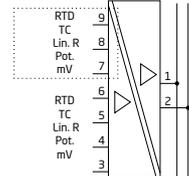
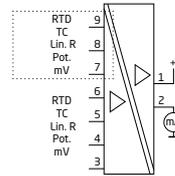
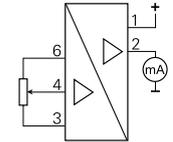
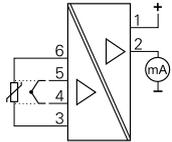
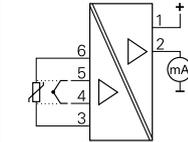
## 5450D

### INPUT:

RTD, linear resistance,  
TC, mV, potentiometer

### OUTPUT:

mA,  
HART communication,  
PROFIBUS PA



### INPUT:

mV, measurement range	-800...+800 mV	-800...+800 mV		± 800 mV, -0.1...+1.7 V	± 800 mV, -0.1...+1.7 V
mV, min. span	2.5 mV	2.5 mV		2.5 mV	2.5 mV
RTD, measurement range / min. span	-200...+850°C / 10°C	-200...+850°C / 10°C		-200...+850°C / 10°C	-200...+850°C / 10°C
Lin. R, measurement range / min. span	0...7000 Ω / 25 Ω	0...7000 Ω / 25 Ω	0...100 kΩ / 1 kΩ	0...100 kΩ / 25 Ω	0...100 kΩ / 25 Ω
Potentiometer			1 kΩ...100 kΩ	10 Ω...100 kΩ / 10%	10 Ω...100 kΩ / 10%
Sensor connection, wires	2 - 3 - 4	2 - 3 - 4		2 - 3 - 4	2 - 3 - 4
TC types	BEJLNRSTUW3W5	BEJLNRSTUW3W5		BEJLNRSTUW3W5Lr	BEJLNRSTUW3W5Lr
Max. offset			50% of selec. max. value		
Cold junction compensation	Internal / external	Internal / external		Internal / external	Internal / external

### OUTPUT:

mA, signal range / min. span	3.5...23 mA / 16 mA	PROFIBUS PA			
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### TECHNICAL SPECIFICATIONS:

Ambient temperature	-40...+85°C	-40...+85°C	-40...+85°C	-50...+85°C	-40...+85°C
Supply voltage, DC	8...30 VDC	8...30 VDC	8...30 VDC	7.5...30 VDC	9...30 VDC
Max. required power	0.7 W	0.7 W	0.7 W	< 850 mW	< 352 mW
Isolation voltage, test / operation	1500 VAC / 50 V	1500 VAC / 50 V		2.5 kVAC / 42 VAC	2.5 kVAC / 42 VAC
Response time	1...60 s	1...60 s	0.33...60 s	75 ms	< 400 ms
Signal dynamics, input / output	22 bit / 16 bit	22 bit / 16 bit	19 bit / 16 bit	24 bit / 18 bit	24 bit / -
Accuracy	≤ ±0.05% of span	≤ ±0.05% of span	≤ ±0.1% of span	≤ ±0.05% of span	≤ ±0.05% of reading
Temperature coefficient	< ±0.005% of span / °C	< ±0.005% of span / °C	≤ ±0.01% of span / °C	< ±0.005% of span / °C	< ±0.005% of reading / °C
NAMUR	NE21, NE43, NE89	NE21, NE43, NE89	NE43	NE21/43/44/89/95/107/130	NE21/44/89/107
Channels	1	1	1	1 or 2*	1 or 2*
Programming	5909/HART 5	5909/HART 7/HART 5	5909	5909 / HART 7 / HART 5	PROFIBUS PA

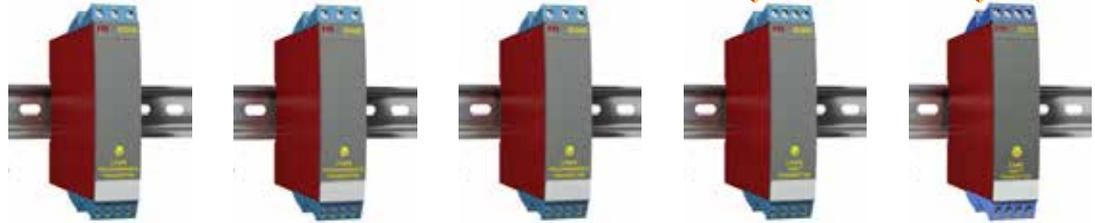
### APPROVALS:

ATEX	✓	✓	✓	✓	✓**
IECEX	✓	✓	✓	✓	✓**
FM	✓	✓	✓	✓	✓**
CSA	✓	✓	✓	✓	✓**
INMETRO	✓	✓	✓	✓	✓**
DNV / EU-RO marine	✓ / -	✓ / -	✓ / -	- / ✓	
EAC Ex			✓	✓	✓**
NEPSI				✓	✓**
SIL Hardware Assessment	✓	✓			
SIL 2/3 Full Assessment IEC 61508				✓ / ✓	

### APPLICATION GUIDE:

RTD / TC / mV input	✓ / ✓ / ✓	✓ / ✓ / ✓		✓ / ✓ / ✓	✓ / ✓ / ✓
Lin. R / potentiometer input	✓ / -	✓ / -	✓ / ✓	✓ / ✓	✓ / ✓
Dual input (4 terminals)	✓	✓			
True dual input (7 terminals)			✓	✓	✓
Custom sensor linearization	✓	✓	✓	✓	✓
mA output	✓	✓	✓	✓	✓
Loop-powered	✓	✓		✓	
Galvanically isolated	✓	✓		✓	✓
HART protocol / bus communication	✓ / -	✓ / -		✓ / -	- / ✓
Process signal calibration	✓	✓		✓	✓

# I.S. TEMPERATURE TRANSMITTERS



TYPE	6331B	6333B	6334B	6335D	6337D
<b>INPUT:</b> RTD, linear resistance, TC, mV, potentiometer	2-wire programmable transmitter	2-wire programmable transmitter	2-wire programmable transmitter	2-wire HART 5 transmitter	2-wire HART 7 transmitter
<b>OUTPUT:</b> mA, HART communication					

INPUT:	6331B	6333B	6334B	6335D	6337D
mV, measurement range / min. span	-12...800 mV / 5 mV	-12...800 mV / 5 mV	-12...+150 mV / 5 mV	-800...+800 mV / 2.5 mV	-800...+800 mV / 2.5 mV
RTD, measurement range / min. span	-200...+850°C / 25°C	-200...+850°C / 25°C	-200...+850°C / 25°C	-200...+850°C / 10°C	-200...+850°C / 10°C
Lin. R, measurement range / min. span	0...5000 Ω / 30 Ω	0...10 kΩ / 30 Ω	0...10 kΩ / 30 Ω	0...7000 Ω / 25 Ω	0...7000 Ω / 25 Ω
Potentiometer					
Sensor connection, wires	2 - 3 - 4	2 - 3	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4
TC types	BEJKLNRSTUW3W5Lr	BEJKLNRSTUW3W5Lr	BEJKLNRSTUW3W5Lr	BEJKLNRSTUW3W5	BEJKLNRSTUW3W5
Max. offset	50% of selec. max. value				
Cold junction compensation	Internal / external				
<b>OUTPUT:</b>					
mA, signal range / min. span	3.5...23 mA / 16 mA				
<b>TECHNICAL SPECIFICATIONS:</b>					
Ambient temperature	-40...+85°C	-40...+85°C	-40...+85°C	-40...+85°C	-40...+85°C
Supply voltage, DC	7.2...30 VDC	8...30 VDC	7.2...30 VDC	8...30 VDC	8...30 VDC
Max. required power, 1 / 2 channels	0.7 W / 1.4 W				
Isolation voltage, test / operation	1500 VAC / 50 V				
Response time	1...60 s	0.33...60 s	1...60 s	1...60 s	1...60 s
Signal dynamics, input / output	20 bit / 16 bit	19 bit / 16 bit	18 bit / 16 bit	22 bit / 16 bit	22 bit / 16 bit
Accuracy	≤ ±0.05% of span	≤ ±0.1% of span	≤ ±0.05% of span	≤ ±0.05% of span	≤ ±0.05% of span
Temperature coefficient	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.005% of span / °C	< ±0.005% of span / °C
NAMUR	NE21, NE43	NE43	NE21, NE43	NE21, NE43, NE89	NE21, NE43, NE89
Channels	1 or 2				
Programming	5909	5909	5909	5909/HART 5	5909/HART 7/HART 5

APPROVALS:	6331B	6333B	6334B	6335D	6337D
ATEX	✓	✓	✓	✓	✓
IECEX	✓	✓	✓	✓	✓
FM	✓	✓	✓	✓	✓
CSA	✓	✓	✓	✓	✓
INMETRO	✓	✓	✓	✓	✓
UL					
DNV					✓
EAC Ex	✓	✓	✓	✓	✓
SIL Hardware Assessment				✓	✓

APPLICATION GUIDE:	6331B	6333B	6334B	6335D	6337D
RTD / TC / mV input	✓/✓/✓	✓/✓/✓	✓/✓/✓	✓/✓/✓	✓/✓/✓
Lin. R / potentiometer input	✓/✓	✓/✓	✓/✓	✓/✓	✓/✓
Dual input (4 terminals)	✓	✓	✓	✓	✓
Custom sensor linearization	✓	✓	✓	✓	✓
mA output	✓	✓	✓	✓	✓
Loop-powered	✓	✓	✓	✓	✓
Galvanically isolated	✓	✓	✓	✓	✓
HART protocol				✓	✓
Process signal calibration	✓	✓	✓	✓	✓

# I.S. TEMPERATURE TRANSMITTERS



## TYPE

## 6437D

## 7501

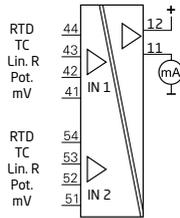
### INPUT:

RTD, linear resistance,  
TC, mV, potentiometer

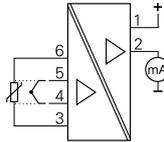
### OUTPUT:

mA,  
HART communication

2-wire HART 7  
temperature transmitter



Field mounted HART  
temperature transmitter



### INPUT:

mV, measurement range	± 800 mV, -0.1...+1.7 V	-800...+800 mV
mV, min. span	2.5 mV	2.5 mV
RTD, measurement range / min. span	-200...+850°C / 10°C	-200...+850°C / 10°C
Lin. R, measurement range / min. span	0...100 kΩ / 25 Ω	0...7000 Ω / 25 Ω
Potentiometer	10 Ω...100 kΩ / 10%	
Sensor connection, wires	2 - 3 - 4	2 - 3 - 4
TC types	BEJKNRSTUW3W5Lr	BEJKNRSTUW3W5
Cold junction compensation	Internal / external	Internal / external

### OUTPUT:

mA, signal range / min. span	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA
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### TECHNICAL SPECIFICATIONS:

Ambient temperature	-50...+85°C	-40...+85°C
Supply voltage, DC	7.5...30 VDC	10 / 12...30 VDC
Max. required power, 1 / 2 channels	< 850 mW / -	
Isolation voltage, test / operation	2.5 kVAC / 42 VAC	1500 VAC / 50 V
Response time	75 ms	1...60 s
Signal dynamics, input / output	24 bit / 18 bit	22 bit / 16 bit
Accuracy	≤ ±0.05% of span	≤ ±0.05% of span
Temperature coefficient	< ±0.005% of span / °C	< ±0.005% of span / °C
NAMUR	NE21 / 43 / 44 / 89 / 107	NE21, NE43
Channels	1 or 2*	1
Programming	5909 / HART 7 / HART 5	LOI / HART

### APPROVALS:

ATEX	✓	✓
IECEX	✓	✓
FM	✓	✓
CSA	✓	✓
INMETRO	✓	✓
EU-RO marine	✓	✓
EAC Ex	✓	✓
NEPSI	✓	✓
SIL Hardware Assessment	✓	✓
SIL 2/3 Full Assessment IEC 61508	✓ / ✓	

### APPLICATION GUIDE:

RTD / TC / mV input	✓ / ✓ / ✓	✓ / ✓ / ✓
Lin. R / potentiometer input	✓ / ✓	✓ / -
Dual input (4 terminals)		✓
True dual input (8 terminals)	✓	
Custom sensor linearization	✓	✓
mA output	✓	✓
Loop-powered	✓	✓
Galvanically isolated	✓	✓
HART protocol	✓	✓
Process signal calibration	✓	✓

# I.S. INTERFACES



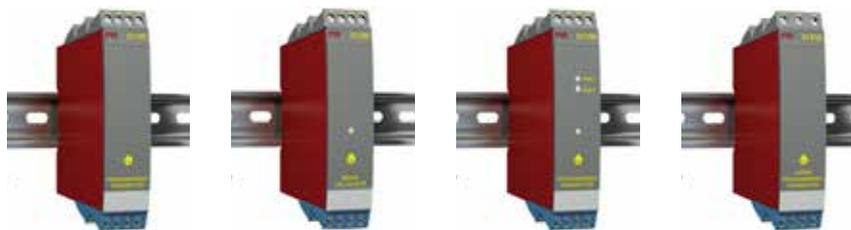
TYPE	9106B	9107B	9113B	9116B
<b>INPUT:</b> mA, mV, V, potentiometer, RTD, Lin. R, TC, HART communication	HART transparent repeater	HART transparent driver	Temperature / mA converter	Universal converter
<b>OUTPUT:</b> mA, relays, HART communication				
<b>INPUT:</b>				
mA, measurement range / min. span	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA	0...23 mA / 16 mA	0...23 mA / 16 mA
V, measurement range / min. span				0...12 VDC / 0.8 V
RTD, measurement range / min. span			-200...+850°C / 25°C	-200...+850°C / 25°C
Lin. R, measurement range / min. span				0...10000 Ω / -10 Ω...10000 Ω
Potentiometer				
Sensor connection, wires			2 - 3 - 4	2 - 3 - 4
TC types			BEJLKNRSTUW3W5Lr	BEJLKNRSTUW3W5Lr
<b>OUTPUT:</b>				
mA, signal range / min. span	3.5...23 mA / 16 mA	3.5...23 mA / 16 mA	0...23 mA / 16 mA	0...23 mA / 16 mA
Relay				1 x SPST, AC: 500 VA
<b>TECHNICAL SPECIFICATIONS:</b>				
Ambient temperature	-20...+60°C	-20...+60°C	-20...+60°C	-20...+60°C
Supply voltage, DC	19.2...31.2 VDC	19.2...31.2 VDC	19.2...31.2 VDC	19.2...31.2 VDC
Max. required power, 1 / 2 channels	≤ 1.1 W / ≤ 1.9 W	≤ 1.0 W / ≤ 1.8 W	≤ 0.8 W / ≤ 1.4 W	≤ 2.1 W / -
Isolation voltage, test / operation	2.6 kVAC / 250 VAC	2.6 kVAC / 250 VAC	2.6 kVAC / 250 VAC	2.6 kVAC / 250 VAC
Response time	< 5 ms	< 5 ms	0.4 / 1...60 s	0.4 / 1...60 s
Signal dynamics, input / output	Analog signal chain	Analog signal chain	24 bit / 16 bit	24 bit / 16 bit
Accuracy	< ±16 µA	< ±16 µA	≤ ±0.1% of span	≤ ±0.1% of span
Temperature coefficient	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C
NAMUR	NE21	NE21	NE21, NE43	NE21, NE43
Channels	1 or 2	1 or 2	1 or 2	1
Programming	4500 series devices	4500 series devices	4500 series devices	4500 series devices
<b>APPROVALS:</b>				
ATEX	✓	✓	✓	✓
IECEx	✓	✓	✓	✓
UKEX	✓	✓	✓	✓
FM	✓	✓	✓	✓
INMETRO	✓	✓	✓	✓
UL 61010 / 913	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓
DNV	✓	✓	✓	✓
EAC Ex	✓	✓	✓	✓
SIL 2/3 Full Assessment IEC 61508	✓ / ✓	✓ / -	✓ / -	✓ / -
CCC / KCs	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓
<b>APPLICATION GUIDE:</b>				
AI barrier	✓		✓	✓
AO barrier		✓		
DI barrier				
DO barrier				
mA / V / temperature input	✓ / - / -	✓ / - / -	✓ / - / ✓	✓ / ✓ / ✓
4...20 mA Tx input	✓			✓
mA / V / relay output	✓ / - / -	✓ / - / -	✓ / - / -	✓ / - / ✓
Active / passive mA output	✓ / ✓	✓ / -	✓ / ✓	✓ / ✓
HART signal transparent	✓	✓		
Process signal calibration			✓	✓
Power rail option	✓	✓	✓	✓



TYPE	9202B	9203B			
<b>INPUT:</b> Hz	<b>Pulse isolator</b>	<b>Solenoid / alarm driver</b>			
<b>OUTPUT:</b> Pulse, relay					
<b>INPUT:</b> mA, measurement range / min. span V, measurement range / min. span RTD, measurement range / min. span Lin. R, measurement range / min. span Potentiometer Sensor connection, wires TC types Sensor type Hz, measurement range / min. span Min. pulse width	NAMUR / switch 0...5 kHz 100 µs	NPN / PNP / switch			
<b>OUTPUT:</b> mA, signal range / min. span Pulse output Hz, signal range Relay	NPN / relay 0...5 kHz 1 x SPST, AC: 500 VA	Valves etc.			
<b>TECHNICAL SPECIFICATIONS:</b> Ambient temperature Supply voltage, DC Max. required power, 1 / 2 channels Isolation voltage, test / operation Response time Signal dynamics, input / output Accuracy Temperature coefficient NAMUR Channels Programming	-20...+60°C 19.2...31.2 VDC ≤ 1.1...1.3 W / ≤ 1.5...1.9 W 2.6 kVAC / 250 VAC 200 ms NE21 1 or 2 4500 series devices	-20...+60°C 19.2...31.2 VDC ≤ 1.9...2.5 W / ≤ 3.1 W 2.6 kVAC / 250 VAC < 10 ms NE21 1 or 2 4500 series devices			
<b>APPROVALS:</b> ATEX IECEX UKEX FM INMETRO UL 61010 / 913 DNV EAC Ex SIL 2/3 Full Assessment IEC 61508 CCC / KCs	✓ ✓ ✓ ✓ ✓ ✓ / ✓ ✓ ✓ ✓ / - ✓ / ✓	✓ ✓ ✓ ✓ ✓ ✓ / ✓ ✓ ✓ ✓ / - ✓ / ✓			
<b>APPLICATION GUIDE:</b> AI barrier AO barrier DI barrier DO barrier mA / V / temperature input 4...20 mA Tx input mA / V / relay output Active / passive mA output HART signal transparent Process signal calibration Power rail option	✓ ✓	✓ ✓			



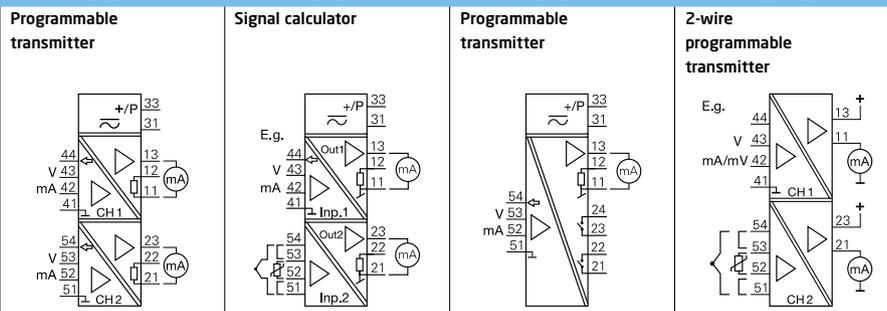
TYPE	5104B	5105B	5106B
<b>INPUT:</b> mA, mV, V, potentiometer, RTD, linear resistance, TC, HART transparent	Ex repeater / power supply	Ex-isolated driver	HART transparent repeater
<b>OUTPUT:</b> mA, V, relays, HART transparent			
<b>INPUT:</b>			
mA, measurement range / min. span	0...23 mA / 16 mA	0...23 mA / 16 mA	3.5...23 mA / 16 mA
V, measurement range / min. span	0...10 VDC / 8 VDC	0...10 VDC / 8 VDC	
mV, measurement range / min. span			
RTD, measurement range / min. span			
Lin. R, measurement range / min. span			
Potentiometer			
Sensor connection, wires			
TC types			
Max. offset	20% of selec. max. value	20% of selec. max. value	20% of selec. max. value
<b>OUTPUT:</b>			
mA, signal range / min. span	0...23 mA / 16 mA	0...23 mA / 16 mA	3.5...23 mA / 16 mA
Load (@ current output)	≤ 600 Ω	≤ 770 Ω	≤ 600 Ω
V, signal range / min. span	0...10 VDC / 0.8 VDC	0...10 VDC / 0.8 VDC	
Max. offset	20% of selec. max. value	20% of selec. max. value	20% of selec. max. value
<b>TECHNICAL SPECIFICATIONS:</b>			
Ambient temperature	-20...+60°C	-20...+60°C	-20...+60°C
Supply voltage, AC / DC	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V
Max. required power, 1 / 2 channels	2.0 W / 2.8 W	1.3 W / 2.0 W	2.0 W / 2.8 W
Isolation voltage, test / operation	3.75 kVAC / 250 VAC	3.75 kVAC / 250 VAC	3.75 kVAC / 250 VAC
Response time	< 25 ms	< 25 ms	< 25 ms
Signal dynamics, input / output	Analog signal chain	Analog signal chain	Analog signal chain
Accuracy	≤ ±0.1% of span	≤ ±0.1% of span	≤ ±0.1% of span
Temperature coefficient	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C
NAMUR	NE21	NE21	NE21
Channels	1 or 2	1 or 2	1 or 2
Programming	DIP-switch	DIP-switch	No
<b>APPROVALS:</b>			
ATEX	✓	✓	✓
IECEx			
FM			
CSA			
UL	✓	✓	✓
DNV	✓	✓	✓
EAC Ex	✓	✓	✓
<b>APPLICATION GUIDE:</b>			
AI barrier	✓		✓
AO barrier		✓	
DI barrier			
DO barrier			
RTD / TC input			
mA / V / mV input	✓ / ✓ / -	✓ / ✓ / -	✓ / - / -
4...20 mA Tx input	✓		✓
Lin. R / potentiometer input			
mA / V / relay output	✓ / ✓ / -	✓ / ✓ / -	✓ / - / -
Active / passive mA output	✓ / ✓	✓ / -	✓ / ✓
Process signal calibration			



**TYPE**                      **5114B**                      **5115B**                      **5116B**                      **5131B**

**INPUT:**  
mA, mV, V, potentiometer,  
RTD, linear resistance, TC

**OUTPUT:**  
mA, V, relays,



INPUT:	5114B	5115B	5116B	5131B
<b>mA, measurement range / min. span</b>	0...100 mA / 4 mA	0...100 mA / 4 mA	0...100 mA / 4 mA	0...100 mA / 4 mA
<b>V, measurement range / min. span</b>	0...250 VDC / 5 mV	0...250 VDC / 5 mV	0...250 VDC / 5 mV	0...250 VDC / 5 mV
<b>mV, measurement range / min. span</b>	-150...+150 mV / 5 mV	-150...+150 mV / 5 mV	-2500...+2500 mV / 5 mV	-150...+150 mV / 5 mV
<b>RTD, measurement range / min. span</b>	-200...+850°C / 25°C	-200...+850°C / 25°C	-200...+850°C / 25°C	-200...+850°C / 25°C
<b>Lin. R, measurement range / min. span</b>	0...5000 Ω / 30 Ω	0...5000 Ω / 30 Ω	0...5000 Ω / 30 Ω	0...5000 Ω / 30 Ω
<b>Potentiometer</b>	200 Ω...100 kΩ	200 Ω...100 kΩ	200 Ω...100 kΩ	200 Ω...100 kΩ
<b>Sensor connection, wires</b>	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4
<b>TC types</b>	BEJKNRSTUW3W5Lr	BEJKNRSTUW3W5Lr	BEJKNRSTUW3W5Lr	BEJKNRSTUW3W5Lr
<b>Max. offset</b>	50% of selec. max. value	50% of selec. max. val.	50% of selec. max. val.	50% of selec. max. val.
<b>OUTPUT:</b>				
<b>mA, signal range / min. span</b>	0...23 mA / 10 mA	0...23 mA / 10 mA	0...23 mA / 10 mA	3.5...23 mA / 10 mA
<b>Load (@ current output)</b>	600 Ω	600 Ω	600 Ω	600 Ω
<b>V, signal range / min. span</b>	0...10 VDC / 0.5 VDC	0...10 VDC / 0.5 VDC	0...10 VDC / 0.5 VDC	0...10 VDC / 0.5 VDC
<b>Max. offset</b>	50% of selec. max. value	50% of selec. max. val.	50% of selec. max. val.	50% of selec. max. val.
<b>Relays</b>			2 x SPST, AC: 500 VA	
<b>TECHNICAL SPECIFICATIONS:</b>				
<b>Ambient temperature</b>	-20...+60°C	-20...+60°C	-20...+60°C	-20...+60°C
<b>Supply voltage, AC / DC</b>	21.6...253V / 19.2...300V	21.6...253V/19.2...300V	21.6...253 V / 19.2...300 V	- / 7.5...35 VDC
<b>Max. required power, 1 / 2 channels</b>	2.1 W / 2.8 W	2.1 W / 2.8 W	2.4 W / -	0.8 W / 1.6 W
<b>Isolation voltage, test / operation</b>	3.75 kVAC / 250 VAC	3.75 kVAC / 250 VAC	3.75 kVAC / 250 VAC	3.75 kVAC / 250 VAC
<b>Response time</b>	250 ms...60 s	250 ms...60 s	250 ms...60 s	250 ms...60 s
<b>Signal dynamics, input / output</b>	22 bit / 16 bit	22 bit / 16 bit	22 bit / 16 bit	22 bit / 16 bit
<b>Accuracy</b>	≤ ±0.05% of span	≤ ±0.05% of span	≤ ±0.05% of span	≤ ±0.05% of span
<b>Temperature coefficient</b>	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C	< ±0.01% of span / °C
<b>NAMUR</b>	NE21, NE43	NE21, NE43	NE21, NE43	NE21, NE43
<b>Channels</b>	1 or 2	2	1	1 or 2
<b>Programming</b>	5909 + DIP-switch	5909 + DIP-switch	5909	5909 + DIP-switch

APPROVALS:	5114B	5115B	5116B	5131B
<b>ATEX</b>	✓	✓	✓	✓
<b>IECEX</b>				
<b>FM</b>			✓	
<b>CSA</b>			✓	
<b>UL</b>			✓	
<b>DNV</b>	✓	✓	✓	✓
<b>EAC Ex</b>	✓	✓	✓	✓

APPLICATION GUIDE:	5114B	5115B	5116B	5131B
<b>AI barrier</b>	✓	✓	✓	✓
<b>AO barrier</b>				
<b>DI barrier</b>				
<b>DO barrier</b>				
<b>RTD / TC input</b>	✓ / ✓	✓ / ✓	✓	✓
<b>mA / V / mV input</b>	✓ / ✓ / ✓	✓ / ✓ / ✓	✓	✓
<b>4...20 mA Tx input</b>	✓	✓	✓	✓
<b>Lin. R / potentiometer input</b>	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓
<b>mA / V / relay output</b>	✓ / ✓ / -	✓ / ✓ / -	✓	✓
<b>Active / passive mA output</b>	✓ / ✓	✓ / ✓	✓	✓
<b>Process signal calibration</b>	✓	✓		



TYPE	5202B	5203B	5223B	5420B
	Pulse isolator	Ex solenoid / alarm driver	Programmable f/I - f/f converter	Ex power supply for 2-wire Tx
<b>INPUT:</b> Frequency, pulse				
<b>OUTPUT:</b> mA, V, pulse, relays				

INPUT:				
mA, measurement range / min. span				
V, measurement range / min. span				
mV, measurement range / min. span				
RTD, measurement range / min. span				
Lin. R, measurement range / min. span				
Potentiometer				
Sensor connection, wires				
TC types				
Sensor type	NAMUR / switch	NPN / PNP / switch	NAMUR / switch	
Hz, measurement range / min. span	0...5 kHz		0...20 kHz / 0.001 Hz	
<b>OUTPUT:</b>				
mA, signal range / min. span			0...23 mA / 5 mA	
V, signal range / min. span			0...10 VDC / 0.25 VDC	
Pulse output	NPN / relay	Valves etc.	NPN / PNP / relay	
Hz, signal range	0...5 kHz		0...1000 Hz	
Relays	2 x SPDT, AC: 100 VA		2 x SPST, AC: 100 VA	1 x SPDT, AC: 100 VA
Voltage / current				> 18 VDC / 20 mA
<b>TECHNICAL SPECIFICATIONS:</b>				
Ambient temperature	-20...+60°C	-20...+60°C	-20...+60°C	-20...+60°C
Supply voltage, AC / DC	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V
Max. required power, 1 / 2 channels	- / 1.8 W	2.0 W / 2.5 W	3 W / -	- / 2.5 W
Isolation voltage, test / operation	3.75 kVAC / 250 VAC			
Response time			60 ms...1000 s	
Signal dynamics, input / output			- / 16 bit	
Accuracy				
Temperature coefficient			< ±0.01% of span / °C	
NAMUR	NE21	NE21		NE21
Channels	2	1 or 2	1	2
Programming	DIP-switch	DIP-switch	5909 + DIP-switch	No

APPROVALS:				
ATEX	✓	✓	✓	✓
IECEX				
FM				
CSA				
UL	✓	✓		
DNV				
EAC Ex	✓	✓	✓	✓
SIL 2, Hardware Assessment	✓			

APPLICATION GUIDE:				
AI barrier				
AO barrier				
DI barrier	✓		✓	
DO barrier		✓		
mA / V / temperature input				
4...20 mA Tx input				✓
mA / V / relay output				
Active / passive mA output				
Process signal calibration			✓	



TYPE	5531A	5714	5715	5725	
<b>INPUT:</b> RTD, TC, mV, mA, V, potentiometer, frequency, pulse	Loop-powered LCD indicator	Programmable LED indicator	Programmable LED indicator	Programmable frequency indicator	
<b>OUTPUT:</b> Display, mA, relays					
<b>INPUT:</b>					
mA, measurement range / min. span	3.6...23 mA / 16 mA	0...23 mA / 16 mA	0...23 mA / 16 mA		
V, measurement range / min. span		0...12 VDC / 0.8 V	0...12 VDC / 0.8 V		
Sensor type				All standard sensors □	
Hz, measurement range / min. span				0...50 kHz / 0.001 Hz	
Min. pulse width				25 μs	
RTD, measurement range / min. span		-200...+850°C	-200...+850°C		
Lin. R, measurement range / min. span		0...10000 Ω / -	0...10000 Ω / -		
Potentiometer		10 Ω...100 kΩ	10 Ω...100 kΩ		
Sensor connection, wires		2 - 3 - 4	2 - 3 - 4		
TC types		BEJKNRSTUW3W5Lr	BEJKNRSTUW3W5Lr		
Cold junction compensation		Internal	Internal		
Reference voltage / 2-wire supply		- / >15 VDC	- / >15 VDC		
Sensor supply				5...17 VDC	
<b>OUTPUT:</b>					
Display, digit / type	4-digit / LCD	4-digit / LED	4-digit / LED	4-digit / LED	
Display, digit height	16 mm	13.8 mm	13.8 mm	13.8 mm	
mA, signal range / min. span		0...23 mA / 16 mA	0...23 mA / 16 mA	0...23 mA / 16 mA	
Relay		2 x SPDT, AC: 500 VA	4 x SPDT, AC: 500 VA	2 x SPDT, AC: 500 VA	
<b>TECHNICAL SPECIFICATIONS:</b>					
Ambient temperature	-20...+60°C	-20...+60°C	-20...+60°C	-20...+60°C	
Supply voltage, universal AC / DC	- / 1.5 VDC	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V	21.6...253V / 19.2...300V	
Max. required power	<35 mW	3.5 W	3.8 W	3.6 W	
Isolation voltage, test / operation		2.3 kVAC / 250 VAC	2.3 kVAC / 250 VAC	2.3 kVAC / 250 VAC	
Response time	< 1 s	< 400 ms / < 1 s	< 400 ms / < 1 s	1...60 s	
Accuracy	≤ ±0.1% of span	≤ ±0.1% of reading	≤ ±0.1% of reading	≤ ±0.1% of reading	
Temperature coefficient	< ±0.01% of span / °C	≤ ±0.01% of reading / °C	≤ ±0.01% of reading / °C	≤ ±0.01% of reading / °C	
NAMUR		NE43	NE43	NE43	
Programming	Switch / front keys	Front keys	5909 / front keys	Front keys	
<b>APPROVALS:</b>					
ATEX, Zone 2	✓				
IECEX, Zone 2	✓				
UL 508		✓	✓	✓	
DNV EU-RO marine		✓	✓	✓	
EAC	✓	✓	✓	✓	
CCC	✓				
<b>APPLICATION GUIDE:</b>					
mA / V / mV input	✓ / - / -	✓ / ✓ / -	✓ / ✓ / -		
Temperature input		✓	✓		
Lin. R / potentiometer input		✓ / ✓	✓ / ✓		
Frequency input				✓	
Custom sensor linearization			✓		
4...20 mA Tx input		✓	✓		
Loop-powered	✓				
mA output		✓	✓	✓	
2 / 4 relay outputs		✓ / -	- / ✓	✓ / -	
Process signal calibration	✓	✓	✓	✓	
Mounting in Zone 2	✓				

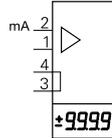


**TYPE 5531B**

**INPUT:**  
mA

**OUTPUT:**  
Display

Loop-powered  
LCD indicator



**INPUT:**

mA, measurement range / min. span 3.6...23 mA / 16 mA

**OUTPUT:**

Display, digit / type 4-digit / LCD  
Display, digit height 16 mm

**TECHNICAL SPECIFICATIONS:**

Ambient temperature -20...+60°C  
 Supply voltage, universal AC / DC - / 1.5 VDC  
 Max. required power <35 mW  
 Isolation voltage, test / operation  
 Response time < 1 s  
 Accuracy  $\leq \pm 0.1\%$  of span  
 Temperature coefficient <  $\pm 0.01\%$  of span / °C  
 NAMUR  
 Programming Switch / front keys

**APPROVALS:**

ATEX ✓  
 IECEx ✓  
 DNV ✓  
 EAC Ex ✓  
 CCC ✓

**APPLICATION GUIDE:**

Loop-powered ✓  
 Mounting in Zone 1 / 21 ✓  
 Field enclosure

# POWER SUPPLIES



TYPE	3405	9410	9421		
<b>INPUT:</b> AC, DC voltage					
<b>OUTPUT:</b> Stabilized VDC					
	Power connector unit	Power control unit	Power supply		
<b>INPUT:</b>					
Supply voltage, AC			85...132 VAC or 187...264 VAC		
Supply voltage, DC	16.8...31.2 VDC	21.6...26.4 VDC			
Supply voltage, back-up		21.6...26.4 VDC			
<b>OUTPUT:</b>					
Voltage	16.8...31.2 VDC	21.6...26.4 VDC	24 VDC		
Current	2.5 ADC	4 ADC	4.8 ADC		
Power, max.	60 W	96 W	115 W		
Status relay		1 x SPDT, AC: 500 VA			
<b>TECHNICAL SPECIFICATIONS:</b>					
Ambient temperature	-25...+70°C	-20...+60°C	-20...+60°C		
Max. required power		96 W	< 135 W		
Isolation, test		2.6 kVAC	4.3 kVAC		
Short circuit protection	No	Yes	Yes		
Output ripple	Same as input	Same as input	200 mV peak / peak		
Channels	1	1	1		
Programming	No	No	No		
<b>APPROVALS:</b>					
ATEX, Zone 2	✓	✓	✓		
IECEX, Zone 2	✓	✓			
UKEX, Zone 2	✓				
CSA, Zone 2 - DIV 2			✓		
FM, Zone 2 - DIV 2	✓	✓			
INMETRO, Zone 2		✓			
UL 61010 / 508 / 913	✓ / - / -	✓ / - / ✓	- / ✓ / - / -		
DNV	✓	✓			
EAC	✓	✓	✓		
CCC / KCs		✓ / ✓			
<b>APPLICATION GUIDE:</b>					
115 / 230 VAC mains supply			✓		
24 VDC output			✓		
60 W power rail connector unit	✓				
96 W power rail connector unit		✓			
Redundancy power rail function		✓			
Collective status signal monitor		✓			
Internal fuse		✓	✓		
Mounting in Zone 2 / Div 2	✓	✓	✓		

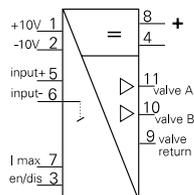


TYPE	2224	2261			
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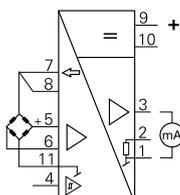
**INPUT:**  
mA, V, potentiometer,  
joystick, load cell, mV

**OUTPUT:**  
mA, V

Valve controller



mV transmitter



**INPUT:**

mA, measurement range / min. span	0...20 mA / 16 mA	-40...+100 mV / 10 mV		
V, measurement range / min. span	-10...+10 VDC / 0.8 VDC			
Potentiometer	> 1 kΩ			
Digital input	3 x PNP	1 x NPN / 1 x PNP		
Max. offset	20% of selec. max. value	70% of selec. max. value		
Excitation / reference voltage	- / -10...+10 VDC	5...13 VDC / -		

**OUTPUT:**

mA, signal range / min. span	3000 mA	0...20 mA / 5 mA		
V, signal range / min. span	Supply-0.5 VDC	0...10 VDC / 0.25 VDC		
Max. offset		50% of selec. max. value		
Display, digit / type	3-digit / LED	3-digit / LED		

**TECHNICAL SPECIFICATIONS:**

Ambient temperature	-20...+60°C	-20...+60°C		
Supply voltage, DC	12 or 24 VDC	19.2...28.8 VDC		
Max. required power	2.2 W	2.2 W / max. 7.2 W		
Response time	< 75 ms	60 ms...999 s		
Signal dynamics, input / output	12 bit / -	17 bit / 16 bit		
Temperature coefficient	< ±0.01% of span / °C	< ±0.01% of span / °C		
Channels	1 or 2 outputs	1		
Programming	Switch / front keys	Switch / front keys		

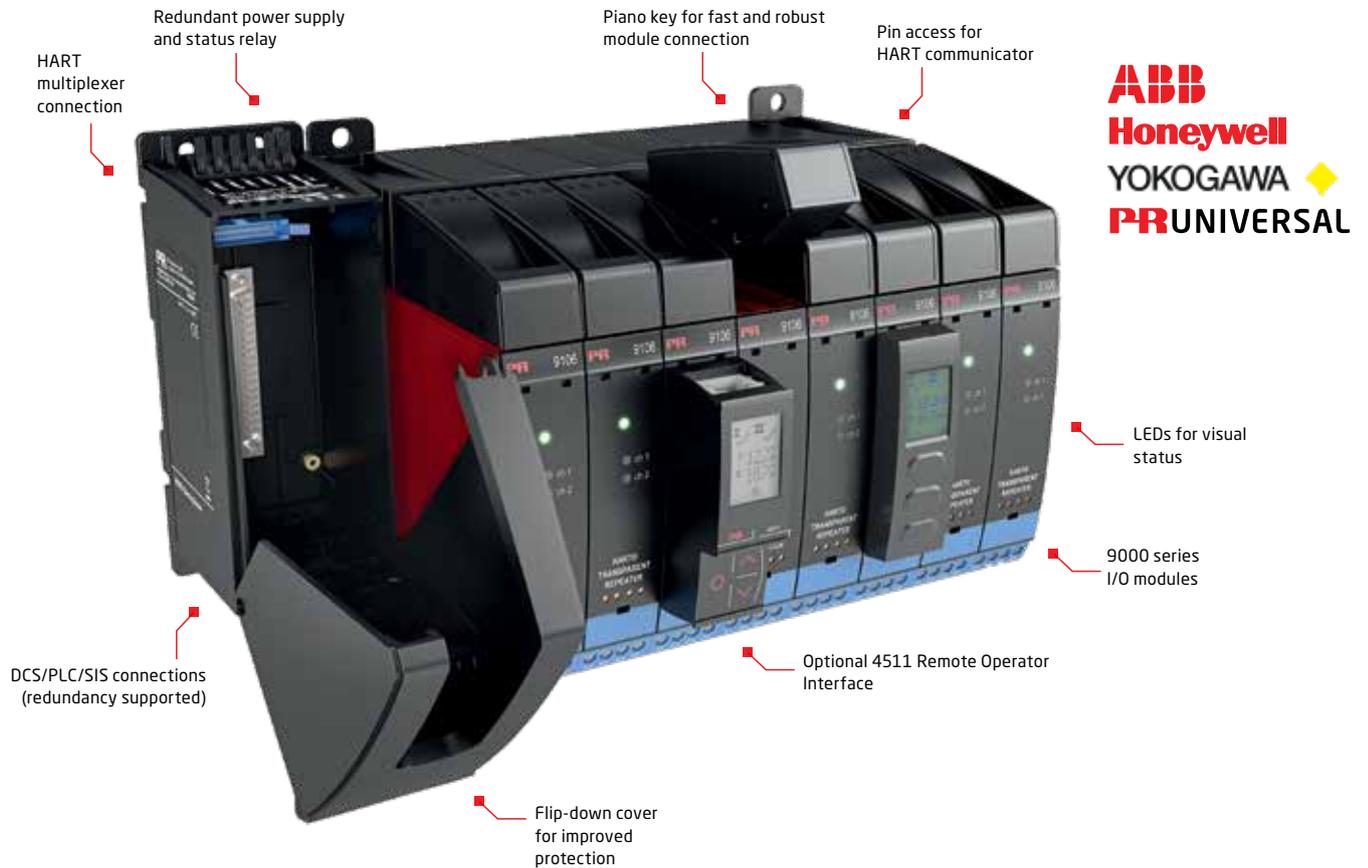
**APPROVALS:**

EAC	✓	✓		

**APPLICATION GUIDE:**

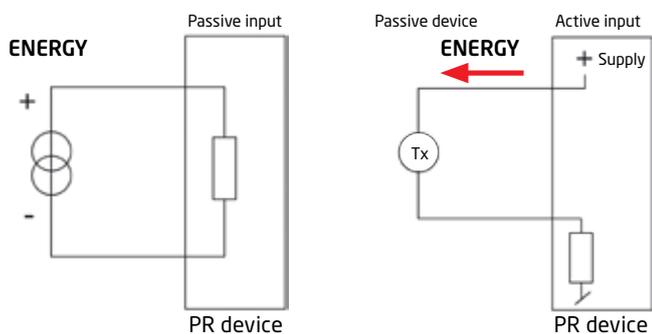
mA / V / mV input	✓ / ✓ / -	- / - / ✓		
Digital ON/OFF signal input	✓	✓		
Controller / regulator function	✓			
Load cell applications		✓		
Proportional valve applications	✓			
mA / V output		✓		

# A user-friendly and reliable mounting solution between *the DCS/PLC/SIS system and isolators/I.S. interfaces*

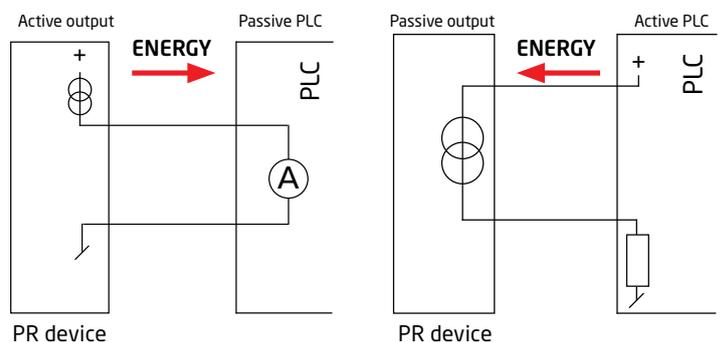


## SIGNAL TYPES

### INPUT



### OUTPUT



## 4510

Display / programming front



## 4511

Modbus communication enabler



## 4512

Bluetooth communication enabler  
with data logging

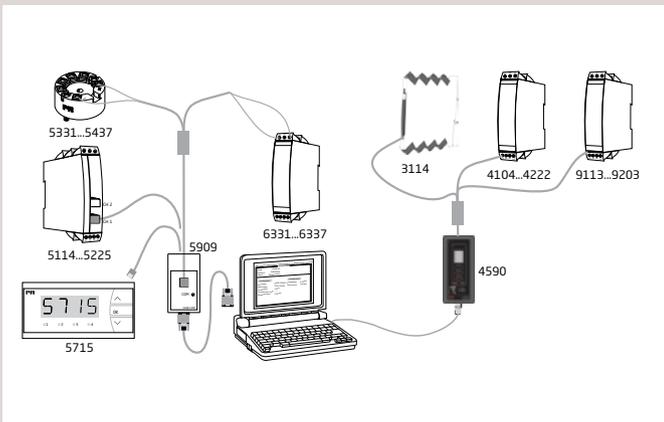


## 4590

ConfigMate



## SOFTWARE



### PRreset

PRreset is an easy-to-use menu-driven software program for set-up of PR products via a standard PC and a programming interface. PRreset gives a high degree of flexibility for each product and when the menus are completed, the data is transmitted to the unit which is then ready for operation.

### Loop Link 5909

Loop Link 5909 is a USB communications interface for configuration and monitoring of PR electronics' PC-programmable devices. PR devices available in the configuration program PRreset ver. 5.0 or higher, can be programmed by way of Loop Link 5909.

## 277USB

USB HART modem



## 278

Bluetooth Low Energy (BLE) HART modem



## 3400T

Electromechanical counter



## 5909

Loop Link communications interface



## 5910

CJC connector, channel 1



## 5910Ex

CJC connector for I.S. / Ex devices, channel 1



## 5913

CJC connector, channel 2



## 5913Ex

CJC connector for I.S. / Ex devices, channel 2



## 7002

Spring clip



## 7005

Shunt resistor 0.1  $\Omega$



## 7006

Shunt resistor 1  $\Omega$



## 7007

2-digit digital potentiometer



## 7008

3-digit digital potentiometer



## 7009

10-turn potentiometer, 200  $\Omega$



## 7010

10-turn potentiometer, 20 k $\Omega$



## 7011

Dial for 10-turn potentiometer



## 7012

1-turn potentiometer, 1 k $\Omega$



## 7014

Shunt resistor 0.5  $\Omega$



## 7015

1-turn potentiometer, 10 k $\Omega$



## 7016

1-turn potentiometer, 100 k $\Omega$



**7020**

Knob for 1-turn potentiometer



**7020A**

Knob for 10-turn potentiometer



**7023**

11-pole relay socket



**7024**

Code ring and code pin



**7028**

10-turn potentiometer, 2 k $\Omega$



**7029**

Shunt resistor 0.2  $\Omega$



**7031**

Label sheet with engineering units



**7400**

Pt100 temperature sensor



**7411C**

Pt100 temperature sensor



**7423**

Ceramic socket for Pt100 sensor



**7430B**

Pt100 cable sensor,  $\varnothing 6 \times 60$  mm



**7430C**

Pt100 cable sensor,  $\varnothing 5 \times 20$  mm



**7440**

Thermowell for 7400 Pt100 sensor



**8335**

Splash-proof cover



**8341**

Inductive proximity sensor, NAMUR



**8342**

Inductive proximity sensor, NAMUR



**8343**

Inductive proximity sensor, NPN



**8344**

Inductive proximity sensor, NPN



**8421**

DIN rail fitting



**8501**

Field enclosure



**8509**

M12 interface cable for 5909 Loop Link



**8510**

8 unit 4511 Modbus cable



**8511**

4511 Y-splitter Modbus cable



**8513**

RJ45 Modbus termination



**8514**

3 X RJ45 female Y-splitter



**8515**

RJ45 female to female cable adapter



**8516**

RJ45 female to female shielded cable adapter



**8517**

3 x RJ45 female shielded Y-splitter adapter



**8550**

7501 M20 plug with silicone O-ring for alu enclosure



**8550-F**

7501 M20 plug with FKM O-ring for alu enclosure



**8550-S**

7501 M20 plug with silicone O-ring for stainless steel enclosure



**8550-SF**

7501 M20 plug with FKM O-ring for stainless steel enclosure



**8551**

7501 1/2NPT plug for alu enclosure



**8551-S**

7501 1/2NPT plug for stainless steel enclosure



**8552**

Pipe-mounting bracket for 7501



**8555**

Display with LOI for 7501



**8556**

Display without LOI for 7501



**8557**

Bracket spare part for display and transmitter (for 7501)



**8558**

Bracket spare part for transmitter only (for 7501)



**9400\_1**

Power rail 15 mm profile



9400\_2

Power rail 7.5 mm profile



9402

Extra end covers for power rail



9404

Module stop for rail



## POWER RAIL

The data sheet specifies the maximum required power at nominal operating values, e.g. 24 V supply voltage, 60°C ambient temperature, 600 Ω load, and 20 mA output current.

In typical applications, the devices are not running at worst-case conditions, specifically when many devices are located together. For engineering purposes, 70% (P70%) of maximum required power is often used.

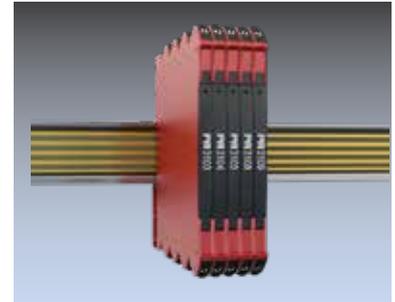
### 3000 power rail

The number\* of 3000 devices that can be powered from different power sources is listed in the table below:

	Using a PR converter device as power feed-in	3405 power feed-in	9410 power feed-in
P70%	Up to 21 devices	Up to 131 devices	Up to 210 devices
P100%	Up to 14 devices	Up to 92 devices	Up to 147 devices

The devices can be stacked vertically or horizontally.

\* The number of devices is based on the PR 3103 which has the lowest power consumption of the 3000 series power rail devices.



### 9000 power rail

The number of 9000 devices that can be powered from the 9400 power sources is listed in the table below:

	9410 power feed-in
P70%	Up to 150 devices
P100%	Up to 120 devices



## ENVIRONMENTAL SPECIFICATIONS

	PR 2200 series	PR 3000 series	PR 4000 series	PR 5000 series	PR 5300 series
Specifications range	-20°C to +60°C	-25°C to +70°C (3105: 0°C to +70°C)	-20°C to +60°C	-20°C to +60°C	-40°C to +85°C
Relative humidity	< 95% RH (non-cond.)	< 95% RH (non-cond.)	< 95% RH (non-cond.)	< 95% RH (non-cond.)	< 95% RH (non-cond.)
Protection degree	IP50	IP20	IP20	IP20	IP68 / IP00
	PR 5400 series	PR 5500 / 5700 series	PR 6300 series	PR 7500 series	PR 9000 series
Specifications range	-40°C / 50°C to +85°C	-20°C to +60°C	-40°C to +85°C	-20°C / -40°C to +85°C	-20°C to +60°C
Relative humidity	< 99% RH (non-cond.)	< 95% RH (non-cond.)	< 95% RH (non-cond.)	0...100% RH (cond.)	< 95% RH (non-cond.)
Protection degree	IP68 / IP00	IP65 from front (5500) IP65 / Type 4X, UL50E	IP20	IP54 / IP66 / IP68 / type 4X	IP20

## ENCLOSURE SPECIFICATIONS

Dimensions (mm)	Height	Width	Depth	Panel cut-out	Material
PR 2200 series	80.5	35.5	84.5+socket		Cycoloy/Noryl
PR 3000 series	113	6.1	115		Cycoloy
PR 4000 / 6000 / 9000 series	109	23.5	104		Cycoloy
PR 4500 series	73.2	23.3	26.5		Cycoloy
PR 5000 series	109	23.5	130		Cycoloy
PR 5300 series	20.2	Ø44			Cycoloy
PR 5400 series	21.45	Ø44			Cycoloy
PR 5500 / 5700 series	48	96	120	44.5 x 91.5	Noryl
PR 7500 series	109	145	125.5		Aluminum



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