

OD Family

Inductive Transducer Conditioning Electronics



Features

- ▶ Range Selectable to ± 10 VDC
- ▶ Range Selectable to ± 20 mA
(example: 0-20 mA, 4-20 mA)
- ▶ DC and AC Powered Versions
- ▶ LVDT and Half Bridge Variants
- ▶ Suitable for Harsh Industrial Environment
- ▶ Robust Construction
- ▶ Good Linearity

Description

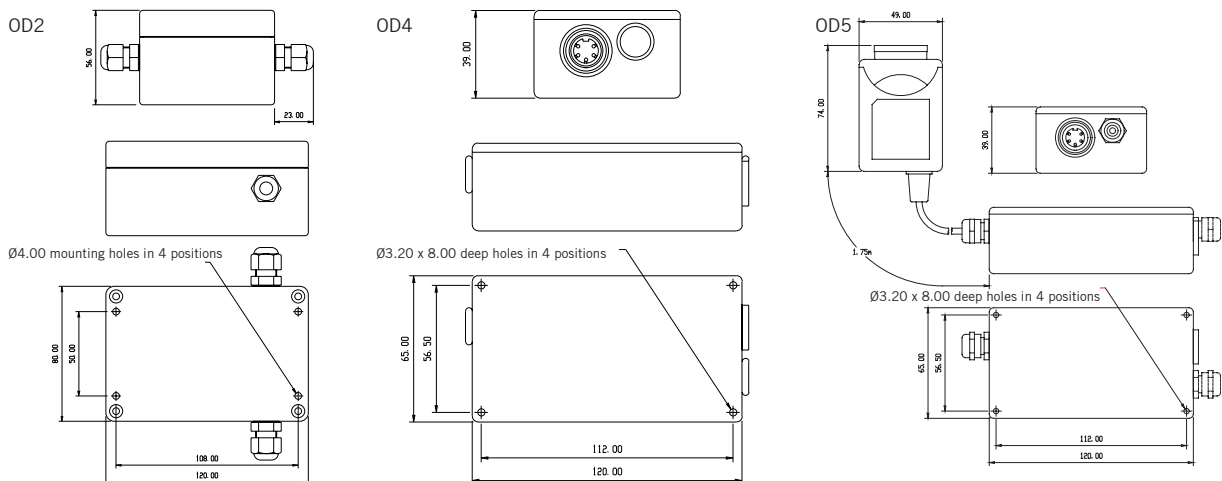
The OD (Oscillator / Demodulator) family of conditioning electronics is Solartron's solution for interfacing to its extended range of analogue inductive transducers. The OD family comprises the OD2, OD4 and OD5 units, each offering different functionality to suit the intended application.

The OD2 is a two wire 4 to 20 mA LVDT signal conditioner. It is designed for long signal transmission distances due to its low susceptibility to noise and cable resistance. The two wires carry both power and signal, the transducer's position is indicated by the amount of current consumed from 4 to 20 mA full scale. Cable breakage results in a loss of current flow, which indicates a fault.

The OD4 is a compact signal-conditioning module for inductive transducers; it can be powered from a single 10 to 30 VDC power supply. The signal polarity, span and offset are fully adjustable providing ± 20 mA current output or ± 10 VDC voltage output. The OD4 is housed in a die cast zinc box resulting a substantial degree of mechanical protection for harsh environment applications.

The OD5 provides the same connectivity and output as the OD4 and is powered from a universal power supply module with an input voltage range of 90 VAC to 240 VAC.

Mechanical Drawing



Diagrams showing general dimensions (mm) of OD2, OD4 & OD5 products

Technical Specification

Power Requirement

	OD2	OD4	OD5
Voltage Range	13 VDC to 48 VDC	10 VDC to 30 VDC	90 VAC to 264 VAC
Current Range	Up to 30 mA	140 mA at 10V to 50 mA at 30V	250 mA at 120 VAC to 100 mA at 250 VAC
Frequency Range	-	-	47 Hz to 63 Hz

Transducer Excitation

	OD2	OD4 / OD5
Primary Voltage	0-9 Vrms	3 Vrms nominal
Primary Frequency	5 kHz or 13 kHz nominal	2.5 kHz or 5 kHz nominal 10 kHz or 13 kHz nominal (half-bridge variant)

Signal Input (Transducer Sensitivity Range)

	OD2	OD4 / OD5
Input Range	30 to 530 mV/V	55 mV to 5000 mV LVDT full range
Input Load Resistance	Refer to note ¹	2, 10, 100 k Ω
Options	-	Forward and Reverse polarity, half-bridge

Signal Output

	OD2	OD4 / OD5
Voltage Output	-	Up to ± 10 VDC
Current Output	4-20 mA, 2 wire 0-20 mA, 4 wire	Up to ± 20 mA into 150 Ω load
Output Ripple	< 38 μ A rms	< 1 mV rms
Output Offset	Up to 100% on maximum gain (course & fine adjustment)	
Temperature Coefficient Gain	< 0.01% FRO/ $^{\circ}$ C	
Temperature Coefficient Offset	< 0.01% FRO/ $^{\circ}$ C	
Warm Up	15 minutes recommended	
Linearity	< 0.02% FRO	< 0.1% FRO
Bandwidth (-3dB)	25 Hz	500 Hz typical

Environmental

	OD2	OD4 / OD5
Operating Temperature Range	0 to 70 $^{\circ}$ C (32 to 158 $^{\circ}$ F)	0 to 60 $^{\circ}$ C (32 to 140 $^{\circ}$ F)
Storage Temperature Range	-40 to 80 $^{\circ}$ C (-42 to 176 $^{\circ}$ F)	-20 to 85 $^{\circ}$ C (-4 to 185 $^{\circ}$ F)
IP Rating	IP65	IP40

Mechanical and Connections

	OD2	OD4	OD5
Transducer	Internal Terminal Block	5-pin Circular DIN	
Power Supply	Internal Terminal Block	Internal Terminal Block	IEC320 C14
Output Signal	Internal Terminal Block	Internal Terminal Block	
Enclosure dimensions (mm) (without connectors)	120 x 80 x 54.5	120 x 60 x 40	
Weight (g)	220	300	
Material	Light Grey ABS	Die-cast Zinc Alloy (painted)	

note¹ OD2 Adjustable Input Attenuator (part number 104515)

Standard Part Numbers

OD Conditioning Modules

	With Set-up	Without Set-up
OD2	911277	910764
OD4	911278	911052
OD5		
with UK AC power plug	911316-UK	911315-UK
with European AC power plug	911316-EU	911315-EU
with US AC power plug	911316-US	911315-US

OD4 & OD5 can be supplied pre-configured with signal / cables and cable gland.

Half-bridge optimised variants of the OD4 & OD5 are also available.

If you have a specific requirement, please contact your local Solartron Metrology office.