DPA Series

Two-channel modules for alarm monitoring

Modules in the DPA Series are used for alarm monitoring. They can be configured for a wide variety of industrial signals and feature two alarm outputs. Setpoint values and deadband can be individually adjusted by using a potentiometer.

The deadband reduces chatter from the monitoring relay during switching operations. The reset point of the alarm contact is individually adjusted in this case away from the hysteresis (setpoint). In order to generate an alarm in the event of a power outage, the user should select the “energized” operational status for one or both of the output relays. A high/low-trip switching behaviour can also be set independently for each channel.

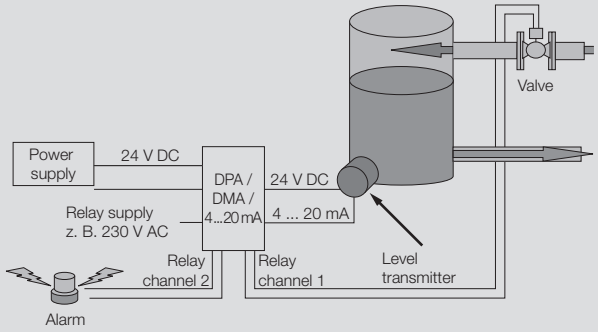
The following analogue input signals can be processed by the DPA Series: temperature (thermocouple and PT100 temperature detector), AC/DC currents/voltages, frequencies, measuring potentiometers, differential currents and differential resistances.

The housing can be snapped onto a DIN TS 35 or TS 32 mounting rail. The pluggable screw connection is located on the front.

Technical features:

- A wide variety of versions available for many types of input signals
- Two independent alarm channels with relay output
- LED status display
- Min./max switching commands in any combination
- High repetition accuracy
- Deadband/setpoint adjustment on front panel
- Complete electrical isolation to 2 kV
- DC power supply
- Pluggable screw-connection mechanism
- Compact metal housing

Typical application of DPAMA



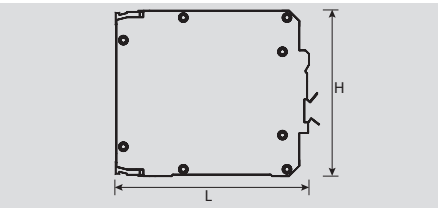
Connections

Terminal	Signal	
1	Depending on the individual module	Input
2		
3		
4		
5	Not used	
6		
7		
8		
9	-	Supply voltage
10	+	
11	NO contacts	Alarm channel 1 (Relay contacts)
12	Common	
13	NC contact	
14	NO contacts	Alarm channel 2 (Relay contacts)
15	Common	
16	NC contact	
Housing	PE connection direct on housing	

DPA Series

Universal, galvanically-isolated signal converters with an alarm function and two setpoint adjustments.

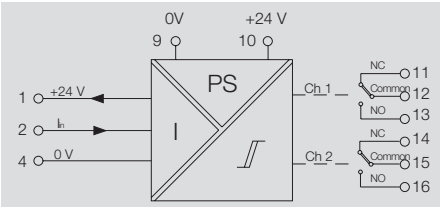
- Two alarm channels
- External power supply
- Pluggable connection terminals
- Compact enclosure



DPADMA

Current monitoring 4…20 mA

- For current signals [mA DC]
- Low input impedance
- Bi-polar input signals on request
- Supply of active input devices



Technical data

Input	
Type	Current input [mA]
Input signal	4 - 20 mA @ 10 Ω (additional on request)
Input resistance	≥ 10 Ω
Input range min./max.	20 µA…500 mA
Offset	0…500 % of signal range
Min. set response time	Typ. 5ms
Output	
Type	Relay output, change-over contact
No. of channels	2
Switching current	3 A @ 240 V AC, 3 A @ 24 V DC / 110 V AC
Settings	
Fine calibration	Potentiometer, 20 turns
Dead time	1…25 % of max. input value
Range of adjustment	0…100 % of max. input value
General data	
Voltage supply	24 V DC ± 10 %
Options	High Offset: zero point > signalling range
Power consumption	3 W @ 24 V DC
Repeat accuracy	± 0.05 % of signal range
Humidity	0 to 90 % (no condensation)
Temperature coefficient	< 0.04 % / °C
Impulse withstand voltage	4 kV (1.2/50 µs)
Long-term drift	0.1 % / 10,000 h
Insulation voltage	2 kV input / output / power supply
Operating temperature/Storage temperature	0 °C…+60 °C/-25°C…+70°C
EMC standards	DIN EN 61326
Approvals	CE; cULus
Data of Housing	
Clamping range (rating- / min. / max.) mm²	1.5 / 0.5 / 2.5
Type of connection / Terminal rail	Screw connection / TS 35 + TS 32
Type of Housing / Weight	Anodized aluminium enclosure / 500 g
Length x width x height mm	120 x 46 x 97
Note	PE connection direct on enclosure

Connections

Terminal	Signal
1	24 V DC
2	Signal +
3	Not used
4	Signal –

Ordering data

Type	Qty.	Order No.
DPADMA 4-20mA	1	**7940011294**
DPA Variabel	1	**8944960000**

Type	
Current input	
Special adjustment	
Note	Additional input and output versions available on request

Accessories

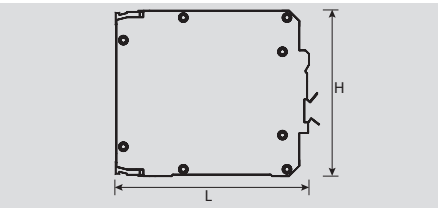
Note	

MANN SERIES - Process alarms

DPA Series

Universal, galvanically-isolated signal converters with an alarm function and two setpoint adjustments.

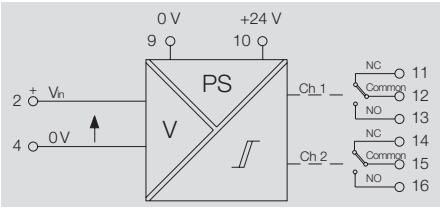
- Two alarm channels
- External power supply
- Pluggable connection terminals
- Compact enclosure



DPADMV

Voltage monitoring 0…10(100) mV

- For voltage signals [mV DC]
- High input impedance
- Bi-polar input signals on request



Technical data

Input	
Type	Voltages (≤ 100 mV)
Input signal	0…10 mV or 0…100 mV
Input resistance	10 MΩ
Input range min./max.	8…100 mV DC
Offset	0…500 % of signal range
Min. set response time	Typ. 5ms
Output	
Type	Relay output, change-over contact
No. of channels	2
Switching current	3 A @ 240 V AC, 3 A @ 24 V DC / 110 V AC
Settings	
Fine calibration	Potentiometer, 20 turns
Dead time	1…25 % of max. input value
Range of adjustment	0…100 % of max. input value
General data	
Voltage supply	24 V DC ± 10 %
Options	High Offset: zero point > signalling range
Power consumption	3 W @ 24 V DC
Repeat accuracy	± 0.05 % of signal range
Humidity	0 to 90 % (no condensation)
Temperature coefficient	< 0.04 % / °C
Impulse withstand voltage	4 kV (1.2/50 µs)
Long-term drift	0.1 % / 10,000 h
Insulation voltage	2 kV input / output / power supply
Operating temperature/Storage temperature	0 °C…+60 °C/-25°C…+70°C
EMC standards	DIN EN 61326
Approvals	CE; cULus
Data of Housing	
Clamping range (rating- / min. / max.) mm²	1.5 / 0.5 / 2.5
Type of connection / Terminal rail	Screw connection / TS 35 + TS 32
Type of Housing / Weight	Anodized aluminium enclosure / 500 g
Length x width x height mm	120 x 46 x 97
Note	PE connection direct on enclosure

Connections

Terminal	Signal
1	Not used
2	Signal +
3	Not used
4	Signal –

Ordering data

Type	Qty.	Order No.
DPADMV 0-100mV	1	**7940017849**
DPADMV 0-10mV	1	**7940017848**
DPA Variabel	1	**8944960000**

Additional input and output versions available on request

Accessories

Note

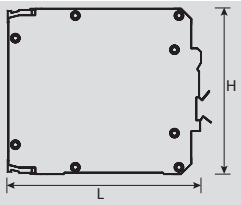
DPA Series

Universal, galvanically-isolated signal converters with an alarm function and two setpoint adjustments.

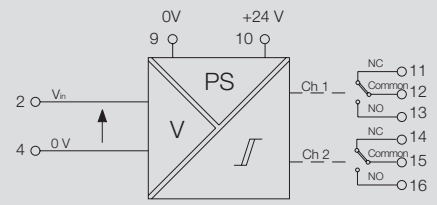
- Two alarm channels
- External power supply
- Pluggable connection terminals
- Compact enclosure

DPADCV

Voltage monitoring 0…10 V / 1…5 V



- For voltage signals [V DC]
- High input impedance
- Bi-polar inputs on request



Technical data

Input	
Type	DC voltage [> 500 mV]
Input signal	0…10 V or 1…5 V (additional on request)
Input resistance	1 MΩ (0…10 V) or 500 kΩ (1…5 V)
Input range min./max.	0.1…300 V DC
Offset	0…500 % of signal range
Min. set response time	Typ. 5ms
Output	
Type	Relay output, change-over contact
No. of channels	2
Switching current	3 A @ 240 V AC, 3 A @ 24 V DC / 110 V AC
Settings	
Fine calibration	Potentiometer, 20 turns
Dead time	1…25 % of max. input value
Range of adjustment	0…100 % of max. input value
General data	
Voltage supply	24 V DC ± 10 %
Options	High offset: zero point > signal range High voltage: for ranges > 60 V
Power consumption	3 W @ 24 V DC
Repeat accuracy	± 0.05 % of signal range
Humidity	0 to 90 % (no condensation)
Temperature coefficient	< 0.04 % / °C
Impulse withstand voltage	4 kV (1.2/50 µs)
Long-term drift	0.1 % / 10,000 h
Insulation voltage	2 kV input / output / power supply
Operating temperature/Storage temperature	0 °C…+60 °C/-25°C…+70°C
EMC standards	DIN EN 61326
Approvals	CE; cULus
Data of Housing	
Clamping range (rating- / min. / max.) mm²	1.5 / 0.5 / 2.5
Type of connection / Terminal rail	Screw connection / TS 35 + TS 32
Type of Housing / Weight	Anodized aluminium enclosure / 500 g
Length x width x height mm	120 x 46 x 97
Note	PE connection direct on enclosure

Connections

Terminal	Signal
1	Not used
2	Signal +
3	Not used
4	Signal –

Ordering data

Type		Qty.	Order No.
DPADCV 0-10V	Voltage input	1	**7940011718**
DPADCV 1-5V	Voltage input	1	**7940012970**
DPA Variabel	Special adjustment	1	**8944960000**
Note	Additional input and output versions available on request		

Accessories

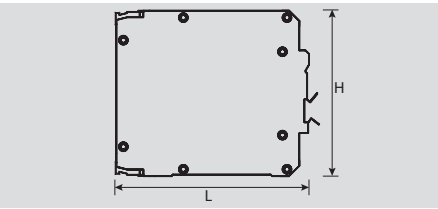
Note

MANN SERIES - Process alarms

DPA Series

Universal, galvanically-isolated signal converters with an alarm function and two setpoint adjustments.

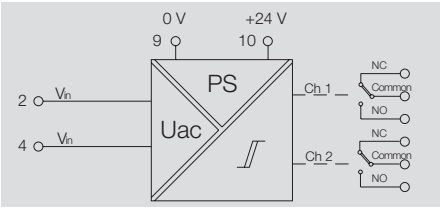
- Two alarm channels
- External power supply
- Pluggable connection terminals
- Compact enclosure



DPAAVX

Voltage monitoring 0…250 V AC

- For voltage signals [V AC]
- High input impedance
- Accuracy Class 0.5



Technical data

Input		
Type		Voltages [AC]
Input frequency range		47…63 Hz
Input resistance		> 1 MΩ
Input signal		0…250 V AC (additional on request)
Input range min./max.		8 mV…250 V AC
Offset		0…500 % of signal range
Min. set response time		typ. 150 ms
Output		
Type		Relay output, change-over contact
No. of channels		2
Switching current		3 A @ 240 V AC, 3 A @ 24 V DC / 110 V AC
Settings		
Fine calibration		Potentiometer, 20 turns
Dead time		1…25 % of max. input value
Range of adjustment		0…100 % of max. input value
General data		
Voltage supply		24 V DC ± 10 %
Options		High Offset: offset > signalling range
		High Voltage: input voltage > 60 V AC
Power consumption		3 W @ 24 V DC
Repeat accuracy		± 0.05 % of signal range
Humidity		0 to 90 % (no condensation)
Temperature coefficient		< 0.04 % / °C
Impulse withstand voltage		4 kV (1.2/50 µs)
Tolerance class		0.5
Insulation voltage		2 kV input / output / power supply
Operating temperature/Storage temperature		0 °C…+60 °C/-25°C…+70°C
EMC standards		DIN EN 61326
Approvals		CE; cULus
Data of Housing		
Clamping range (rating- / min. / max.)	mm^2	1.5 / 0.5 / 2.5
Type of connection / Terminal rail		Screw connection / TS 35 + TS 32
Type of Housing / Weight		Anodized aluminium enclosure / 500 g
Length x width x height	mm	120 x 46 x 97
Note		PE connection direct on enclosure

Connections

Terminal	Signal
1	Not used
2	AC Voltage
3	Not used
4	AC Voltage

Ordering data

Type		Qty.	Order No.
DPAAVX 0-125Vac		1	**7940017847**
DPA Variabel		1	**8944960000**
	Voltage input		
	Special adjustment		
Note			Additional input and output versions available on request

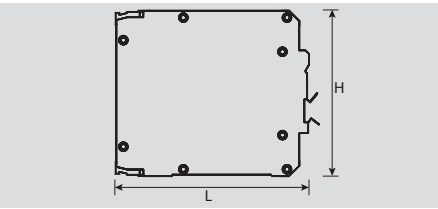
Accessories

Note	

DPA Series

Universal, galvanically-isolated signal converters with an alarm function and two setpoint adjustments.

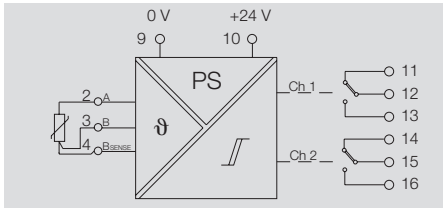
- Two alarm channels
- External power supply
- Pluggable connection terminals
- Compact enclosure



DPARTD

Temperature monitoring (RTD)

- For temperature signals [°C]
- 2- or 3-wire connection
- Automatic cable-length compensation



Technical data

Input		
Type		PT100 2-/3-wire
Interference characteristic		High Alarm
Sensor current		0.5 mA
Min. set response time		Typ. 5ms
Output		
Type		Relay output, change-over contact
No. of channels		2
Switching current		3 A @ 240 V AC, 3 A @ 24 V DC / 110 V AC
Settings		
Fine calibration		Potentiometer, 20 turns
Dead time		1…25 % of max. input value
Range of adjustment		0…100 % of max. input value
General data		
Cable-length compensation		Cable-length compensation reduces the influence of conductor resistance by a factor of 100.
Voltage supply		24 V DC ± 10 %
Power consumption		3 W @ 24 V DC
Repeat accuracy		± 0.05 % of signal range
Humidity		0 to 90 % (no condensation)
Temperature coefficient		< 0.04 % / °C
Long-term drift		0.1 % / 10,000 h
Impulse withstand voltage		4 kV (1.2/50 µs)
Insulation voltage		2 kV input / output / power supply
Operating temperature/Storage temperature		0 °C…+60 °C/-25°C…+70°C
EMC standards		DIN EN 61326
Approvals		CE; cULus
Data of Housing		
Clamping range (rating- / min. / max.)	mm^2	1.5 / 0.5 / 2.5
Type of connection / Terminal rail		Screw connection / TS 35 + TS 32
Type of Housing / Weight		Anodized aluminium enclosure / 500 g
Length x width x height	mm	120 x 46 x 97
Note		PE connection direct on enclosure

Connections

Terminal	Signal
1	Not used
2	A
3	B
4	B-Sense

Ordering data

Type		Type	Qty.	Order No.
	Temperature converter	DPARTD 0-100C	1	**7940014900**
	Temperature converter	DPARTD 0-200C	1	**7940017852**
	Temperature converter	DPARTD 0-50C	1	**7940014212**
Note		Additional input and output versions available on request		

Accessories

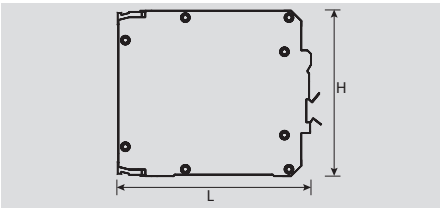
Note

MANN SERIES - Process alarms

DPA Series

Universal, galvanically-isolated signal converters with an alarm function and two setpoint adjustments.

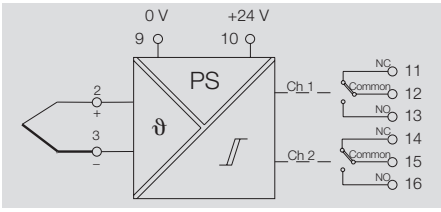
- Two alarm channels
- External power supply
- Pluggable connection terminals
- Compact enclosure



DPATCX

Temperature monitoring (thermal converter)

- For all standard thermocouples
- Automatic cold-junction compensation
- Wire-break recognition can be set



Technical data

Input	
Type	Thermocouple
Input signal	Type K (0…1000 C°) (additional on request)
Input resistance	10 MΩ
Interference characteristic	High oder Low Alarm
Min. set response time	Typ. 5ms
Output	
Type	Relay output, change-over contact
No. of channels	2
Switching current	3 A @ 240 V AC, 3 A @ 24 V DC / 110 V AC
Settings	
Fine calibration	Potentiometer, 20 turns
Dead time	1…25 % of max. input value
Range of adjustment	0…100 % of max. input value
General data	
Cold-junction compensation	Automatically
Options	Wire-break recognition: High Alarm / Low Alarm
Voltage supply	24 V DC ± 10 %
Power consumption	3 W @ 24 V DC
Repeat accuracy	± 0.05 % of signal range
Humidity	0 to 90 % (no condensation)
Temperature coefficient	< 0.04 % / °C
Long-term drift	0.1 % / 10,000 h
Impulse withstand voltage	4 kV (1.2/50 µs)
Insulation voltage	2 kV input / output / power supply
Operating temperature/Storage temperature	0 °C…+60 °C/-25°C…+70°C
EMC standards	DIN EN 61326
Approvals	CE; cULus
Data of Housing	
Clamping range (rating- / min. / max.) mm²	1.5 / 0.5 / 2.5
Type of connection / Terminal rail	Screw connection / TS 35 + TS 32
Type of Housing / Weight	Anodized aluminium enclosure / 500 g
Length x width x height mm	120 x 46 x 97
Note	PE connection direct on enclosure

Connections

Terminal	Signal
1	Not used
2	Signal +
3	Not used
4	Signal –

Ordering data

Type	Qty.	Order No.
DPATCX K/0-1000C	1	**7940017853**
DPA Variabel	1	**8944960000**

Note

Additional input and output versions available on request

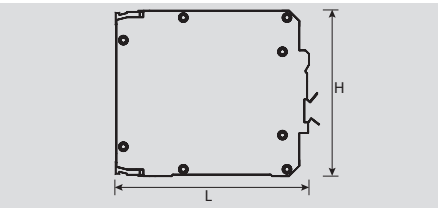
Accessories

Note

DPA Series

Universal, galvanically-isolated signal converters with an alarm function and two setpoint adjustments.

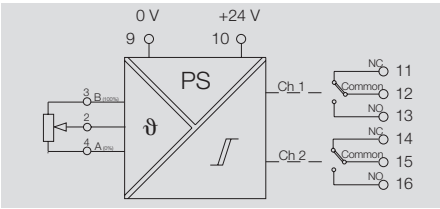
- Two alarm channels
- External power supply
- Pluggable connection terminals
- Compact enclosure



DPAPOT

Position monitoring

- Position detection
- Potentiometer and loop input



Technical data

Input	
Type	3-conductor partial-voltage meter or measuring conductor
Input signal	10 Ω…1 MΩ (percent of potentiometer range)
Min. set response time	Typ. 5ms
Output	
Type	Relay output, change-over contact
No. of channels	2
Switching current	3 A @ 240 V AC, 3 A @ 24 V DC / 110 V AC
Settings	
Fine calibration	Potentiometer, 20 turns
Dead time	1…25 % of max. input value
Range of adjustment	0…100 % of max. input value
General data	
Voltage supply	24 V DC ± 10 %
Power consumption	3 W @ 24 V DC
Repeat accuracy	± 0.05 % of signal range
Humidity	0 to 90 % (no condensation)
Temperature coefficient	< 0.04 % / °C
Long-term drift	0.1 % / 10,000 h
Impulse withstand voltage	4 kV (1.2/50 µs)
Insulation voltage	2 kV input / output / power supply
Operating temperature/Storage temperature	0 °C…+60 °C/-25°C…+70°C
EMC standards	DIN EN 61326
Approvals	CE; cULus
Data of Housing	
Clamping range (rating- / min. / max.) mm²	1.5 / 0.5 / 2.5
Type of connection / Terminal rail	Screw connection / TS 35 + TS 32
Type of Housing / Weight	Anodized aluminium enclosure / 500 g
Length x width x height mm	120 x 46 x 97
Note	PE connection direct on enclosure

Connections

Terminal	Signal
1	Not used
2	Wiper
3	B
4	A

Ordering data

Type		Qty.	Order No.
	Resistor input		
	Resistor input		
	Special adjustment		
DPAPOT 10KΩ/0-100%		1	**7940017851**
DPAPOT 1KΩ/0-100%		1	**7940017850**
DPA Variabel		1	**8944960000**
Note			
			Additional input and output versions available on request

Accessories

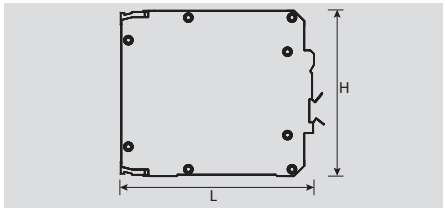
Note

MANN SERIES - Process alarms

DPA Series

Universal, galvanically-isolated signal converters with an alarm function and two setpoint adjustments.

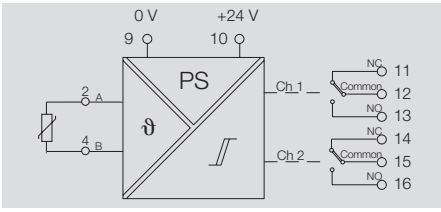
- Two alarm channels
- External power supply
- Pluggable connection terminals
- Compact enclosure



DPARES

Resistance monitoring

- 2-wire input



Technical data

Input		
Type		2-wire resistance
Input signal		0…1 kΩ (20 Ω…100 kΩ on request)
Min. set response time		Typ. 5ms
Output		
Type		Relay output, change-over contact
No. of channels		2
Switching current		3 A @ 240 V AC, 3 A @ 24 V DC / 110 V AC
Settings		
Fine calibration		Potentiometer, 20 turns
Dead time		1…25 % of max. input value
Range of adjustment		0…100 % of max. input value
General data		
Voltage supply		24 V DC ± 10 %
Power consumption		3 W @ 24 V DC
Repeat accuracy		± 0.05 % of signal range
Humidity		0 to 90 % (no condensation)
Temperature coefficient		< 0.04 % / °C
Long-term drift		0.1 % / 10,000 h
Impulse withstand voltage		4 kV (1.2/50 µs)
Insulation voltage		2 kV input / output / power supply
Operating temperature/Storage temperature		0 °C…+60 °C/-25°C…+70°C
EMC standards		DIN EN 61326
Approvals		CE; cULus
Data of Housing		
Clamping range (rating- / min. / max.)	mm^2	1.5 / 0.5 / 2.5
Type of connection / Terminal rail		Screw connection / TS 35 + TS 32
Type of Housing / Weight		Anodized aluminium enclosure / 500 g
Length x width x height	mm	120 x 46 x 97
Note		PE connection direct on enclosure

Connections

Terminal	Signal
1	Not used
2	A
3	Not used
4	B

Ordering data

Type		Qty.	Order No.
	Resistor input		
	Special adjustment		
DPARES 0-1KΩ		1	**7940017917**
DPA Variabel		1	**8944960000**

Note

Additional input and output versions available on request

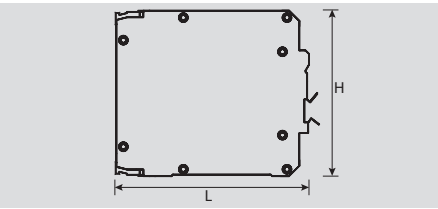
Accessories

Note

DPA Series

Universal, galvanically-isolated signal converters with an alarm function and two setpoint adjustments.

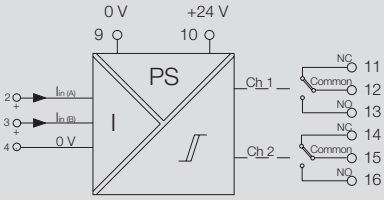
- Two alarm channels
- External power supply
- Pluggable connection terminals
- Compact enclosure



DPAMAS

Monitoring of residual current

- Residual current measuring
- Monitoring of two current signals



Technical data

Input		
Type		2 current inputs [mA]
Input signal		4…20 mA (additional upon request)
Input resistance		10 Ω
Min. set response time		Typ. 5ms
Output		
Type		Relay output, change-over contact
No. of channels		2
Switching current		3 A @ 240 V AC, 3 A @ 24 V DC / 110 V AC
Settings		
Fine calibration		Potentiometer, 20 turns
Dead time		1…25 % of max. input value
Range of adjustment		0…100 % of max. input value
General data		
Transmit function		output x A-B
Voltage supply		24 V DC ± 10 %
Power consumption		3 W @ 24 V DC
Repeat accuracy		± 0.05 % of signal range
Humidity		0 to 90 % (no condensation)
Temperature coefficient		< 0.04 % / °C
Long-term drift		0.1 % / 10,000 h
Impulse withstand voltage		4 kV (1.2/50 µs)
Insulation voltage		2 kV input / output / power supply
Operating temperature/Storage temperature		0 °C…+60 °C/-25°C…+70°C
EMC standards		DIN EN 61326
Approvals		CE; cULus
Data of Housing		
Clamping range (rating- / min. / max.)	mm^2	1.5 / 0.5 / 2.5
Type of connection / Terminal rail		Screw connection / TS 35 + TS 32
Type of Housing / Weight		Anodized aluminium enclosure / 500 g
Length x width x height	mm	120 x 46 x 97
Note		PE connection direct on enclosure

Connections

Terminal	Signal
1	Not used
2	Signal A+
3	Signal B+
4	Signal –

Ordering data

Type		Qty.	Order No.
	Current input	DPAMAS 4-20mA	1	**7940016144**
	Special adjustment	DPA Variabel	1	**8944960000**
Note		Additional input and output versions available on request		

Accessories

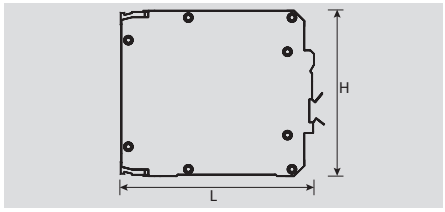
Note

MANN SERIES - Process alarms

DPA Series

Universal, galvanically-isolated signal converters with an alarm function and two setpoint adjustments.

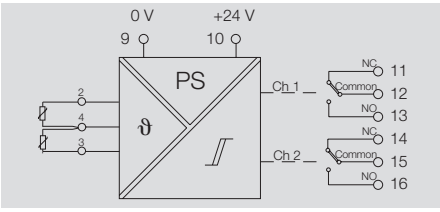
- Two alarm channels
- External power supply
- Pluggable connection terminals
- Compact enclosure



DPADRT

Resistance monitoring

- Residual current measuring
- Monitoring of two resistance values



Technical data

Input		
Type		Two resistance R1 and R2 in 2-wire configuration
		with R1 > R2
Input signal		
Input range min./max.		(R1-R2) 20 Ω…100 kΩ
Reference resistance		0…1000% of input offset
Min. set response time		Typ. 5ms
Output		
Type		Relay output, change-over contact
No. of channels		2
Switching current		3 A @ 240 V AC, 3 A @ 24 V DC / 110 V AC
Settings		
Fine calibration		Potentiometer, 20 turns
Dead time		1…25 % of max. input value
Range of adjustment		0…100 % of max. input value
General data		
Transmit function		output x R1-R2
Options		High Offset: offset > signalling range
Voltage supply		24 V DC ± 10 %
Power consumption		3 W @ 24 V DC
Repeat accuracy		± 0.05 % of signal range
Humidity		0 to 90 % (no condensation)
Temperature coefficient		< 0.04 % / °C
Long-term drift		0.1 % / 10,000 h
Impulse withstand voltage		4 kV (1.2/50 µs)
Insulation voltage		2 kV input / output / power supply
Operating temperature/Storage temperature		0 °C…+60 °C/-25°C…+70°C
EMC standards		DIN EN 61326
Approvals		CE; cULus
Data of Housing		
Clamping range (rating- / min. / max.)	mm^2	1.5 / 0.5 / 2.5
Type of connection / Terminal rail		Screw connection / TS 35 + TS 32
Type of Housing / Weight		Anodized aluminium enclosure / 500 g
Length x width x height	mm	120 x 46 x 97
Note		PE connection direct on enclosure

Connections

Terminal	Signal
1	Not used
2	R_1
3	R_2
4	Common

Ordering data

Type		Qty.	Order No.
	Resistor input		
	Special adjustment		
DPADRT 200Ω20-40Ω		1	**7940017919**
DPA Variabel		1	**8944960000**
Note			Additional input and output versions available on request

Accessories

Note