

Isolated Signal Converter with Universal Power Supply

DR-I4E

Signal converter for electrical signals, isolated, for industrial applications

Isolated signal converter for electrical signals. Accepts a wide range of AC and DC voltages, with ranges from 50 mV ac/dc up to 600 V ac/dc, and a wide range of AC and DC current signals, from 5 mA ac/dc up to 5 A ac/dc. The instrument can be configured to measure frequency from any of the AC voltage and AC current signals accepted. Unipolar and bipolar signals accepted for DC voltage and DC current signals.

DR-I4L

Signal converter for load cells and millivolts, isolated, industrial applications

Isolated signal converter for load cell signals and millivolts. Provides +5 V dc excitation voltage to power the load cell, and 'sense' function to compensate for excitation voltage variations. Accepts direct connection of 1, 2, 3, or up to 4 load cells (typical 350 Ohm load cells). Accepts 4 and 6 wire load cells. Accepts unipolar and bipolar ranges up to ±80 mV.

DR-I4P

Signal converter for process and temperature signals, isolated, industrial applications

Isolated signal converter for process and temperature signals. Accepts a wide range of process signals including 4/20 mA, 0/10 V dc, potentiometers and resistance measurements, providing excitation voltage to power the transducer when needed. Accepts a wide range of temperature signals, including Pt100, Pt500, Pt1000, thermocouples J, K, N, E, T, R, S, C and B, NTC sensors from 44004 to 44008 and from 44030 to 44034, and a configurable NTC range with configurable R_{25} and β parameters.

DR-I4 Series Features for all Models

Configurable output in 4/20 mA (active or passive) or 0/10 V dc. Universal power supply from 18 to 265 V ac/dc. 3 way isolation between input, output and power circuits. Circuit isolation prevents ground loops and transient propagation, protecting remote equipment and signal integrity.

Predefined configuration codes are available for fast and easy configuration. An advanced configuration menu is available to customize input and output signal ranges to specific values required. Configuration is done through the front push-button keypad. Front information displays available for configuration and system information (input signal value, output signal value, configured label, signal percentage and process value).

Built-in 'force' functions to manually generate low and high output signals and to validate remote instrumentation during installation. 'SOS' mode to help on critical maintenance and repairs. Configurable power frequency rejection filter. 'Password' function to block non-authorized access to 'configuration menu'. Designed for industrial use, with potential integration into a wide range of applications,

reduced cost, excellent quality and available customization.

DR-I4 Series: Technical Specifications

DR-I4E: INPUT SIGNAL RANGES	
INPUT SIGNAL RANGES V AC	
Ranges	From 50 mV ac up to 600 V ac
Type of measure	True RMS
Connections accepted	Phase-to-phase Phase-to-neutral
Category of measure	CAT-II up to 300 V ac
INPUT SIGNAL RANGES V DC	
Ranges unipolar	From 0/50 mV dc up to 0/600 V dc
Ranges bipolar	From ±50 mV dc up to ±600 V dc
INPUT SIGNAL RANGES A AC	
Ranges	From 5 mA ac up to 5 A ac
Type of measure	True RMS
Connections accepted	Phase-to-neutral Phase-to-phase
INPUT SIGNAL RANGES A DC	
Ranges unipolar	From 0/5 mA dc up to 0/5A dc
Ranges bipolar	From ±5 mA dc up to ±5 A dc
FREQUENCY AC	
Ranges	Up to 100Hz
Measured from	Measured from existing V ac and A ac signal ranges
ACCURACY AT 25°C	See manual for each type of signal'
	'Accuracy values are indicated for 4/20 mA output. For 0/10Vdc output, add +0.05% to indicated accuracy values.
THERMAL DRIFT	150 ppm/°C
STEP RESPONSE	
AC signals	<350 mSec. typ. (0 to 99%)
DC signals'	<90 mSec. typ. (0 to 99%) 'no filter'
	<175 mSec. typ. (0 to 99%) '50 Hz filter' or '60 Hz filter'
	<350 mSec. typ. (0 to 99%) '50 and 60 Hz filter'
DR-I4L: INPUT SIGNAL RANGES FOR LOAD CELLS	
Signal ranges	From 0/5 mV up to 0/80 mV
Bipolar signal ranges	From ±5 mV up to ±80 mV
Excitation voltage	+5 V dc



Excitation voltage variations	Automatic compensation
Excitation current	Max. 70 mA
INPUT SIGNAL RANGES FOR MILLIVOLTS	
Signal ranges	From 0/5 mV up to 0/80 mV
Bipolar signal ranges	From ±5 mV up to ±80 mV
Excitation voltage	No
Input impedance	10 MOhm typical (with 1 MOhms during 150 milliseconds, every 10 seconds approx.)
ACCURACY AT 25°C	See manual for each type of signal'
	'Accuracy values are indicated for 4/20 mA output. For 0/10 Vdc output, add +0.05 % to indicated accuracy values
THERMAL DRIFT	±150 ppm/°C (F.S.) for ranges up to 5 mV ±100 ppm/°C (F.S.) for ranges up to 20 mV ±75 ppm/°C (F.S.) for ranges up to 80 mV
STEP RESPONSE	
Typical response times to reach 99% of the output signal, in response to a 100% step at the input.	
With 'no filter'	<115 mSec. typ. (0 to 99%)
With '50hz filter' or '60hz filter'	<150 mSec. typ. (0 to 99%)
With '50 and 60hz filter'	<300 mSec. typ. (0 to 99%)
DR-I4P: INPUT SIGNAL RANGES	
Process	4/20 mA, 0/10Vdc (active and passive) excitation voltage +15 V dc @25 mA
Thermocouples	J, K, N, E, T, R, S, C and B conforming to ITS-90
'Pt' sensors	Pt100 (2 wires and 3 wires) Pt500, Pt1000 (2 wires)
'NTC' sensors	(see manual)
Resistances	Ranges from 0/1Kohm up to 0/1MOhm

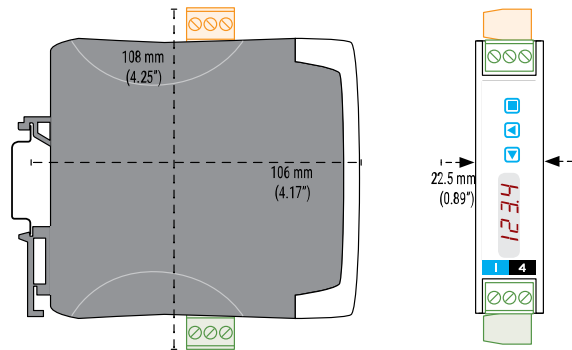
Potentiometers	Nominal value from 250Ohm to 15 KOhm
ACCURACY AT 25 °C	
	See user's manual for each type of signal *Accuracy values are indicated for 4/20mA output. For 0/10Vdc output, add +0.05% to indicated accuracy values.
THERMAL DRIFT	
	±100ppm/°C (F.S.)
	±0.05°C/°C (thermocouple cold junction)
STEP RESPONSE	Step response is associated to the configured power filter. Typical response values to reach 99% of the output signal, as a response to a 100% step at the signal input (see Table 1).
OUTPUT SIGNAL RANGES (ALL MODELS)	
Active current output	4/20mA active Max. <22mA, min. 0mA Maximum load <400Ohm
Passive current output	4/20 mA passive Max. 30 V dc on terminals
Voltage output	0/10 V dc, Max. <11 V dc, min. -0.05Vdc (typ.) Minimum load >10 KOhm
CONFIGURATION SYSTEM	
Key pad + display	Accessible at the front of the instrument
Configuration	'Configuration menu' and predefined 'codes'
Scalable units	Scalable input ranges Scalable output ranges Scalable process display
POWER SUPPLY	
Voltage range	18 to 265V ac/dc isolated (20 to 240V ac/dc ±10%)
AC frequency	45 to 65 Hz
Consumption	<3.0W
Power wires	1mm ² to 2.5mm ² (AWG17 to AWG14)
Overvoltage category	2

ISOLATION	
Input - output	3000 Veff (60 seconds)
Power - input	3000 Veff (60 seconds)
Power - output	3000 Veff (60 seconds)
ENVIRONMENTAL	
IP protection	IP30
Impact protection	IK06
Operation temperature	From 0 to +50°C
Storage temperature	From -20 to +70°C
'Warm-up' time	15 minutes
Humidity	0 to 95% non condensing
Altitude	Up to 2000meters
MECHANICAL	
Size	106x108x22.5mm
Mounting	Standard DIN rail (35x7.5 mm)
Connections	Plug-in screw terminal (pitch 5.08 mm)
Housing material	Polyamide V0
Weight	<150 grams
Packaging	120x115x30mm, cardboard

Type of Signal	No Filter	50 Hz or 60 Hz Filter	Both
Process	<60 mSec.	<250 mSec.	<600 mSec.
Pt100	<100 mSec	<320 mSec	<2 Sec.
Thermocouple	<100 mSec.	<200 mSec.	<1 Sec.
Resistances*	<100 mSec.	<200 mSec.	<200 mSec.

*For a 1 MOhm range, the response time is doubled.

Dimensions



Model Number	Description
DR-I4E	Signal converter for electrical signals, isolated, for industrial applications
DR-I4L	Signal converter for load cells and millivolts, isolated, industrial applications
DR-I4P	Signal converter for process and temperature signals, isolated, industrial applications