

## DATA SHEET - OPERATION MANUAL

### APPLICATION

The **30RE21D** type card is a controllable current amplifier with an external feedback input. It is intended for controlling the operation of hydraulic, proportional directional control valves type **USEB6** and **USEB10**.

The controller features:

- selection of setpoint value signal **COMMAND** ( $\pm 10\text{ V}$  or  $4$  to  $20\text{ mA}$ )
- selection of actual value signal **FEEDBACK** ( $\pm 10\text{ V}$  or  $4$  to  $20\text{ mA}$ )
- linear adjustment of time of rising and falling of the output current
- housing mounted at the **35 mm** rail acc. to **EN 60715**



### DESCRIPTION OF OPERATION

The card is a controllable current amplifier which based on the difference of the setpoint value and actual value controls solenoids **A** or **B** of the proportional directional control valve. The controller features a possibility of setting the type of setpoint value **COMMAND** and actual value **FEEDBACK** by appropriate connection of signals to the terminals and simultaneous setting the switches on the front plate - **S1** and **S2** (Card setting). For the setpoint value  $0$  to  $-10\text{ V}$  or  $12$  to  $4\text{ mA}$  the solenoid **A** is controlled, whereas for the value  $0$  to  $+10\text{ V}$  or  $12$  to  $20\text{ mA}$  the solenoid **B** is controlled. The controller is supplied with direct current (DC) **stabilised voltage 24V**, connected to terminals **11 (+24V)** and **12 (0V)** - power supply state indicated by a green LED diode on the front plate (**POWER**). The card is protected against a reverse connection of power supply with a resettable fuse.

### CARD SETTING

**Setting the type of setpoint value signal (COMMAND):**

- current  $4 - 20\text{ mA}$  - the current signal should be connected to the terminals **4** (setpoint value) and **12** (reference potential -  $0\text{ V}$ ) and switch **S1** set to position " $4 - 20$ ".
- differential current  $\pm 10\text{ V}$  - voltage signal should be connected to terminals **6** (setpoint value) and **5** (setpoint value reference potential) and the **S1** switch should be set to the position " $\pm 10\text{ V}$ ".

The controller features adjustment of rising and falling of the output current by a potentiometer located at the front plate, labelled as **RAMP**. The card indicates an error with a red LED diode at the front plate (**ERROR**) in the following cases:

- a significant adjustment error, caused e.g. by:
  - a break in solenoid circuit
  - excessive resistance of the solenoid
- incorrect value of the signal  $4 - 20\text{ mA}$  of the setpoint value (signal value  $\ll 4\text{ mA}$ )
- incorrect value of the signal  $4 - 20\text{ mA}$  of the actual value (signal value  $\ll 4\text{ mA}$ )

#### NOTE:

**In case of detection of an incorrect value of the  $4 - 20\text{ mA}$  signal, together with indication of error occurrence, the solenoids A and B are turned off.**

**Setting the type of actual value signal (FEEDBACK):**

- current  $4 - 20\text{ mA}$  - current signal should be connected to terminals **1** (actual value) and **12** (reference potential  $0\text{ V}$ ) and **S2** switch should be set to the position " $4 - 20$ ".
- differential voltage  $\pm 10\text{ V}$  - voltage signal should be connected to terminals **3** (actual value) and **2** (reference potential of the actual value) and the **S2** switch should be set to the position " $\pm 10\text{ V}$ ".

## TECHNICAL DATA

Supply voltage	<b>24 V stabilised</b>	
Setpoint value signal (COMMAND)	± 10 V or 4 - 20 mA	
Feedback value signal (FEEDBACK)	± 10 V or 4 - 20 mA	
Input resistance	input ± 10 V	100 kΩ
	input 4 - 20 mA	250 Ω
Ramp time (rising and falling)	0 - 5 s	
Maximum output current	1,6 A	
Solenoid cable connection	1,5 mm <sup>2</sup> to 15 lm.	
	2,5 mm <sup>2</sup> to 30 lm.	
Temperature error	0,05 % / °C	
Non-linearity	>1 %	
Hysteresis	>1 %	
<b>Degree of protection</b>	<b>IP 20 (PN - EN 60529:2003)</b>	
Permissible operating temperature range	0 to +50 °C	
Mounting type	support rail 35x7.5x1 mm (EN 60715)	
Dimensions (length x width x height)	110 x 96 x 23 mm	
Weight	0,11 kg	

## INSTALLATION AND OPERATION REQUIREMENTS

Any connection works can only be carried out after power supply has been disconnected.

A distance from radio equipment should be minimum **1m**.

Wires with setpoint and actual value must be screened.

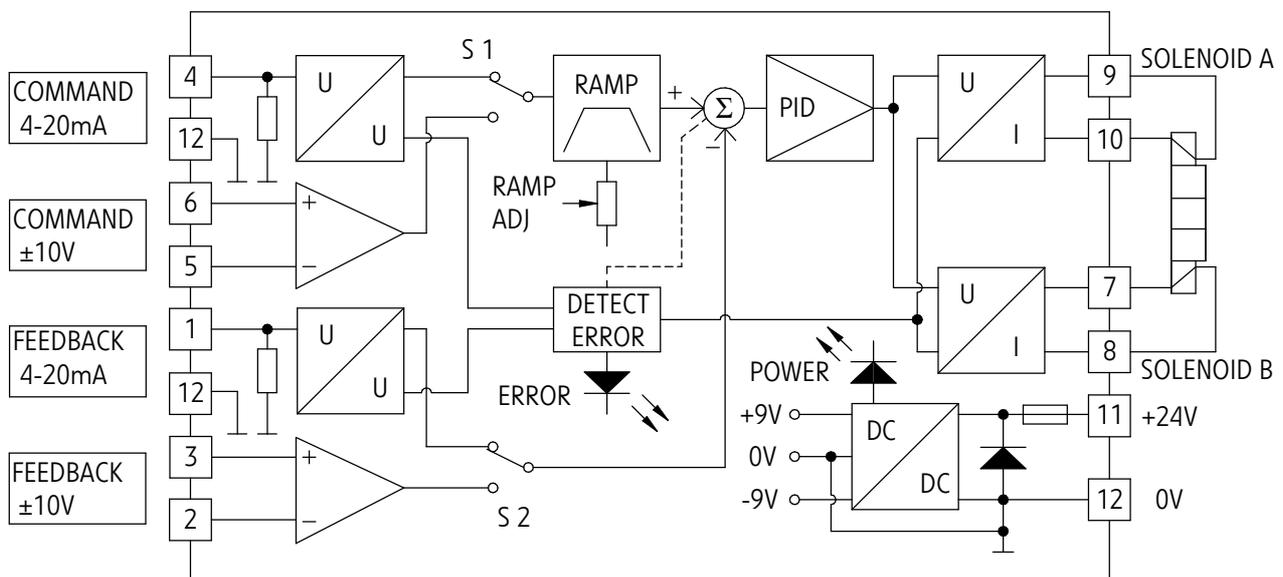
Wires to the directional control valve should not run together with setpoint and actual value wires.

The current amplifier **30RE21D** must be connected to the directional control valve and control terminals in compliance with the block circuit diagram.

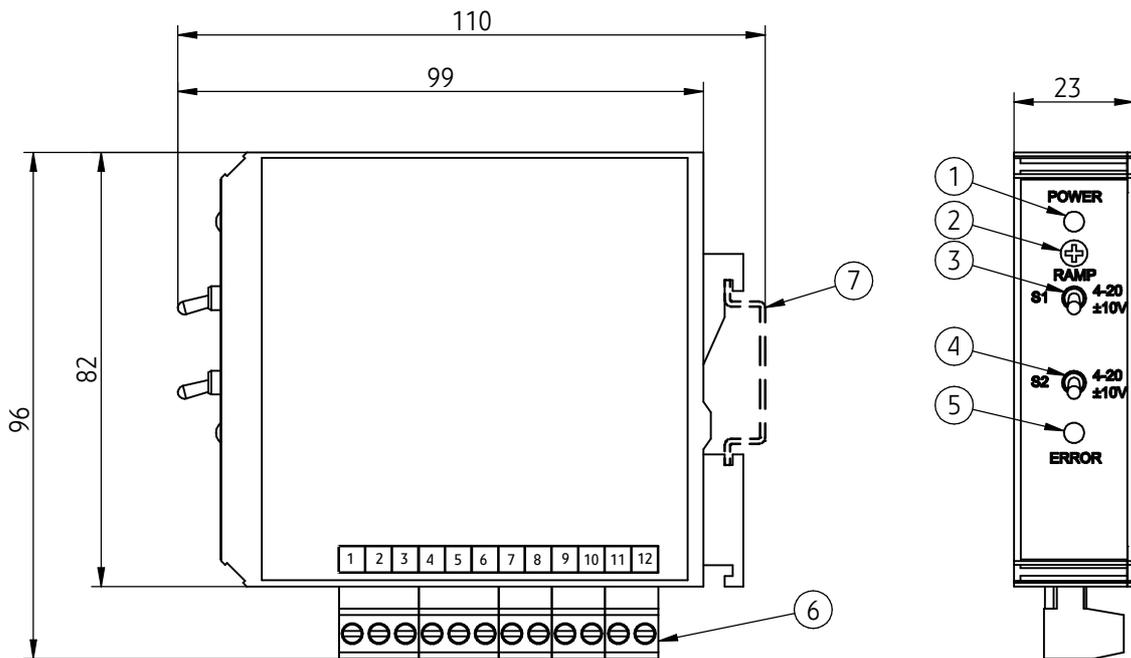
### NOTE:

**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	Green LED diode power supply ( <b>POWER</b> )
②	Adjustment of rising and falling of the current ( <b>RAMP</b> )
③	Setpoint switch <b>COMMAND (S1)</b>
④	Actual value switch <b>FEEDBACK (S2)</b>
⑤	Red LED diode ( <b>ERROR</b> )
⑥	Connection terminals (table below)
⑦	Mounting rail 35 mm acc. to EN 60715

## CONNECTION OF TERMINALS

TERMINAL	DESCRIPTION
1	Actual value current input <b>4 - 20 mA</b> with a function of breaks detection
2	Reference potential of the actual value
3	Voltage output of the actual value <b>±10 V</b>
4	Current input of the setpoint value <b>4 - 20 mA</b> with a function of breaks detection
5	Reference potential of the setpoint value
6	Voltage input of the setpoint value <b>±10 V</b>
7	Proportional solenoid <b>B</b>
8	
9	Proportional solenoid <b>A</b>
10	
11	Supply voltage <b>+24 V</b> stabilised
12	Supply voltage <b>0 V</b> stabilised and reference potential for the inputs <b>4 - 20 mA</b>

## HOW TO ORDER

The card should be ordered according to the coding provided below.

<b>30RE21D - 01</b>	<b>★</b>
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**Further requirements in clear text**

(to be agreed with the manufacturer, e.g. adaptation for low temperatures)

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