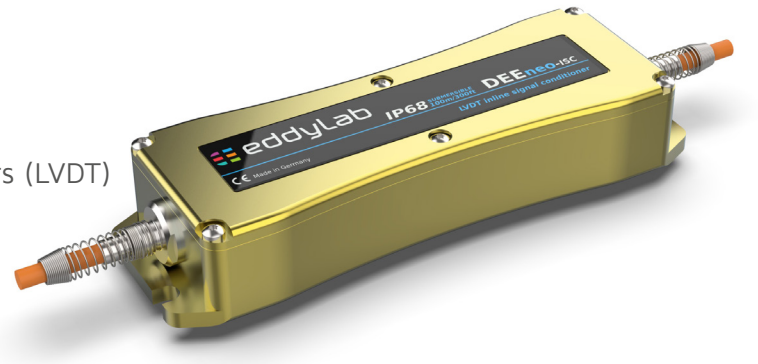
DATASHEET

DEEneo-ISC-IP68 | LVDT

Inline Signal Conditioner, integrated in sensor cable, protection class IP68



- Anodized aluminium housing,
  Protection class IP68, sealed up to 10 bar
- Supporting a wide range of inductive sensors (LVDT)
- Digital signal processing by microcontroller
- Resolution 16 bit
- Linearisation of sensor signal
- Signal adjustment via SET button or software
- Cable break detection

eddyLab

INTRODUCTION

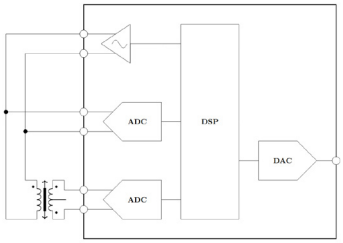
The **DEEneo-ISC-IP68 inline signal conditioner** was developed for operating inductive LVDT sensors (full bridge) and is integrated into the sensor connection cable. The electronics supply the sensor and convert the sensor signal into a standardized, analogue output signal with the help of a microcontroller.

The **DEEneo-ISC-IP68 version** has a milled, anodized aluminium housing that is specially sealed and offers protection class IP68 up to 100m water depth (10 bar).

DEEneo-ISC series is designed for the operation of eddylab LVDT displacement transducers with fixed cable output or 4-pin M12 connector output. Operation of all commercially available LVDT sensors is also possible. Please contact eddylab for the connection of sensors from other manufacturers at: sales@eddylab.de.

Functional principle: The primary coil of the connected sensor is excited with a sinusoidal signal. To determine the sensor position, the secondary coils are evaluated differentially and output as an analog signal. The internal, ratio-metric signal processing is digital and guarantees high resolution and immunity to external influences (EMC).

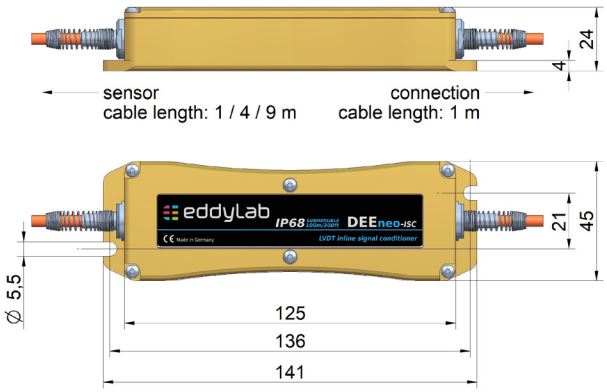
The frequency and amplitude can be set using the eddySetup configuration software for optimum performance of the measuring chain. A pushbutton (SET button) is used for basic configuration and for setting the measuring range limits - this enables quick and easy adaptation to the customer's application.
Please note: Where possible, eddylab calibrates the sensor and electronics as a measuring chain. The sensor characteristic curve can be linearized to meet the highest accuracy requirements.



TECHNICAL DATA

MODEL	DEEneo-ISC-IP68
Output signal	0...20 mA, 4...20 mA, ±20 mA (load < 500 Ohm), 0...5 V, ± 5 V; 0...10 V, ± 10 V (load > 150 Ohm)
Power supply	9...36 VDC
Power consumption	70 mA at 24 VDC, 130 mA at 12 VDC
Sensor supply	standard: 3V / 3.3 kHz, can be modified by software
Settings (factory setting)	frequency, amplitude, output signal
Resolution	16 bit
Signal processing	digital via microcontroller
Signal adjustment	via SET-button or software
Filter corner frequency	digital adjustable, standard 300 Hz
Linearisation of sensor	yes, optionally possible
Isolation stability	> 500 VDC
Reverse polarity protection	yes
Overvoltage protection	output: 16 V bipolar suppressor diode / permanent overvoltage up to 24 V
	input: Bipolar suppressor diode 36 V / Polyfuse 0.5 A
	on sensor side: 12 V
Cable break detection	yes
Operating temperature	-40...+85 °C
Storage temperature	-40...+85 °C
Protection class	IP68 / 10 bar
EMC	EN IEC 61326-1:2021
Mounting	bore ø5,5

TECHNICAL DRAWING

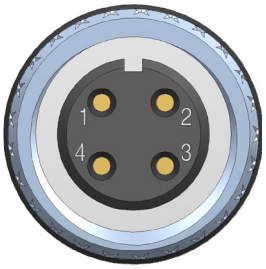


CONNECTION

DEEneo-ISC-IP68 is designed for the operation of eddylab LVDT displacement transducers with fixed cable output or 4-pin M12 connector output. eddylab offers individual special solutions for sensor variants with 5-/6-pin connectors/cables. In this case, please contact eddylab at sales@eddylab.de.

DEEneo-ISC-IP68 is integrated into the sensor connection cable. If the sensor has an M12 plug output, variants with M12 connection cables are available.
The mating M12 cable socket is located on the sensor side. A cable with open strands is available for the connection side.
Please see illustrations on page 4 for clarification.

ASSIGNMENT

SENSOR SIDE		
FUNCTION	M12 CABLE SOCKET (PIN)	
Primary +	2	
Primary -	1	
Secondary 1	3	
Secondary 2	4	

CONNECTION SIDE		
FUNCTION	WIRE COLOUR OF EDDYLAB CABLES	
	TPE	PTFE-UL
V +	brown	yellow
GND	blue	brown
Signal	white	white
Signal GND	black	green

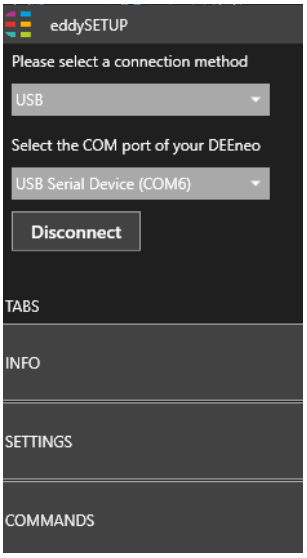
CABLE BREAK DETECTION

The **DEEneo-ISC-IP68** electronics have integrated cable break detection based on an impedance measurement of the LVDT's primary coil. If the sensor cable is cut, the impedance at the electronics changes independently of the core position and the cable break detection is triggered. This requires the connections of the primary coil of the sensor to be cut. A partial break only of the connections to the secondary coils does not activate this function.

- **Regular operation:** Output signal is provided
- **Cable break:** Output signal is deactivated

SOFTWARE eddySETUP

The **eddySETUP** configuration tool is available at www.eddylab.com. The basic settings for operating the DEEneo can be made using the SET button.
Alternatively, these and other functions can be configured using the **eddySETUP** software.



Functions:

- Sensor supply: Frequency, amplitude
- Output signal selection
- Filter corner frequency
- Teach function
- Restore factory settings

System requirements:

- Windows 10
- Windows 11

ORDER CODE

DEEneo-ISC – X (a) – X (b) – IP68

type
DEEneo-ISC-IP68 = Inline Signal Conditioner

(a) output signal

020A	=	0...20 mA
420A	=	4...20 mA
10V	=	0...10 V
5V	=	0...5 V
±5V	=	-5...5 V
±10V	=	-10...10 V

(b) type of cable / cable length

E1: for sensor with cable output

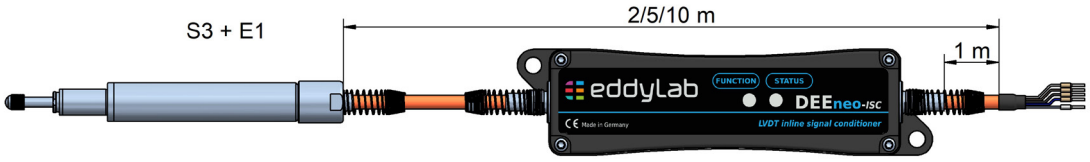
-	=	integrated in sensor cable

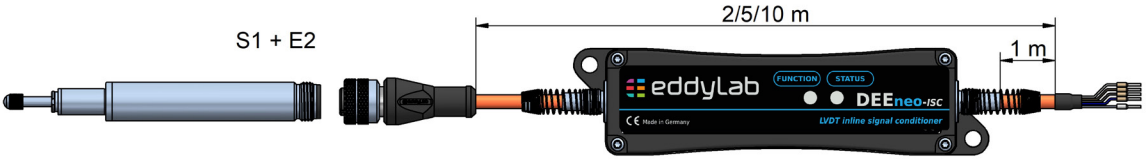
E2: for sensor with connector output

A	=	cable 2 m, M12 straight female connector
B	=	cable 2 m, M12 angular female connector
C	=	cable 5 m, M12 straight female connector
D	=	cable 5 m, M12 angular female connector
E	=	cable 10 m, M12 straight female connector
F	=	cable 10 m, M12 angular female connector

POSSIBLE COMBINATIONS

- Variation S3+E1: sensor with cable output, DEEneo-ISC-IP68 integrated in sensor cable
- Variation S1+E2: sensor with connector output, cable electronics DEEneo-ISC-IP68 with cable K4PxM





* Figure shows DEEneo-ISC

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