PONAR wadowice	**Electronic card for controlling the sensor of a proportional solenoid type ECI9D-01**	**WK 426 010** 08.2014

DATA SHEET - OPERATION MANUAL

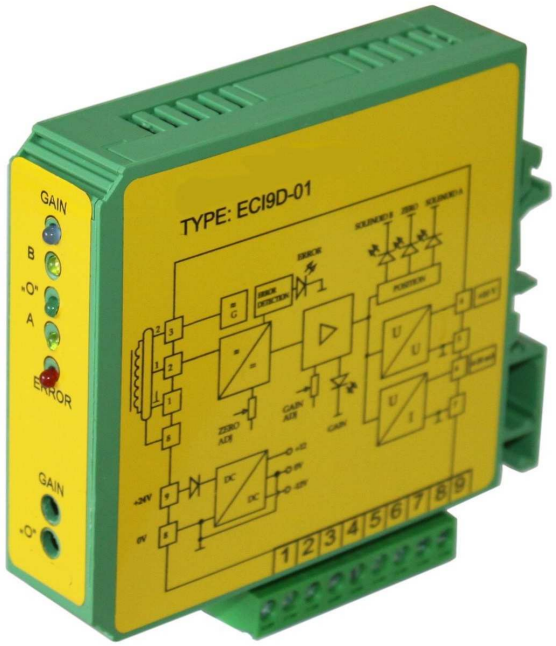
APPLICATION

ECI9D-01 is a signal transducer from an inductive position sensor to standard output signal **±10 V** and **4 -20 mA**.
It is designed to:

- determining the spool position in proportional directional control valves with a position sensor type **USEB6** series: **1X**, **2X**, **3X**, **4X** and type **USEB10** series: **1X**, **2X**, **3X**
- specifying the position of throttle in proportional flow controller type **UDRDE6**, series: **1X**, **2X**

The card features:

- voltage output **± 10 V**
- current output **4 -20 mA**
- zero regulation (**0 V** or **12 mA**)
- gain adjustment
- housing installed on a mounting rail **35 mm** acc. to **EN 60715**



DESCRIPTION OF OPERATION

The system is powered with stabilised voltage **24V DC** (direct current), supplied to terminals **9** (**+24V**) and **8** (**0V**). The card generates a sinusoidal signal powering the sensor (terminals **3** and **1**) and collects the measurement signal by terminal **2**. The sensor should be connected with a shielded cable, in accordance with the block diagram of the card. The lack of sensor connection or its incorrect connection is signalled by the red LED diode on the front panel (**ERROR**). The voltage output signal (terminals **4** and **5**) or current signal (terminals **6** and **7**) must be connected with a shielded cable to a compatible controller.

During operation, the card signals with LED diodes three states of the directional control valve:

- directional valve not switched with an solenoid (zero position) - green diode LED **0**
- directional valve controlled with solenoid **A** - yellow diode LED **A**
- directional valve controlled with solenoid **B** - yellow diode LED **B**

In the **UDRD6** flow controller, the above signalling does not refer to solenoid **B** (there is only solenoid **A**).

CARD SETTING

After connecting the sensor of proportional, directional control valve position to the card, we set the zero **0** and **GAIN** with potentiometers on the front panel. For each directional control valve, the card must be separately adjusted.

Setting zero (0V or 12 mA).
For not controlled directional valve (disconnected plugs from solenoids **A** and **B**) one should adjust the potentiometer **0** until the yellow LED diode **A** or **B** goes off and the green LED diode **0** flashes.

Setting the gain (-10 V or 4 mA).
The gain is set for extreme position of the spool. Solenoid **A** must be controlled with a maximum current, then the potentiometer **GAIN** is used until the blue LED **GAIN** diode flashes.

Setting the card for proportional throttle is done in the same way as for the proportional directional control valve. To precisely set the zero **0** and **GAIN** one should use the voltmeter or milliammeter, depending on the output that is going to be used.

TECHNICAL DATA

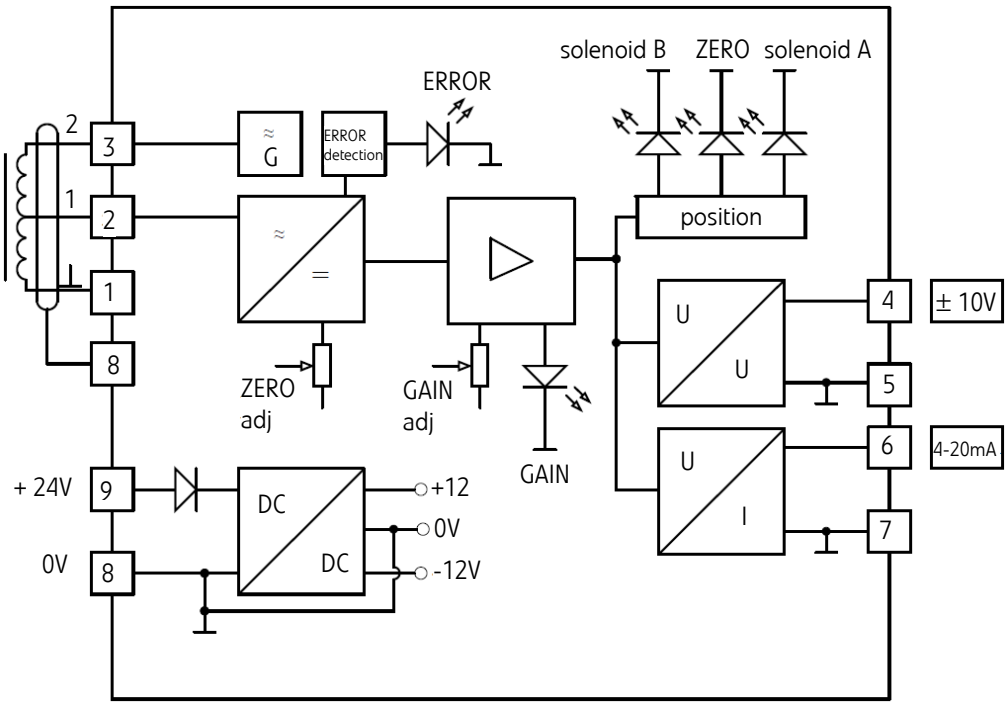
Supply voltage		24 V stabilised
Load resistance	output ± 10 V min	10 kΩ
	output 4 - 20 mA max	600 Ω
Generator frequency		2500 Hz
Connecting of the sensor (cable length)		max 30 m
Temperature error		0,05 % / °C
Non-linearity		>1 %
Hysteresis		>1 %
Protection level of the housing		**IP 20 (PN - EN 60529:2003)**
Allowed operating temperature range		0 up to 50 °C
Fixing method		support rail 35x7,5x1 mm (**EN 60715**)
Dimensions (length x width x height)		103 x 96 x 23 mm
Weight		0,11 kg

INSTALLATION AND OPERATION REQUIREMENTS

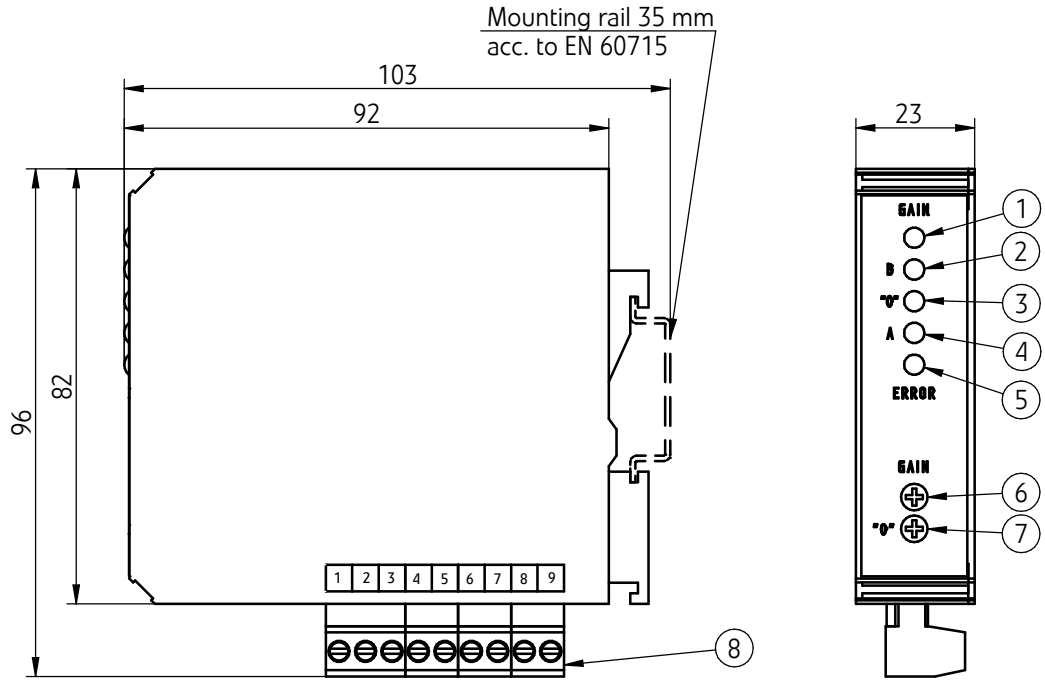
Any connecting work can only be carried out after power supply has been disconnected.
The distance from radio devices should be minimum **1 m**.
Connecting cables to the position sensor and the output signal must be shielded.
The **ECI9D-01** type card should be connected with the position sensor in compliance with the block diagram.

NOTE:
Waste electrical and electronic equipment is classified as a hazardous waste. It must be taken to a collection point for used electrical and electronic equipment. Disposing it into municipal waste is not allowed.

BLOCK CIRCUIT DIAGRAM



OVERALL DIMENSIONS



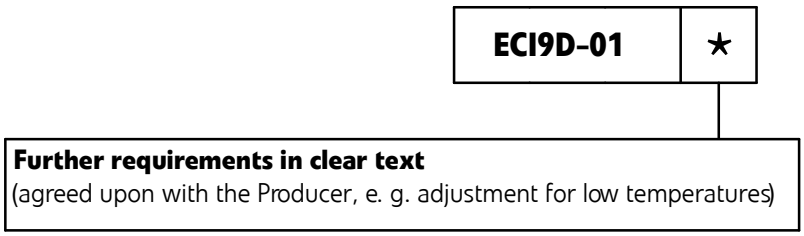
ITEM	DESCRIPTION
(1)	blue LED diode **GAIN**
(2)	yellow LED diode solenoid **B**
(3)	green LED diode ZERO **0** position
(4)	yellow LED diode solenoid **A**
(5)	red LED diode position sensor **ERROR**
(6)	**GAIN** adjustment
(7)	ZERO **0** adjustment
(8)	terminals connection (tab. below)

CONNECTION OF THE CLAMPS

TERMINAL	DESCRIPTION
1	Position sensor - terminal ⊥
2	Position sensor - terminal **1**
3	Position sensor - terminal **2**
4	Voltage output **± 10 V**
5	Voltage reference potential
6	Current output **4 - 20 mA**
7	Reference potential of current
8	Power supply **0 V** stabilised
9	Power supply **+24 V** stabilised

HOW TO ORDER

The card should be ordered according to the coding below.



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