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Signal Converters
Isolation Amplifiers

High Functionality Series

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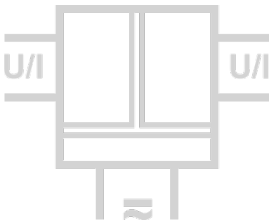
Bipolar Isolation Amplifier DB 6200

Isolation and Conversion of Bipolar and Unipolar Industrial Standard Signals



The Isolation Amplifier DB 6200 is used for isolation and conversion of bipolar and unipolar industrial signals.

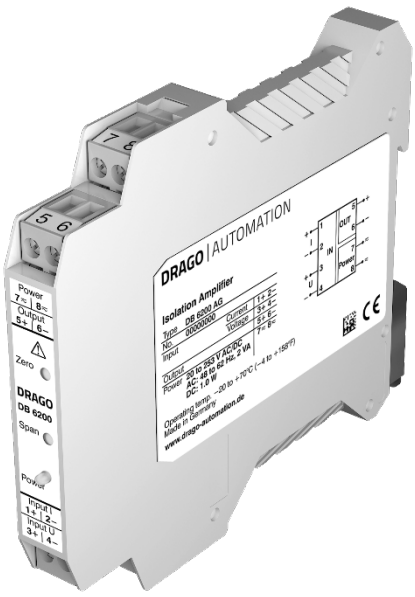
Due to the easy selection of the input and output ranges, the new universal power supply and the ultra-small housing the Isolation Amplifier is suitable for flexible use. High reliability and Protective Separation are further characteristics that make the DB 6200 unrivaled.

The order key allows you to select the desired input and output ranges to which the unit will be adjusted at the factory before delivery. These can be easily reconfigured at any time by means of DIP switch settings. Subsequent readjustment or measured range compensation can then be performed at the zero/scan potentiometers on the front panel. Also the cut-off frequency can be adapted to the measurement task by using the DIP Switch.

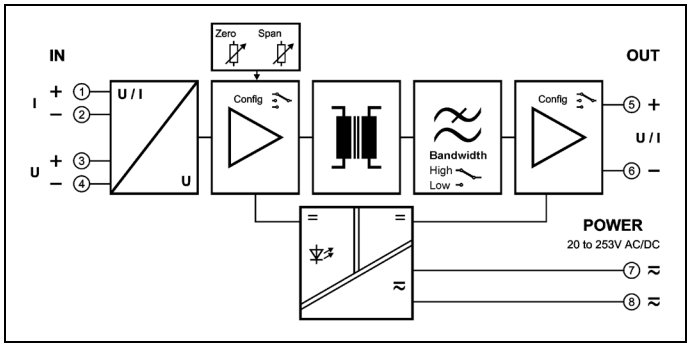
The small housing with 12.5 mm width saves space in your switch cabinet and facilitates by the practical plug-in screw terminal blocks the assembly. For range setting a simple housing unblocking is installed which makes it possible to reach easily all control elements on the mounting rail.

The new universal power pack for 20 ... 253 V AC/DC means the DB 6200 can be used anywhere in the world, with all mains power supplies. The unit's high efficiency contributes significantly to reducing the unit's own heat generation. This is reflected in extremely high reliability and long-term stability. A green LED on the front of the unit has been provided to monitor the power supply.

- **Easy selection of input and output range**
  Input and output range for unipolar and bipolar signals can be easily set by using DIP switch
- **Universal power supply for 20...253 V AC/DC**
  Applicable world-wide for all common supply voltages
- **3-port isolation**
  Protection against erroneous measurements due to parasitic voltages or ground loops
- **Ultra small sized housing**
  12.5 mm housing with plug-in screw terminal blocks
- **High bandwidth; high accuracy**
  No distortion; no falsification of measured signal
- **Protective Separation**
  Protects service personnel and downstream devices against impermissibly high voltage
- **Maximum reliability**
  No maintenance costs
- **5 Years Warranty**
  Defects occurring within 5 years from delivery date shall be remedied free of charge at our plant (carriage and insurance paid by sender)



Block diagram



High Functionality

Technical Data

Input	Voltage			Current		
Input signals	± 10 V	0 ... 10 V	2 ... 10 V	± 20 mA	0 ... 20 mA	4 ... 20 mA
(terminal/switch selectable)	± 5 V	0 ... 5 V	1 ... 5 V	± 10 mA	0 ... 10 mA	2 ... 10 mA
Input resistance	Approx. 1 MΩ			Approx. 25 Ω		
Input capacitance	Approx. 1 nF			Approx. 1 nF		
Overload	Voltage limitation via 30 V Z-Diode, max. continuous current 30 mA			≤ 200 mA		
Output	Voltage			Current		
Output signals	± 10 V	0 ... 10 V	2 ... 10 V	± 20 mA	0 ... 20 mA	4 ... 20 mA
(switch selectable)	± 5 V	0 ... 5 V	1 ... 5 V	± 10 mA	0 ... 10 mA	2 ... 10 mA
Load	≤ 10 mA	(1 kΩ at 10 V)		≤ 12 V	(600 Ω at 20 mA)	
Linear transmission range	unipolar: - 2 ... + 110 %		bipolar: - 110 ... + 110 %			
Residual ripple	< 10 mV_{rms}					
General Data						
Transmission error	< 0.1 % full scale					
Temperature coefficient[1)]	< 100 ppm/K					
Zero/Span compensation	± 10 %					
Cut-off frequency -3 dB (switchable)	10 kHz	30 Hz				
Response time T_{99}	80 µs	20 ms				
Test voltage	4 kV AC, 50 Hz, 1 min.		Input against output against power supply			
Working voltage[2)] (Basic Insulation)	1000 V AC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010-1					
Protection against electrical shock[2)]	Protective separation according to EN 61140 by reinforced insulation in accordance with EN 61010-1 up to 600 V AC/DC for overvoltage category II and pollution degree 2 between all circuits					
Ambient temperature	Operation		- 20 to + 70 °C (- 4 to + 158 °F)			
	Transport and storage		- 35 to + 85 °C (- 31 to + 185 °F)			
Power supply	20 ... 253 V AC/DC		AC 48 ... 62 Hz, approx. 2 VA DC approx. 1.0 W			
EMC[3)]	EN 61326 -1					
Construction	12.5 mm (0.49") housing, protection class IP 20, mounting on 35 mm DIN rail acc. to EN 60715					
Weight	Approx. 100 g					

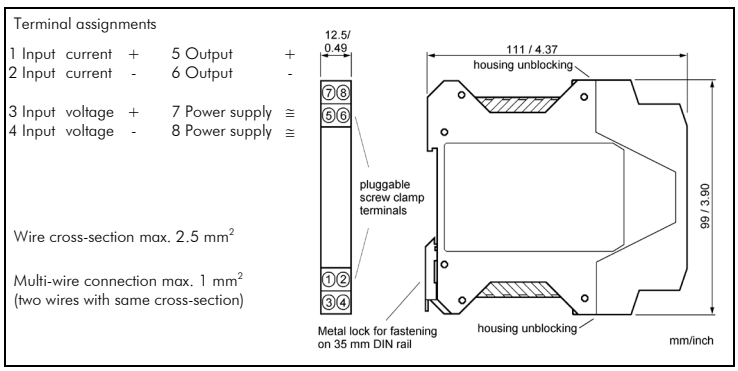
1) Average TC related to full scale value in specified operating temperature range, reference temperature 23 °C
2) For applications with high working voltages, ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.
3) Minor deviations possible during interference

Ordering Table For Factory Setting

DB 6200 AG	- XX Input		- YY Output
Range	XX/YY		
± 10 V	00	± 20 mA	06
0 ... 10 V	01	0 ... 20 mA	07
2 ... 10 V	02	4 ... 20 mA	08
± 5 V	03	± 10 mA	09
0 ... 5 V	04	0 ... 10 mA	10
1 ... 5 V	05	2 ... 10 mA	11

Example: Input: ± 5 V, Output: 4 ... 20 mA
Order No.: DB 6200 AG - 03 - 08

Dimensions



Subject to change!

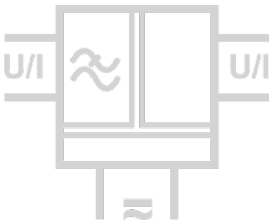
Product line

Device	**Order No.**
Bipolar Isolation Amplifier, configurable	DB 6200 AG - XX - YY

If no information is given by ordering, the devices are delivered with the standard configuration: Input signal ± 10 V, Output signal ± 10 V.

Filter Isolation Amplifier DB 6230

Isolation and Conversion of Industrial Signals with Configurable Filter Function



The Filter Isolation Amplifier DB 6230 is used for isolation and conversion of bipolar and unipolar industrial signals.

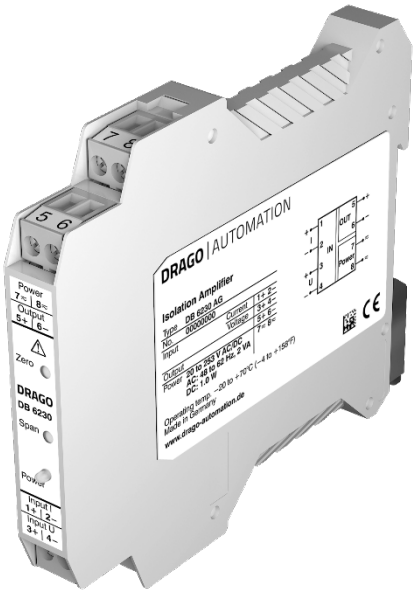
Due to the easy selection of the input and output ranges, the new universal power pack and the ultra-small housing the Isolation Amplifier is suitable for flexible use. High reliability and Protective Separation are further characteristics that make the DB 6230 unrivaled.

The order key allows you to select the desired input and output ranges to which the unit will be adjusted at the factory before delivery. These can be easily reconfigured at any time by means of DIP switch settings. Subsequent readjustment or measured range compensation can then be performed at the zero/scan potentiometers on the front panel. Also the cut-off frequency can be adapted to the measurement task by using the DIP Switch.

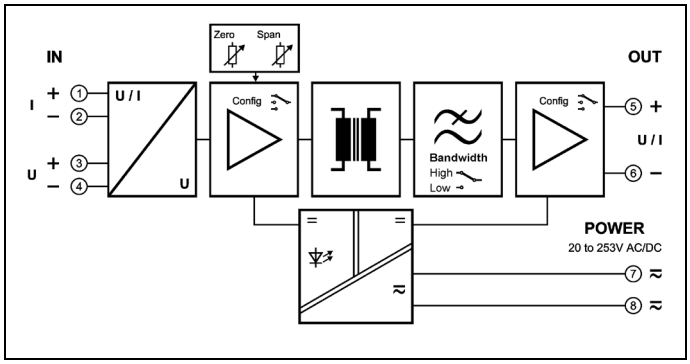
The small housing with 12.5 mm width saves space in your switch cabinet and facilitates by the practical plug-in screw terminal blocks the assembly. For range setting a simple housing unblocking is installed which makes it possible to reach easily all control elements on the mounting rail.

The new universal power pack for 20 ... 253 V AC/DC means the DB 6230 can be used anywhere in the world, with all mains power supplies. The unit's high efficiency contributes significantly to reducing the unit's own heat generation. This is reflected in extremely high reliability and long-term stability. A green LED on the front of the unit has been provided to monitor the power supply.

- **Easy selection of input and output range**
  Input and output range for unipolar and bipolar signals can be easily set by using DIP switch
- **Universal power supply for 20...253 V AC/DC**
  Applicable world-wide for all common supply voltages
- **3-port isolation**
  Protection against erroneous measurements due to parasitic voltages or ground loops
- **Ultra small sized housing**
  12.5 mm housing with plug-in screw terminal blocks
- **Selectable cut-off frequency; high accuracy**
  No distortion; no falsification of measured signal
- **Protective Separation**
  Protects service personnel and downstream devices against impermissibly high voltage
- **Maximum reliability**
  No maintenance costs
- **5 Years Warranty**
  Defects occurring within 5 years from delivery date shall be remedied free of charge at our plant (carriage and insurance paid by sender)



Block diagram



High Functionality

Technical Data

Input	Voltage			Current		
Input signals	± 10 V	0 ... 10 V	2 ... 10 V	± 20 mA	0 ... 20 mA	4 ... 20 mA
(terminal/switch selectable)	± 5 V	0 ... 5 V	1 ... 5 V	± 10 mA	0 ... 10 mA	2 ... 10 mA
Input resistance	Approx. 1 MΩ			Approx. 25 Ω		
Input capacitance	Approx. 1 nF			Approx. 1 nF		
Overload	Voltage limitation via 30 V Z-Diode, max. continuous current 30 mA			≤ 200 mA		
Output	Voltage			Current		
Output signals (switch selectable)	± 10 V	0 ... 10 V		± 20 mA	0 ... 20 mA	
Load	≤ 10 mA	(1 kΩ at 10 V)		≤ 12 V	(600 Ω at 20 mA)	
Linear transmission range	unipolar: - 2 ... + 110 %		bipolar: - 110 ... + 110 %			
Residual ripple	< 10 mV_{rms}					
General Data						
Transmission error	< 0.1 % of full scale					
Temperature coefficient[1]	< 100 ppm/K					
Zero/Span compensation	± 10 %					
Filter function (switchable) — Cut-off frequency -3 dB	10 Hz	1 Hz	0,5 Hz	0,1 Hz		
Filter function (switchable) — Response time T_{99}	70 ms	700 ms	1.5 s	7 s		
Test voltage	4 kV AC, 50 Hz, 1 min.		Input against output against power supply			
Working voltage[2] (Basic Insulation)	1000 V AC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010-1					
Protection against electrical shock[2]	Protective separation according to EN 61140 by reinforced insulation in accordance with EN 61010-1 up to 600 V AC/DC for overvoltage category II and pollution degree 2 between all circuits					
Ambient temperature	Operation		- 20 to + 70 °C	(- 4 to + 158 °F)		
	Transport and storage		- 35 to + 85 °C	(- 31 to + 185 °F)		
Power supply	20 ... 253 V AC/DC		AC 48 ... 62 Hz, approx. 2 VA DC approx. 1.0 W			
EMC[3]	EN 61326-1					
Construction	12.5 mm (0.49") housing, protection class IP 20, mounting on 35 mm DIN rail acc. to EN 60715					
Weight	Approx. 100 g					

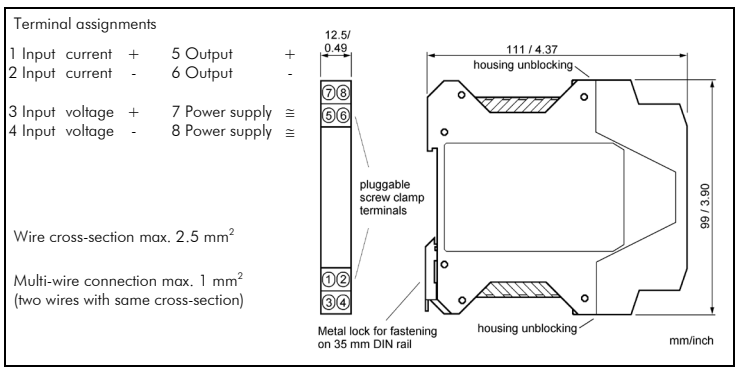
1) Average TC related to full scale value in specified operating temperature range, reference temperature 23 °C
2) For applications with high working voltages, ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.
3) Minor deviations possible during interference

Ordering Table
For Factory Setting

DB 6230 AG	- XX Input	- YY Output
Range	XX	YY
± 10 V	00	00
0 ... 10 V	01	01
2 ... 10 V	02	
± 5 V	03	
0 ... 5 V	04	
1 ... 5 V	05	
± 20 mA	06	06
0 ... 20 mA	07	07
4 ... 20 mA	08	
± 10 mA	09	
0 ... 10 mA	10	
2 ... 10 mA	11	

Example: Input: ± 5 V, Output: 0 ... 20 mA, Order No.: DB 6230 AG - 03 – 07

Dimensions



Subject to change!

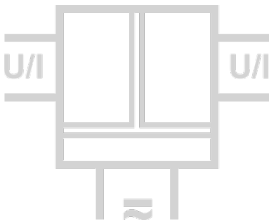
Product line

Device	Order No.
Filter Isolation Amplifier, configurable	DB 6230 AG - XX - YY

If no information is given by ordering, the devices are delivered with the standard configuration: Input signal ± 10 V, Output signal ± 10 V.

Inverse Isolation Amplifier DB 6250

Isolation and Conversion of Industrial Signals with Inverse Characteristic



The Inverse Isolation Amplifier DB 6250 is used for isolation and conversion of industrial signals with inverse characteristic.

Due to the easy selection of the input and output ranges, the new universal power pack and the ultra-small housing the Isolation Amplifier is suitable for flexible use. High reliability and Protective Separation are further characteristics that make the DB 6250 unrivaled.

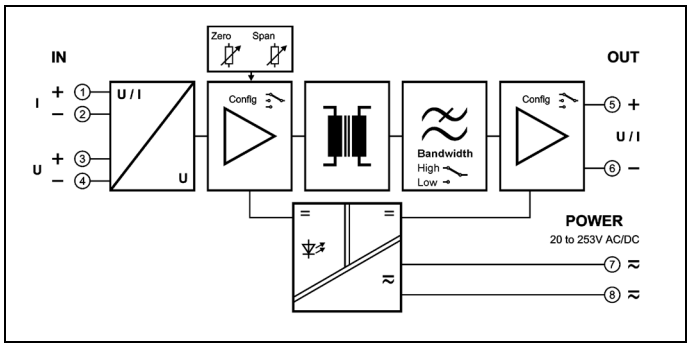
The order key allows you to select the desired input and output ranges to which the unit will be adjusted at the factory before delivery. These can be easily reconfigured at any time by means of DIP switch settings. Subsequent readjustment or measured range compensation can then be performed at the zero/scan potentiometers on the front panel. Also the cut-off frequency can be adapted to the measurement task by using the DIP Switch.

The small housing with 12.5 mm width saves space in your switch cabinet and facilitates by the practical plug-in screw terminal blocks the assembly. For range setting a simple housing unblocking is installed which makes it possible to reach easily all control elements on the mounting rail.

The new universal power pack for 20 ... 253 V AC/DC means the DB 6250 can be used anywhere in the world, with all mains power supplies. The unit's high efficiency contributes significantly to reducing the unit's own heat generation. This is reflected in extremely high reliability and long-term stability. A green LED on the front of the unit has been provided to monitor the power supply.

- **Easy realization of inverse transmission characteristic**
  Inverse characteristic for unipolar signals can be easily set by using DIP switch
- **Universal power pack for 20...253 V AC/DC**
  Applicable world-wide for all common supply voltages
- **3-port isolation**
  Protection against erroneous measurements due to parasitic voltages or ground loops
- **Ultra small sized housing**
  12.5 mm housing with plug-in screw terminal blocks
- **High bandwidth; high accuracy**
  No distortion; no falsification of measured signal
- **Protective Separation**
  Protects service personnel and downstream devices against impermissibly high voltage
- **Maximum reliability**
  No maintenance costs
- **5 Years Warranty**
  Defects occurring within 5 years from delivery date shall be remedied free of charge at our plant (carriage and insurance paid by sender)

Block diagram



High Functionality

Technical Data

Input	Voltage	Current
Input signals	0 ... 10 V 2 ... 10 V	0 ... 20 mA 4 ... 20 mA
(terminal/switch selectable)	0 ... 5 V 1 ... 5 V	0 ... 10 mA 2 ... 10 mA
Input resistance	Approx. 1 MΩ	Approx. 25 Ω
Input capacitance	Approx. 1 nF	Approx. 1 nF
Overload	Voltage limitation via 30 V Z-Diode, max. continuous current 30 mA	≤ 200 mA
Output	**Voltage**	**Current**
Output signals, inverse characteristic	0 ... 10 V 2 ... 10 V	0 ... 20 mA 4 ... 20 mA
(switch selectable)	0 ... 5 V 1 ... 5 V	0 ... 10 mA 2 ... 10 mA
Load	≤ 10 mA (1 kΩ at 10 V)	≤ 12 V (600 Ω at 20 mA)
Linear transmission range	- 2 ... + 110 %	
Residual ripple	< 10 mV_{rms}	
General Data		
Transmission error	< 0.1 % of full scale	
Temperature coefficient[1)]	< 100 ppm/K	
Zero/Span compensation	± 10 %	
Cut-off frequency -3 dB (switchable)	10 kHz 30 Hz	
Response time T_{99}	80 µs 20 ms	
Test voltage	4 kV AC, 50 Hz, 1 min. Input against output against power supply	
Working voltage[2)] (Basic Insulation)	1000 V AC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010-1	
Protection against electrical shock[2)]	Protective separation according to EN 61140 by reinforced insulation in accordance with EN 61010-1 up to 600 V AC/DC for overvoltage category II and pollution degree 2 between all circuits	
Ambient temperature	Operation - 20 to +70 °C (-4 to + 158 °F) Transport and storage - 35 to +85 °C (- 31 to + 185 °F)	
Power supply	20 ... 253 V AC/DC AC 48 ... 62 Hz, approx. 2 VA DC approx. 1.0 W	
EMC[3)]	EN 61326-1	
Construction	12.5 mm (0.49") housing, protection class IP 20, mounting on 35 mm DIN rail acc. to EN 60715	
Weight	Approx. 100 g	

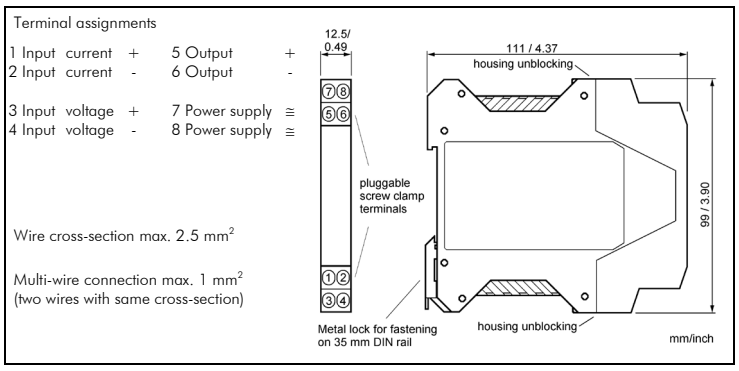
1) Average TC related to full scale value in specified operating temperature range, reference temperature 23 °C
2) For applications with high working voltages, ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.
3) Minor deviations possible during interference

Ordering Table For Factory Setting

DB 6250 AG	- XX Input	- YY Output	
Range	XX/YY		
0 ... 10 V	01	0 ... 20 mA	07
2 ... 10 V	02	4 ... 20 mA	08
0 ... 5 V	04	0 ... 10 mA	10
1 ... 5 V	05	2 ... 10 mA	11

Example: Input: 0 ... 5 V, Output: 20 ... 4 mA
Order No.: DB 6250 AG - 04 - 08

Dimensions



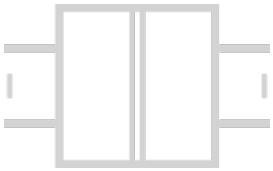
Subject to change!

Product line

Device	**Order No.**
Inverse Isolation Amplifier, configurable	DB 6250 AG - XX - YY

Passive Isolator
DH 1000

Separation of 0(4) ... 20 mA Standard Signals



The input loop-powered isolator DH 1000 provides galvanic separation for 0(4) ... 20mA standard signals, while transferring the measurement signal to the output with a high degree of accuracy.

In this way, the unit avoids interference voltage carry-over, effectively suppressing interference. The very low drop voltage of 2.0 V, a high level of accuracy and a compact design all work together to make the DH 1000 the first choice in system design.

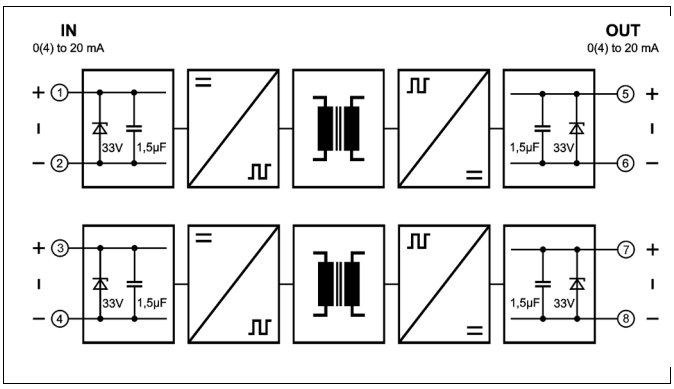
The slim housing with 12.5 mm width for one or two channels saves space in your switch cabinet and facilitates by the practical plug-in screw terminal blocks the assembly. The DH 10X2 requires only 6.3 mm DIN-rail space per channel.

Intelligent design and their consequential avoidance of highly integrated components result in extremely long service lives and reliability without any falsification of the measurement signal.

To protect both maintenance personnel as well as downstream equipment against impermissibly high voltages, the DH 102X offers Protective Separation with a test voltage of 4 kV AC. The DH 1000 requires no additional power supply since the auxiliary power is obtained from the input signal without distorting it. This not only saves costs during installation, but also increases reliability.

- **Galvanic isolation across input and output**
  Protection against erroneous measurements due to parasitic voltages or ground loops
- **No power supply required**
  Saving costs since wiring is reduced and line influences are omitted
- **Extremely compact design, 1- and 2-channel versions**
  Only 6.3 mm DIN-rail per channel
- **High accuracy**
  No falsification of measured signal
- **Protective Separation**
  Protects service personnel and downstream devices against impermissibly high voltage
- **Maximum reliability**
  No maintenance costs
- **5 Years Warranty**
  Defects occurring within 5 years from delivery date shall be remedied free of charge at our plant (carriage and insurance paid by sender)

Block diagram

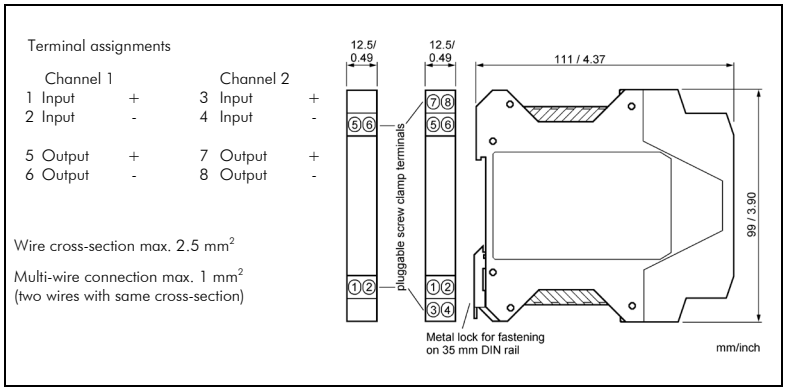


Technical Data

Input		
Input signal		0(4) ... 20 mA
Start-up current		< 20 µA
Voltage drop		< 2.0 V
Overload		100 mA, 30 V
Output		
Output signal		0(4) ... 20 mA
Cut-off frequency -3 dB		100 Hz at 500 Ω load
Response time T_{99}		5 ms at 500 Ω load
Residual ripple		< 10 mV_{rms}
General Data		
Transmission error		< 0.1 % full scale
Load error		< 0.03 % of measured value / 100 Ω load
Temperature coefficient[1]		< 15 ppm/K of measured value / 100 Ω load
DH 101X	Test voltage	1.5 kV AC, 50 Hz, 1 min. all circuits against one another
DH 102X	Test voltage	4 kV AC, 50 Hz, 1 min. all circuits against one another
	Working voltage[2] (Basic Insulation)	600 V AC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010-1
	Protection against electrical shock[2]	Protective separation according to EN 61140 by reinforced insulation in accordance with EN 61010-1 up to 300 V AC/DC for overvoltage category II and pollution degree 2 between all circuits
Ambient temperature		Operation - 20 to + 70 °C (- 4 to + 158 °F) Transport and storage - 35 to + 85 °C (- 31 to + 185 °F)
EMC[3]		EN 61326-1
Construction		12.5 mm (0.49") housing, protection class IP 20, mounting on 35 mm DIN rail acc. to EN 60715
Weight		Approx. 100 g

1) Average TC related to full scale value in specified operating temperature range, reference temperature 23 °C
2) For applications with high working voltages, ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.
3) Minor deviations possible during interference

Dimensions



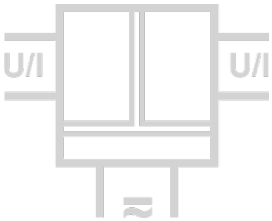
Subject to change!

Product line

Device			Order No.
Loop-Powered Isolator	1-channel		DH 1011 AG
Loop-Powered Isolator	2-channel		DH 1012 AG
Loop-Powered Isolator	1-channel	Protective Separation, test voltage 4 kV~	DH 1021 AG
Loop-Powered Isolator	2-channel	Protective Separation, test voltage 4 kV~	DH 1022 AG

Customer-Specific Isolation Amplifier DK 8000

Isolation and Conversion of Industrial Signals in Special Applications



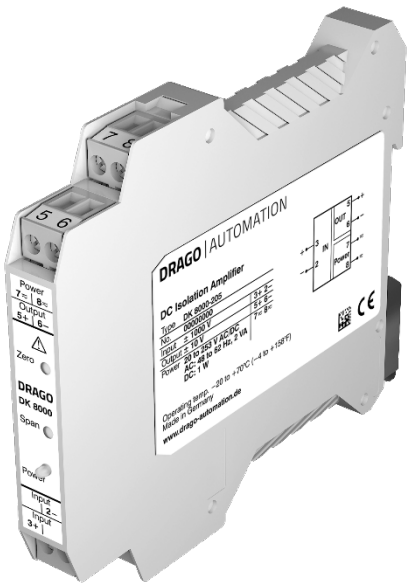
The Isolation Amplifier DK 8000 is used for isolation and conversion of customer-specific industrial signals.

When it comes to individualized solutions, the know-how advantage of our development team stands ready to serve. This allows us to offer customer-specific solutions with the proverbial DRAGO quality in the shortest possible time; solutions which, as a result of individualized consultation, optimally meet all customer needs, including their economic ones.

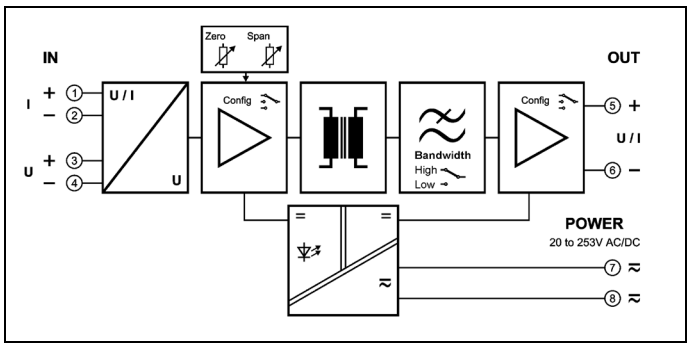
The slim housing with 12.5 mm width saves space in the switch cabinet and facilitates by the practical plug-in screw terminal blocks the assembly.

The new universal power pack for 20 ... 253 V AC/DC means the DK 8000 can be used anywhere in the world, with all mains power supplies. The unit's high efficiency contributes significantly to reducing the unit's own heat generation. This is reflected in extremely high reliability and long-term stability.

- **Customer-Specific Solutions**
  Special Input and output range on request
- **Universal Power Supply for 20 ... 253 V AC/DC**
  Applicable world-wide for all common supply voltages
- **3-Port Isolation**
  Protection against erroneous measurements due to parasitic voltages or ground loops
- **Ultra-small-sized housing**
  12.5 mm housing with plug-in screw terminal blocks
- **High accuracy**
  No falsification of measured signal
- **Protective Separation**
  Protects service personnel and downstream devices against impermissibly high voltage
- **Maximum reliability**
  No maintenance costs
- **5 Years Warranty**
  Defects occurring within 5 years from delivery date shall be remedied free of charge at our plant (carriage and insurance paid by sender)



Block diagram



DRAGO Automation GmbH, Waldstr. 86-90, 13403 Berlin, GERMANY

Technical Data

Input		
Input signal	Customer-specific technical data as orders (see label)	
Input resistance	Current input Voltage input	approx. 25 Ω (depends on measuring range) approx. 1 MΩ (depends on measuring range)
Overload	Max. 120 % of final value	
Output		
Output signal	Customer-specific technical data as orders (see label)	
Load	Current output Voltage output	≤ 12 V (600 Ω at 20 mA) ≤ 20 mA (500 Ω at 10 V)
Transmission range	unipolar: - 2 ... + 110 %	bipolar: - 110 ... + 110 %
Residual ripple	< 10 mV_{rms}	
General Data		
Transmission error	Typical 0.1 % full scale (max. 0.3 %, depends on measuring range)	
Temperature coefficient[1)]	< 100 ppm/K	
Zero/Span Adjustment	Optional	
Cut-off frequency (-3 dB)	Max. 10 kHz	
Test voltage	4 kV AC, 50 Hz, 1 min.	input against output against power supply
Working voltage[2)] (Basic Insulation)	1000 V AC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010-1	
Ambient temperature	Operation Transport and storage	- 20 to + 70 °C (-4 to + 158 °F) - 35 to + 85 °C (-31 to + 185 °F)
Power supply	20 ... 253 V AC/DC	AC 48 ... 62 Hz, approx. 2 VA DC approx. 1.0 W
EMC[3)]	EN61326 -1	
Construction	12.5 mm (0.49") housing, protection class IP 20, mounting on 35 mm DIN rail acc. to EN 60715	
Weight	Approx. 100 g	

1) Average TC related to full scale value in specified operating temperature range, reference temperature 23 °C
2) For applications with high working voltages, ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.
3) Minor deviations possible during interference

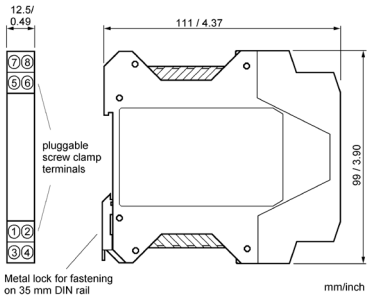
Dimensions

Terminal assignments

1 Input	+	5 Output	+	
2 Input	-	6 Output	-	
3 Input	+	7 Power	≅	
4 Input	-	8 Power	≅	

Wire cross-section max. 2.5 mm^2

Multi-wire connection max. 1 mm^2
(two wires with same cross-section)



Subject to change!

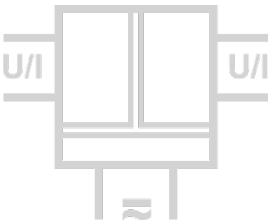
Product line

Device	Order No.
Customer-Specific Isolation Amplifier	DK 8000 - XXX

The index number -XXX describes the signal combination and will be announced by order.

Isolation Amplifier
DN 2000

Isolation and Conversion of Standard Signals



The Isolation Amplifier DN 2000 is used for isolation and conversion of 0 ... 20 mA, 4 ... 20 mA and 0 ... 10 V standard signals.

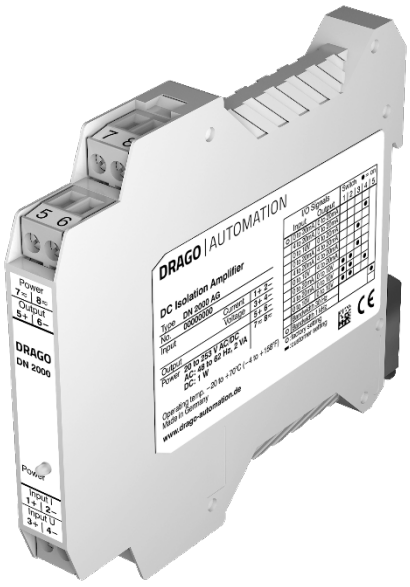
Due to the calibrated selection of the input and output ranges, the new universal power supply and the ultra-small housing the Isolation Amplifier is suitable for flexible use. The high reliability and the protective separation are further features, which ensure a safe system operation.

The desired input and output range can be easily set by using DIP switch and due to the calibrated range selection no further adjustment is necessary. Also the cut-off frequency can be adapted to the measurement task by using the DIP Switch. Alternatively, all signal combinations are also available in the form of fixed range units.

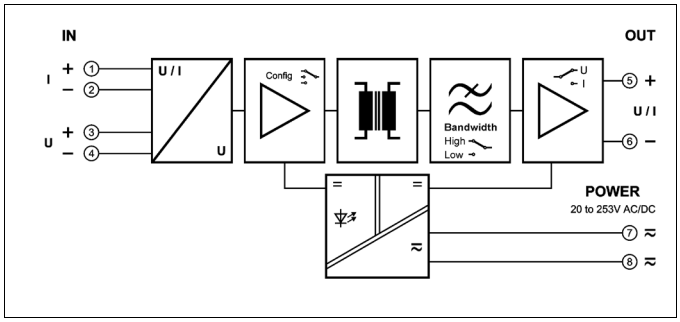
The slim housing with 12.5 mm width saves space in the switch cabinet and facilitates by the practical plug-in screw terminal blocks the assembly. A simple housing latch has been provided for range setting purposes to make all the operating elements, including those on the DIN-rail, easily accessible.

The new universal power pack for 20 ... 253 V AC/DC means the DN 2000 can be used anywhere in the world, with all mains power supplies. The unit's high efficiency contributes significantly to reducing the unit's own heat generation. This is reflected in extremely high reliability and long-term stability. A green LED on the front of the unit has been provided to monitor the power supply.

- **Calibrated signal setting**
  Input and output range can be set by using DIP switch - without any further adjustment
- **Universal Power Supply for 20 ... 253 V AC/DC**
  Applicable world-wide for all common supply voltages
- **3-port isolation**
  Protection against erroneous measurements due to parasitic voltages or ground loops
- **Ultra-small-sized housing**
  12.5 mm housing with plug-in screw terminal blocks
- **High accuracy**
  No falsification of measured signal
- **Protective Separation**
  Protects service personnel and downstream devices against impermissibly high voltage
- **Maximum reliability**
  No maintenance costs
- **5 Years Warranty**
  Defects occurring within 5 years from delivery date shall be remedied free of charge at our plant (carriage and insurance paid by sender)



Block diagram



Technical Data

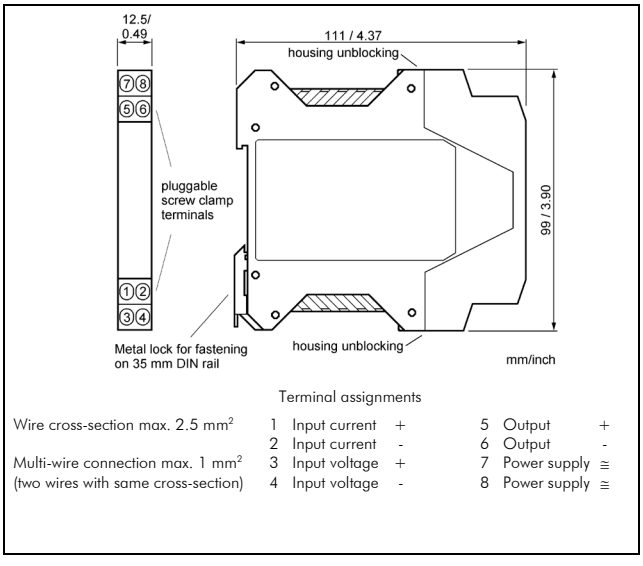
Input			
Input signal (calibrated switchable)	0 ... 20 mA	4 ... 20 mA	0 ... 10 V
Input resistance	Current input Voltage input	22 Ω 1 MΩ	
Input capacitance	Approx. 1 nF		
Overload	Current input Voltage input	≤ 200 mA Voltage limitation via 30 V Z-Diode, max. continuous current 30 mA	
Output			
Output signal (calibrated switchable)	0 ... 20 mA	4 ... 20 mA	0 ... 10 V
Load	Current output Voltage output	≤ 12 V ≤ 10 mA	(600 Ω at 20 mA) (1 kΩ at 10 V)
Linear transmission range	- 2 ... + 110 %		
Residual ripple	< 10 mV_{rms}		
General Data			
Transmission error	< 0.1 % full scale		
Temperature coefficient[1)]	< 50 ppm/K		
Cut-off frequency -3 dB	1 kHz	DN 2000 switchable to < 30 Hz	
Response time T_{99}	0.7 ms	20 ms	
Test voltage	4 kV AC, 50 Hz, 1 min.	input against output against power supply	
Working voltage[2)] (Basic Insulation)	600 V AC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010-1		
Protection against electrical shock[2)]	Protective separation according to EN 61140 by reinforced insulation in accordance with EN 61010-1 up to 300 V AC/DC for overvoltage category II and pollution degree 2 between all circuits		
Ambient temperature	Operation Transport and storage	- 20 to + 70 °C (- 4 to +158 °F) - 35 to + 85 °C (- 31 to + 185 °F)	
Power supply	20 ... 253 V AC/DC	AC 48 ... 62 Hz, approx. 2 VA DC approx. 1.0 W	
EMC[3)]	EN61326-1		
Construction	12.5 mm (0.49") housing, protection class IP 20, mounting on 35 mm DIN rail acc. to EN 60715		
Weight	Approx. 100 g		

1) Average TC related to full scale value in specified operating temperature range, reference temperature 23 °C
2) For applications with high working voltages, ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.
3) Minor deviations possible during interference

Product line

Device			Order No.
Isolation Amplifier	calibrated range selection		DN 2000 AG
Isolation Amplifier fixed setting	Input	Output	
	0 ... 20 mA	0 ... 20 mA	DN 2012 AG
	4 ... 20 mA	0 ... 20 mA	DN 2032 AG
	0 ... 10 V	0 ... 20 mA	DN 2052 AG
	0 ... 20 mA	4 ... 20 mA	DN 2014 AG
	4 ... 20 mA	4 ... 20 mA	DN 2012 AG
	0 ... 10 V	4 ... 20 mA	DN 2054 AG
	0 ... 20 mA	0 ... 10 V	DN 2016 AG
	4 ... 20 mA	0 ... 10 V	DN 2036 AG
	0 ... 10 V	0 ... 10 V	DN 2056 AG

Dimensions



Terminal assignments

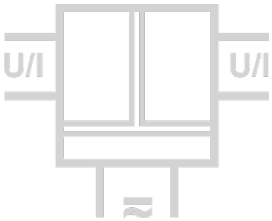
Wire cross-section max. 2.5 mm²
Multi-wire connection max. 1 mm²
(two wires with same cross-section)

1	Input current	+
2	Input current	-
3	Input voltage	+
4	Input voltage	-
5	Output	+
6	Output	-
7	Power supply	≅
8	Power supply	≅

Subject to change!

Isolation Amplifier
DN 2400

Isolation and Conversion of Process Signals in Standard Applications



The Isolation Amplifier DN 2400 is used for isolation and conversion of 0 ... 20 mA, 4 ... 20 mA and 0 ... 10 V standard signals.

Its high level of reliability and cost optimized design make the DN 2400 the first choice in its class!

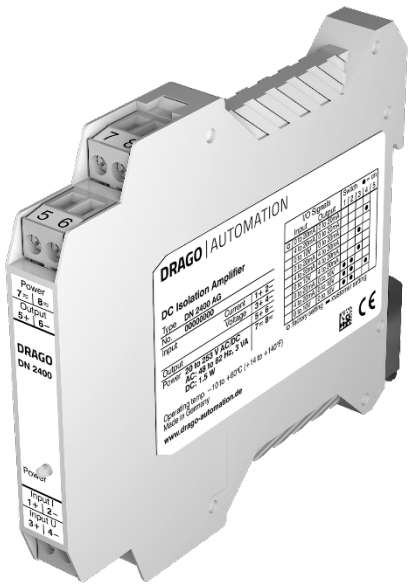
Unique in its price class, the DN 2400 provides application flexibility thanks to the calibrated range selection and the new universal power pack.

The desired input and output range can be easily set by using DIP switch and due to the calibrated range selection no further adjustment is necessary.

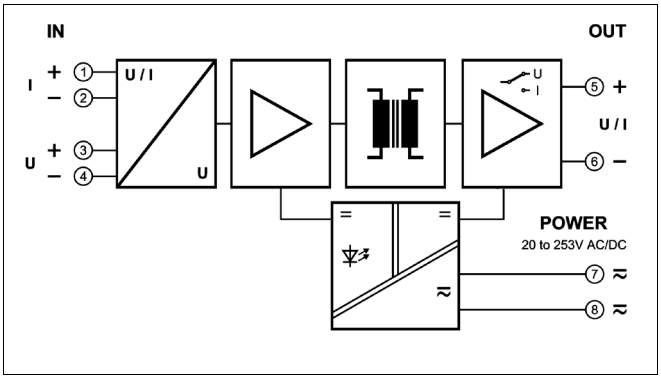
The slim housing with 12.5 mm width saves space in the switch cabinet and facilitates by the practical plug-in screw terminal blocks the assembly. For range selection a simple housing unblocking is installed which makes it possible to reach easily all control elements on the mounting rail.

In cause of the new universal power pack for 20 ... 253 V AC/DC the Isolation Amplifier DN 2400 is applicable world-wide for all common supply voltages.

- **Cost optimized design**
  Economical separation for standard applications
- **Calibrated signal setting**
  Input and output range can be set by using DIP switch - without any further adjustment
- **Universal power pack for 20 ... 253 V AC/DC**
  Applicable world-wide for all common supply voltages
- **3-port isolation**
  Protection against erroneous measurements due to parasitic voltages or ground loops
- **Ultra-small-sized housing**
  12.5 mm housing with plug-in screw terminal blocks
- **Maximum reliability**
  No maintenance costs
- **5 Years Warranty**
  Defects occurring within 5 years from delivery date shall be remedied free of charge at our plant (carriage and insurance paid by sender)



Block diagram



Technical Data

Input			
Input signal (calibrated switchable)	0 ... 20 mA	4 ... 20 mA	0 ... 10 V
Input resistance	Current input		22 Ω
	Voltage input		1 MΩ
Overload	Current input		≤ 200 mA
	Voltage input		Voltage limitation via 30 V Z-Diode, max. continuous current 30 mA
Output			
Output signal (calibrated switchable)	0 ... 20 mA	4 ... 20 mA	0 ... 10 V
Load	Current output		≤ 10 V (500 Ω at 20 mA)
	Voltage output		≤ 10 mA (1 kΩ at 10 V)
Residual ripple	< 20 mV_{rms}		
General Data			
Transmission error	< 0.3 % full scale		
Temperature coefficient[1)]	< 150 ppm/K		
Cut-off frequency -3 dB	1 kHz		
Response time T_{99}	0.7 ms		
Test voltage	2.5 kV AC, 50 Hz, 1 min.		Input against output against power supply
Working voltage[2)] (Basic Insulation)	600 V AC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010-1		
Ambient temperature	Operation		- 10 to + 60 °C (+ 14 to + 140 °F)
	Transport and storage		- 20 to + 80 °C (- 4 to + 176 °F)
Power supply	20 ... 253 V AC/DC		AC 48 ... 62 Hz, approx. 3 VA DC approx. 1.5 W
EMC[3)]	EN 61326-1		
Construction	12.5 mm (0.49") housing, protection class IP 20, mounting on 35 mm DIN rail acc. to EN 60715		
Weight	Approx. 100 g		

1) Average TC related to full scale value in specified operating temperature range, reference temperature 23 °C
2) For applications with high working voltages, ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.
3) Minor deviations possible during interference

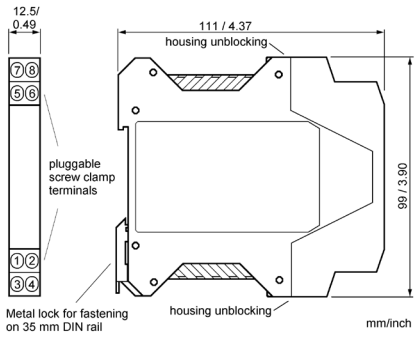
Dimensions

Terminal assignments

1 Input	+ current	5 Output	+
2 Input	- current	6 Output	-
3 Input	+ voltage	7 Power supply	≅
4 Input	- voltage	8 Power supply	≅

Wire cross-section max. 2.5 mm^2

Multi-wire connection max. 1 mm^2
(two wires with same cross-section)



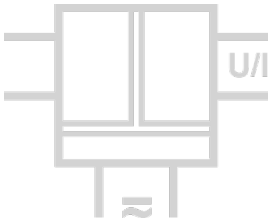
Subject to change!

Product line

Device	Order No.
Isolation Amplifier, calibrated range selection	DN 2400 AG

Potentiometer Transmitter DR 4310

Isolation and Conversion of Potentiometer Position Signals



The Potentiometer Transmitter DR 4310 is used for isolation and conversion of potentiometer position signals.

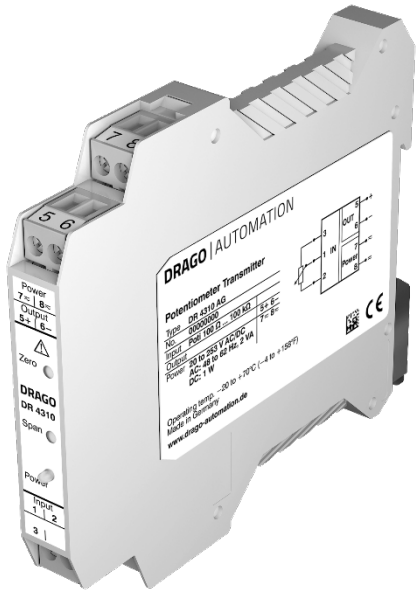
Due to the easy configuration, the new universal power pack and the ultra-small housing the Isolation Amplifier is suitable for flexible use.

The ratiometric measuring method allows the acquisition of potentiometer signals without range selection. Unipolar and bipolar output signals can be selected with a DIP switch. Subsequent readjustment or measured range compensation can then be performed at the zero/scan potentiometers on the front panel.

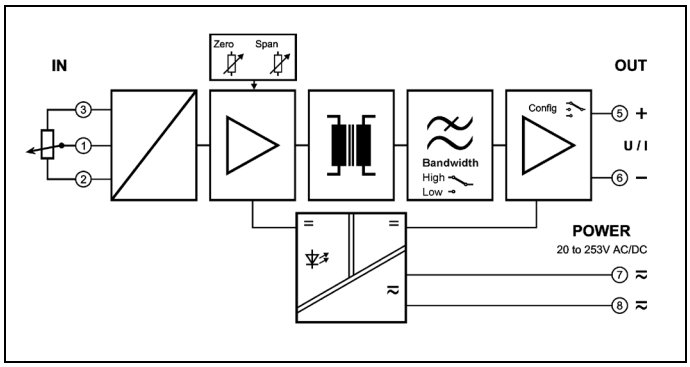
The small housing with 12.5 mm width saves space in your switch cabinet and facilitates by the practical plug-in screw terminal blocks the assembly. For range setting a simple housing unblocking is installed which makes it possible to reach easily all control elements on the mounting rail.

The new universal power pack for 20 ... 253 V AC/DC means the DR 4310 can be used anywhere in the world, with all mains power supplies. The unit's high efficiency contributes significantly to reducing the unit's own heat generation. This is reflected in extremely high reliability and long-term stability. A green LED on the front of the unit has been provided to monitor the power supply.

- **Easy configuration**
  Conversion of potentiometric position signals without range selection
- **Universal power supply for 20...253 V AC/DC**
  Applicable world-wide for all common supply voltages
- **3-port isolation**
  Protection against erroneous measurements due to parasitic voltages or ground loops
- **Ultra small sized housing**
  12.5 mm housing with plug-in screw terminal blocks
- **High bandwidth; high accuracy**
  No distortion; no falsification of measured signal
- **Protective Separation**
  Protects service personnel and downstream devices against impermissibly high voltage
- **Maximum reliability**
  No maintenance costs
- **5 Years Warranty**
  Defects occurring within 5 years from delivery date shall be remedied free of charge at our plant (carriage and insurance paid by sender)



Block diagram

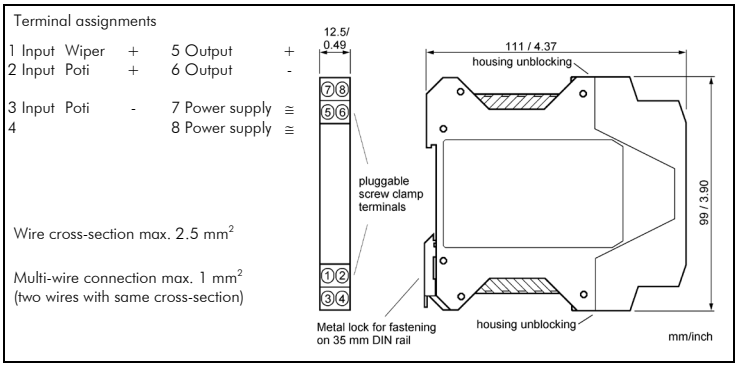


Technical Data

Input						
Input signals	Potentiometer 100 Ω ... 100 kΩ					
Sensor supply	1.2 V (limited to max. 5 mA)					
Potentiometer connection	3 wire connection					
Input resistance wiper contact	> 10 MΩ					
Output	Voltage			Current		
Output signals (switch selectable)	± 10 V ± 5 V	0 ... 10 V 0 ... 5 V	2 ... 10 V 1 ... 5 V	± 20 mA ± 10 mA	0 ... 20 mA 0 ... 10 mA	4 ... 20 mA 2 ... 10 mA
Load	≤ 10 mA	(1 kΩ at 10 V)		≤ 12 V	(600 Ω at 20 mA)	
Linear transmission range	Unipolar: - 2 ... + 110 %		bipolar: - 110 ... + 110 %			
Residual ripple	< 10 mV_{rms}					
General Data						
Transmission error	< 0.1 % full scale					
Temperature coefficient[1)]	< 100 ppm/K					
Zero/Span compensation	Start value: 0 - 20 %; End value: 80 - 100 % Minimum span: 80 %					
Cut-off frequency -3 dB (switchable)	10 kHz	30 Hz				
Response time T_{99}	80 µs	20 ms				
Test voltage	4 kV AC, 50 Hz, 1 min.	Input against output against power supply				
Working voltage[2)] (Basic Insulation)	600 V AC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010-1					
Protection against electrical shock[2)]	Protective separation according to EN 61140 by reinforced insulation in accordance with EN 61010-1 up to 300 V AC/DC for overvoltage category II and pollution degree 2 between all circuits					
Ambient temperature	Operation Transport and storage	- 20 to + 70 °C (- 4 to + 158 °F) - 35 to + 85 °C (- 31 to + 185 °F)				
Power supply	20 ... 253 V AC/DC	AC 48 ... 62 Hz, approx. 2 VA DC approx. 1.0 W				
EMC[3)]	EN 61326-1					
Construction	12.5 mm (0.49") housing, protection class IP 20, mounting on 35 mm DIN rail acc. to EN 60715					
Weight	Approx. 100 g					

1) Average TC related to full scale value in specified operating temperature range, reference temperature 23 °C
2) For applications with high working voltages, ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.
3) Minor deviations possible during interference

Dimensions



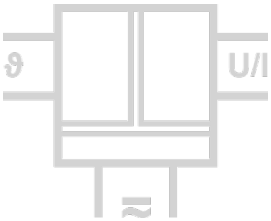
Subject to change!

Product line

Devices	Order No.
Potentiometer Transmitter, configurable	DR 4310 AG

Temperature Transmitter DR 4700

Temperature Measuring with Pt100/Pt1000-Sensors



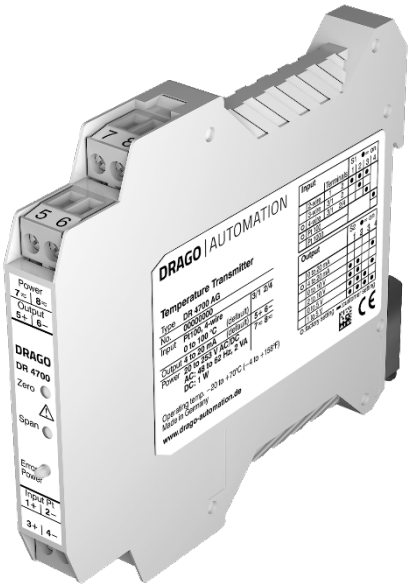
The Temperature Transmitter DR 4700 converts the Pt sensor signal on input to temperature linear standard signal 0/4 ... 20 mA or 0 ... 5/10 V.

The configuration of the measuring input and the output can be easily switched with DIP switches. The zero/span potentiometers on the front panel provide easy range adjustment. After changing the standard factory setting, the measuring range must be recalibrated with a Pt simulator.

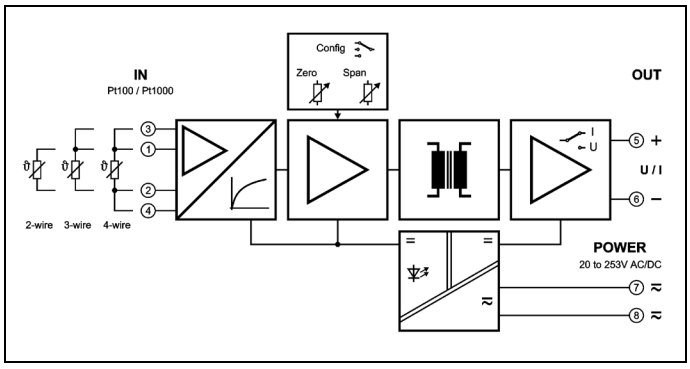
The small housing with 12.5 mm width saves space in your switch cabinet and facilitates by the practical plug-in screw terminal blocks the assembly. For range setting a simple housing unblocking is installed which makes it possible to reach easily all control elements on the mounting rail.

The universal power pack for 20 ... 253 V AC/DC means the DR 4700 can be used anywhere in the world, with all mains power supplies. The unit's high efficiency contributes significantly to reducing the unit's own heat generation. This is reflected in extremely high reliability and long-term stability.

- **Easy measuring range adjustment**
  from -100 °C to +600 °C via potentiometer on the front panel
- **Extensive configuration options**
  Measurement range, type of sensor, sensor connection and output signal can be set by using DIP switch
- **Universal power supply for 20...253 V AC/DC**
  Applicable world-wide for all common supply voltages
- **3-Port Isolation**
  Protection against erroneous measurements due to parasitic voltages or ground loops
- **Ultra small sized housing**
  12.5 mm housing with plug-in screw terminal blocks
- **Protective Separation acc. to EN 61140**
  Protects service personnel and downstream devices against impermissibly high voltage
- **Maximum reliability**
  Highest long-term stability and accuracy
- **5 Years Warranty**
  Defects occurring within 5 years from delivery date shall be remedied free of charge at our plant (carriage and insurance paid by sender)



Block diagram



Technical Data

Input		
Input signal	Pt100 / Pt1000	switchable
Sensor connection	2-wire, 3-wire, 4-wire	
Measuring range	Zero	-100 °C, -50 °C, 0 °C, 50 °C switchable with Potentiometer ZERO 0 ... 50 °C adjustable
	Span	50 K, 100 K, 200 K, 300 K, switchable with Potentiometer SPAN 100 ... 200 % of span adjustable
Sensor wire resistance	< 25 Ω per wire	
Sensor current	1 mA / 0.1 mA	
Sensor diagnostic	Sensor / wire break	
Output		
Output signal	0 ... 20 mA 0 ... 5 V 0 ... 10 V switchable 4 ... 20 mA 1 ... 5 V 2 ... 10 V	
Load	Current output Voltage output	≤ 12 V (600 Ω at 20 mA) ≤ 5 mA (2 kΩ at 10 V)
Residual ripple	< 10 mV_{rms}	
Sensor break action	Current output Voltage output	≥ 22 mA ≥ 11 V
General Data		
Linearity	< 0.2 % of measuring span	
Temperature coefficient[1)]	< 150 ppm/K	
Calibration	Max of 0.1 °C or 0.1 % of measuring span	
Response time T_{99}	20 ms	
Test voltage	4 kV AC, 50 Hz, 1 min.	Input against output against power supply
Working voltage (Basic Insulation) [2)]	600 V AC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010-1	
Protection against electrical shock[2)]	Protective separation according to EN 61140 by reinforced insulation in accordance with EN 61010-1 up to 300 V AC/DC for overvoltage category II and pollution degree 2 between all circuits	
Ambient temperature	Operation Transport and storage	- 10 to + 60 °C (+ 14 to + 140 °F) - 20 to + 80 °C (- 4 to + 176 °F)
Power supply	20 ... 253 V AC/DC	AC 48 ... 62 Hz, approx. 3 VA DC approx. 1.5 W
EMC[3)]	EN 61326 -1	
Construction	12.5 mm (0.49") housing, protection class IP 20, mounting on 35 mm DIN rail acc. to EN 60715	
Weight	Approx. 100 g	

1) Average TC related to full scale value in specified operating temperature range, reference temperature 23 °C
2) For applications with high working voltages, ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.
3) Minor deviations possible during interference
Factory setting: Input: Pt100, 4-wire, Output: 0 ... 20 mA

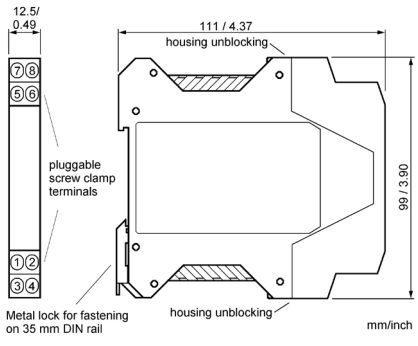
Dimensions

Terminal assignments

1	Input Pt(+)	5 Output	+
2	Input Pt(-)	6 Output	-
3	3-wire (+)	7 Power supply	~
4	4-wire (-)	8 Power supply	~

Wire cross-section max. 2.5 mm²

Multi-wire connection max. 1 mm²
(two wires with same cross-section))



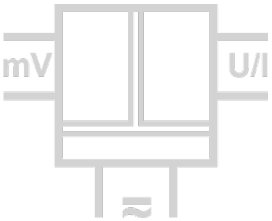
Subject to change!

Product line

Device	Order No.
Temperature Transmitter, configurable (0 ... 100 °C pre adjusted)	DR 4700 AG

Shunt/mV Isolation Amplifier DS 7200

Isolation and Conversion of Bipolar and Unipolar mV-Signals



The Isolation Amplifier DS 7200 is used for separation and conversion of bipolar and unipolar mV-signals such as those frequently used for current measuring with shunt-resistors or other applications with low sensor voltages.

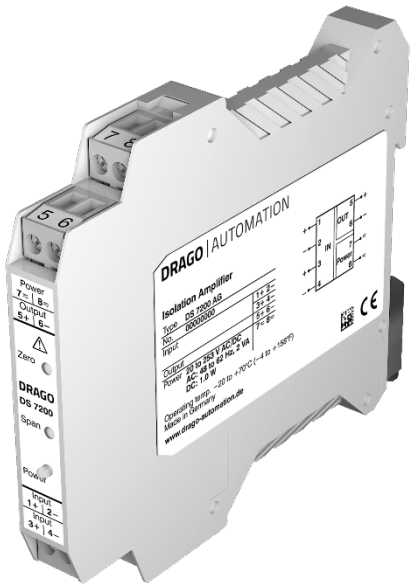
Due to the easy selection of the input and output ranges, the new universal power supply and the ultra-small housing the Isolation Amplifier is suitable for flexible use. High reliability and Protective Separation are further characteristics that make the DS 7200 unrivaled.

The order key allows you to select the desired input and output ranges to which the unit will be adjusted at the factory before delivery. These can be easily reconfigured at any time by means of DIP switch settings. Subsequent readjustment or measured range compensation can then be performed at the zero/scan potentiometers on the front panel. Also the cut-off frequency can be adapted to the measurement task by using the DIP Switch.

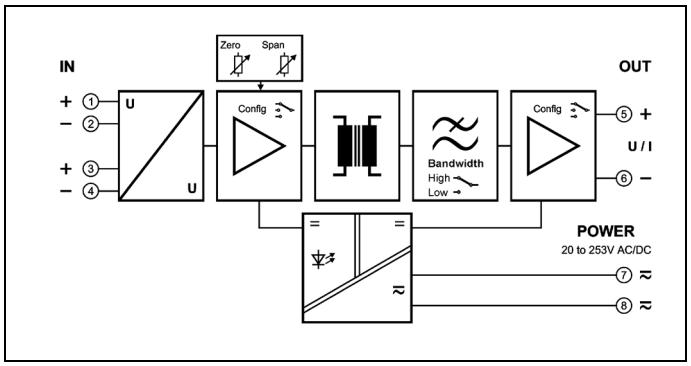
The slim housing with 12.5 mm width saves space in your switch cabinet and facilitates by the practical plug-in screw terminal blocks the assembly. For range setting a simple housing unblocking is installed which makes it possible to reach easily all control elements on the DIN-rail.

The new universal power pack for 20 ... 253 V AC/DC means the DS 7200 can be used anywhere in the world, with all mains power supplies. The unit's high efficiency contributes significantly to reducing the unit's own heat generation. This is reflected in extremely high reliability and long-term stability. A green LED on the front of the unit has been provided to monitor the power supply.

- **Easy selection of input and output range**
  Input and output range for unipolar and bipolar signals can be easily set by using DIP switch
- **Universal power supply for 20 ... 253 V AC/DC**
  Applicable world-wide for all common supply voltages
- **3-port isolation**
  Protection against erroneous measurements due to parasitic voltages or ground loops
- **Ultra-small sized housing**
  12.5 mm housing with plug-in screw terminal blocks
- **High bandwidth; high accuracy**
  No distortion; no falsification of measured signal
- **Protective Separation, 5 kV Test Voltage**
  Protects service personnel and downstream devices against impermissibly high voltage
- **Maximum reliability**
  No maintenance costs
- **5 Years Warranty**
  Defects occurring within 5 years from delivery date shall be remedied free of charge at our plant (carriage and insurance paid by sender)



Block diagram



Technical data

Input						
Input signals (terminal/switch selectable)	± 60 mV 0 ... 60 mV	± 100 mV 0 ... 100 mV	± 150 mV 0 ... 150 mV	± 250 mV 0 ... 250 mV	± 300 mV 0 ... 300 mV	± 500 mV 0 ... 500 mV
Input resistance	> 100 kΩ					
Input capacitance	Approx. 1 nF					
Overload	< 30 V					
Output	Voltage			Current		
Output signals (switch selectable)	± 10 V ± 5 V	0 ... 10 V 0 ... 5 V	2 ... 10 V 1 ... 5 V	± 20 mA ± 10 mA	0 ... 20 mA 0 ... 10 mA	4 ... 20 mA 2 ... 10 mA
Load	≤ 10 mA (1 kΩ at 10 V)			≤ 12 V (600 Ω at 20 mA)		
Linear transmission range	Unipolar: - 2 ... + 110 % bipolar: - 110 ... + 110 %					
Residual ripple	< 20 mV_{rms}					
General data						
Transmission error	< 0.1 % full scale					
Temperature coefficient[1]	< 100 ppm/K					
Zero/Span compensation	± 10 %					
Cut-off frequency -3 dB (switchable)	10 kHz 30 Hz					
Response time T_{99}	80 µs 20 ms					
Test voltage	4 kV AC, 50 Hz, 1 min. Input against output against power supply					
	5 kV AC, 50 Hz, 1 min. Input against output/power supply (DS7200HV only)					
Working voltage[2] (Basic Insulation)	1000 V AC/DC for overvoltage category II and pollution degree 2 acc. to EN 61010-1					
Protection against electrical shock[2]	Protective separation according to EN 61140 by reinforced insulation in accordance with EN 61010-1 up to 600 V AC/DC for overvoltage category II and pollution degree 2 between all circuits					
Ambient temperature	Operation - 20 to + 70 °C (- 4 to + 158 °F) Transport and storage - 35 to + 85 °C (- 31 to + 185 °F)					
Power supply	20 ... 253 V AC/DC AC 48 ... 62 Hz, approx. 2 VA DC approx. 1.0 W					
EMC[3]	EN 61326-1					
Construction	12.5 mm (0.49") housing, protection class IP 20, mounting on 35 mm DIN rail acc. to EN 60715					
Weight	Approx. 100 g					

1) Average TC related to full scale value in specified operating temperature range, reference temperature 23 °C
2) For applications with high working voltages, ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.
3) Minor deviations possible during interference

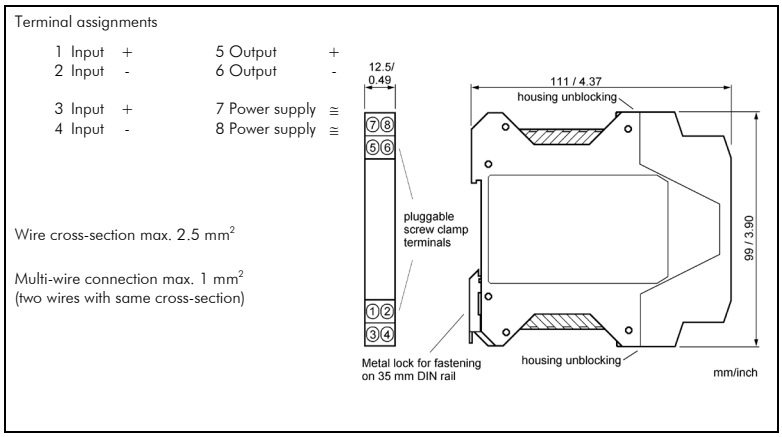
Ordering Table for Factory Setting

DS 7200 AG - XX - YY

Input	- XX	Output	- YY
± 60 mV	50	± 10 V	00
0 ... 60 mV	51	0 ... 10 V	01
± 100 mV	52	2 ... 10 V	02
0 ... 100 mV	53	± 5 V	03
± 150 mV	54	0 ... 5 V	04
0 ... 150 mV	55	1 ... 5 V	05
± 250 mV	56	± 20 mA	06
0 ... 250 mV	57	0 ... 20 mA	07
± 300 mV	58	4 ... 20 mA	08
0 ... 300 mV	59	± 10 mA	09
± 500 mV	60	0 ... 10 mA	10
0 ... 500 mV	61	2 ... 10 mA	11

Example: Input: ± 150 mV, Output: 4 ... 20 mA
Order No.: DS 7200 AG - 54 - 08

Dimensions



Product line

Device	Order No.
Shunt/mV Isolation Amplifier, configurable	DS 7200 AG - XX - YY
Shunt/mV Isolation Amplifier, config., 5 kV Test Voltage	DS 7200 HV - XX - YY

If no information is given by ordering, the devices are delivered with the standard configuration:
Input signal ± 60 mV, Output signal ± 10 V.

Subject to change!

Our performance–your advantage

- Comprehensive product range
- Customer-specific special solutions
- Individual consulting and support
- Most modern production technology
- Certification according to ISO9001
- 5 years warranty
- Made in Germany

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