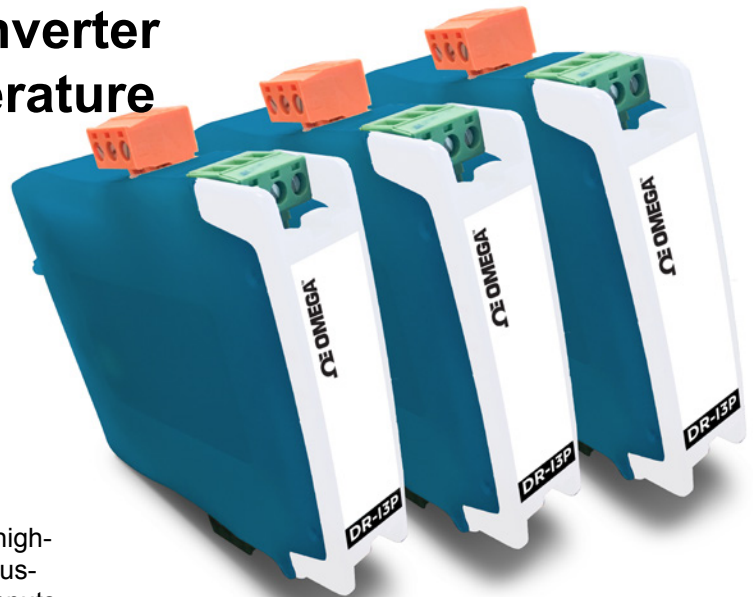


Isolated signal converter



Economical Signal Converter for Process and Temperature applications

DR-I3P



DR-I3P shown smaller than actual size.

OMEGA's new isolated signal converter delivers high-performance for integration in a wide range of industrial applications. The DR-I3P accepts universal inputs including mA and Vdc process signals (provides +15Vdc excitation voltage), usual temperature signals such as Pt100, Pt500, Pt1000, Ni100, Ni1000, NTC, thermocouples J, K, N, E, T, R and S, resistances and potentiometer signals, offering application flexibility for signal acquisition and industrial requirements.

A single universal AC/DC power supply allows this unit to be suited for global use.

Configurable output in 4/20mA or 0/10Vdc, high levels of isolation and DIN rail mount.

Additional features of the DR-I3P isolated signal converter include ready to use 'out of the box' unit, with no additional configuration tools needed, easy configuration by programming codes, and special 'force' functions for installation testing.

- ✓ **'Force' functions** - Built in 'Force Low' and 'Force High' functions provide an easy way to generate 4 and 20 mA output signals (or 0 and 10 Vdc) to easily validate connections to remote instruments, such as PLCs. of PLC connections.
- ✓ **Isolation** - 3 way isolation to protect your remote systems from signals noise and ground loops, delivering better performance.

APPLICATIONS

- ✓ **Assembly Line**
- ✓ **Control Panel**
- ✓ **Laboratory**

- ✓ **Universal power supply** - Real universal power supply from 18 to 265 Vac/dc, allows for global use and consolidation of stock references.
- ✓ **Easy configuration** with codes from 00 to 99 and predefined input ranges. No additional tools needed for configuration, can be installed 'out of the box'.
- ✓ **High quality plug-in screw terminals** for easy maintenance and replacements.
- ✓ **Password Protection** to protect your configuration

Specifications

Input signal

Process: 4/20mA (active and passive, max 25mA, $V_{term} < 1.2Vdc$, 0/10Vdc (max. 25Vdc, $Z_{in} = 1M\Omega$))

Excitation Voltage: +15Vdc (@30mA)

Thermocouple: J, K, N, E, T, R and S (automatic compensation for the thermocouple cold junction)

'Pt' and 'Ni' probes: Pt100 (2 and 3 wires, with automatic cable compensation up to 30 Ω), Pt500, Pt1000, Ni100, Ni1000 (2 wires)

'NTC' probes: NTC (with $R_{25} = 10K$, Beta=3500), NTC 44006

Resistances: ranges for 100K, 50K, 25K, 5K and 2.5K Ω s

Potentiometers: nominal from 500 Ω m up to 20K Ω m potentiometers

Accuracy at 25°C: (see Table 4)

Thermal Stability: 150ppm/°C

Step response: 300mSec. (0% to 99% of signal)

Output signal

4/20mA active: max. 22mA, min. 1.5mA, load < 400 Ω m

4/20mA passive: max. 30Vdc on terminals

0/10Vdc: max. 11Vdc, min. -1Vdc, load > 1K Ω m

Configuration

display: 2 digits, 7 segments, 5mm height, red color

keypad: 2 keys

Power

Power: 18 to 265Vac/dc (isolated 2500Veff) (20 to 240Vac/dc $\pm 10\%$)

AC frequency: 45 to 65Hz

Consumption: <1.5W

Power terminals: plug-in screw terminals (5.08mm pitch)

Power wires: 1 mm² to 2.5 mm² (AWG17 to AWG14)

Overvoltage category: 2

Isolation

input - output: 2300Veff (60 seconds)

power - input: 2300Veff (60 seconds)

power - output: 2300Veff (60 seconds)

Temperature

Operation temperature: 0 to +50°C (32 to 122 °F)

Storage temperature: -20 to +70°C (-4 to 158 °F)

Warm-up time: 15 minutes

Mechanical

Size: 106x108mmx22.5mm

Mounting: standard DIN rail (35x7.5mm)

Connections: plug-in screw terminals (pitch 5.08mm)

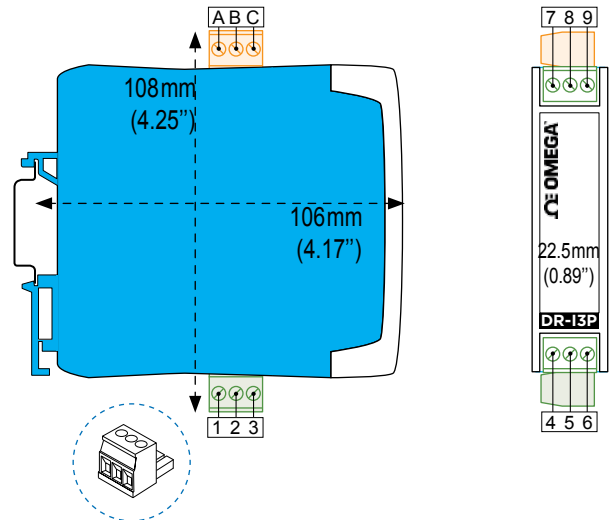
Weight: <150 gr (5.3 oz)

Housing material: polyamide V0

IP protection: IP30

Impact protection: IK06

Packing box: 120x115x30mm, cardboard



Detail of the plug-in screw terminal.
Both male and female terminals are included.

Table 1 | **INPUT signal connections**

Input signal	Input terminals					
	1	2	3	4	5	6
4/20mA passive					mA-	Vexc
4/20mA active				mA-	mA+	
0/10Vdc				common	+Vdc	
0/10Vdc with Vexc				common	+Vdc	Vexc
Potentiometer				Pot.-	Potent.	Pot.+
Resistance	Res-		Res+			
NTC	NTC-		NTC+			
Thermocouple	tc-	tc+				
Pt100 (3 wires)	Pt-	Pt- (3 rd wire)	Pt+			
Pt100 (2 wires)	Pt- (shortcircuit 1 and 2)		Pt+			
Pt1000, Pt500	Pt-		Pt+			
Ni100, Ni500, Ni1000	Ni-		Ni+			

Table 2 | **OUTPUT signal connections**

Output signal	Output terminals		
	7	8	9
4/20mA active		mA- (in)	mA+ (out)
4/20mA passive	mA+ (out)	mA- (in)	
0/10Vdc	common		+Vdc

Table 3 | **POWER connections**

Power	Power terminals		
	A	B	C
AC power	Phase		Phase
DC power	+		-

To Order

Model No.	Description
DR-I3P	Isolated signal converter with 85/265Vac/dc power supply
Comes complete with quick installations guide.	

Table 4 | Input signal - Configuration codes

Code	Input signal range	Technical specs
00 to 09	[no function assigned]	---
10	4/20 mA	Process
11	0/10 Vdc	
12	0/100 %	Potentiometer
13	0/100 KOhm	Resistance
14	0/50 KOhm	
15	0/25 KOhm	
16	0/10 KOhm	
17	0/5 KOhm	
18	0/2.5 KOhm	
19	0/1200 °C	Thermocouple J (cold junction error included)
20	0/1000 °C	
21	0/800 °C	
22	0/600 °C	
23	0/450 °C	
24	0/300 °C	
25	0/150 °C	Thermocouple K (cold junction error included)
26	0/1350 °C	
27	0/1000 °C	
28	0/800 °C	
29	0/600 °C	
30	0/450 °C	
31	0/300 °C	Thermocouple N (cold junction error included)
32	0/150 °C	
33	0/1300 °C	
34	0/1000 °C	
35	0/800 °C	
36	0/600 °C	
37	0/450 °C	Thermocouple E (cold junction error included)
38	0/300 °C	
39	0/150 °C	
40	[no function assigned]	---
41	0/900 °C	Thermocouple T (cold junction error included)
42	0/600 °C	
43	0/450 °C	
44	0/300 °C	
45	0/150 °C	
46	0/400 °C	
47	0/300 °C	Thermocouple T (cold junction error included)
48	0/200 °C	
49	0/100 °C	

Table 4 | Input signal - Configuration codes

Code	Input signal range	Technical specs
50	0/1750 °C	Thermocouple R (cold junction error included)
51	0/1500 °C	
52	0/1200 °C	
53	0/900 °C	
54	0/1750 °C	Thermocouple S (cold junction error included)
55	0/1500 °C	
56	0/1200 °C	
57	0/900 °C	
58	[no function assigned]	---
59	0/700 °C	Pt100
60	0/600 °C	
61	0/500 °C	
62	0/400 °C	
63	0/300 °C	
64	0/200 °C	
65	0/100 °C	
66	-50/+50 °C	
67	-100/+100 °C	
68	-200/+200 °C	
69	0/630 °C	Pt500
70	0/300 °C	
71	-150/150 °C	
72	0/630 °C	Pt1000
73	0/300 °C	
74	-150/150 °C	
75	-60/180 °C	Ni100
76	[no function assigned]	---
77	-60/180 °C	Ni1000
78 to 79	[no function assigned]	---
80	-50/50 °C	NTC ($R_{25}=10K$, $\beta=3500$)
81	0/90 °C	NTC ($R_{25}=10K$, $\beta=3500$)
82	-50/50 °C	NTC (44006)
83	0/90 °C	NTC (44006)
84 to 94	[no function assigned]	---
95	Function 'password'	---
96	Pt100 'Alpha' (01=0.0385, 02=0.0390)	---
97	Factory default configuration	---
98	Firmware version	---
98 to 99	[no function assigned]	---
---	Exit the menu and discard changes	---

Configuration system

1. Remove the output signal terminal
2. Open the front cover
3. Configure the instrument
4. Close the front cover
5. Place the output signal terminal

