

Position Indicator Interface Typ REG-FI 'B2'

Function

The REG-FI position indicator interface converts a standard 0/4-20 mA output current of a tap-changer into a BCD code.

A power supply unit delivers the supply voltages for the measuring transducer and the relays.

The entering current is connected with a couple of lines to the measurement input. A current I_d change (I_{Δ}) generates the next step message.

A binary output transmits the information to the voltage control system REGSys.

For further use the BCD code is provided by 6 relay contacts and 6 current outputs.

- Up to 38 uniform current tap-change positions are converted into a BCD code
- The cable between the tap-changer and the REG-FI can be up to 100 m (maximum)
- Relay contacts with AC 250V 2A, DC 220V 150W
- Large auxiliary voltage range of the power supply

Technical specifications

Regulations and standards

IEC1010, IEC801-1 to 6, VDE0110, VDE0160

Interference immunity EN50082-2

Emitted interference EN50081-2, EN55011

Mechanical data

Construction Wall mountable Aluminum case
205x130x67 mm (LxWxH)

Connector 2 pieces; 'F1': 10pol; 'F2': 16pol

Degree of protection IP40

Weight inclusive 2 connectors < 1.2 kg

Mounting 4-hole assembly,
center on 130x120 mm

Input

DC current 0/4 mA ... 20 mA

Current tap change I_d 0.25 ... 2.5 mA same current stage

Tap-change positions ≤ 38

Input resistance R_E < 25 mV / I_d

Tolerance of current tap-change pos. I_d < 2 % of specified value

Superimposed alternating current at input < 0.1 mA (50 Hz sinus)

Output

Binary output BCD 1 ... BCD 20/sign- to the BCD input (50V) of the REG-D; reference BCD GND

Voltage at 10kOhm ON (1) ≥ 10 V DC
OFF (0) ≤ 5 V DC

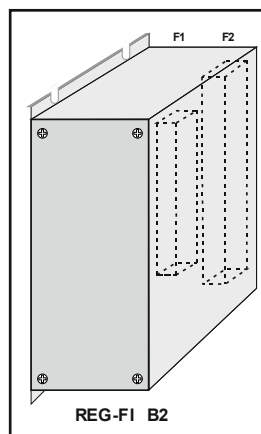
Voltage output U_+ 15 V DC ± 10 %; reference GND;
Internal resistance 1.2 k Ω

Relays with one N/O contact for output:
BCD Codes 1..20/sign- contact closed (1) / open (0)

Potential isolation auxiliary voltage and relays contacts from each other and all other circuits

Contact load AC 250 V 2 A, DC 220 V 150 W

Number of switching operations < 10⁵



Codetable

Input: Current tab change	DEC	Output: Display, relays Output BCD-Code					
		20	10	8	4	2	1
0 / 4mA	1	0	0	0	0	0	1
1 x I_d	2	0	0	0	0	1	0
2 x I_d	3	0	0	0	0	1	1
...							
9 x I_d	10	0	1	0	0	0	0
10 x I_d	11	0	1	0	0	0	1
...							
28 x I_d	29	1	0	1	0	0	1
29 x I_d	30	1	1	0	0	0	0
30 x I_d	31	1	1	0	0	0	1
Error signal	39	1	1	1	0	0	1

DEC = decimal output value

Response characteristics

The requested conversion - current into BCD message of REG-FI - **must be specified with the order**. This will be fixed internally and cannot be changed afterwards: Output code at start, input current 0 mA respectively 4 mA and output code at full scale at 20 mA.

The negative measurement input (I_d-) is connected to the internal earth GND I of REG-FI. If the current transducer is **not** isolated from earth, this will result in a ground loop. To prevent this, open the external wire bridge at socket connector F2, pin 14-15.

Safety

Safety class / overvoltage category I/II

Contamination level 2

Test voltage AC 2.3 kV

Measurement input, BCD-output to auxiliary voltage to relay contacts

Auxiliary voltage to relay contacts

Power supply

Galvanically isolated Feature H1 AC 100 ... 240 V / DC 100 ... 353V
isolated Feature H2 AC 20 ... 60 V / DC 20 ... 72V

Power consumption < 6 VA / 6 W H1; 1 A/T H2; 2 A/T

Temperature Operation 0 ... +65 °C
Storage, transport -25 ... +85 °C

Pinout

Socket connector F1 10pol.	
1	L (+)
2	N (-)
3	
4	Relais reference
5	Rel. 20 or.sign-
6	Relais BCD10
7	Relais BCD 8
8	Relais BCD 4
9	Relais BCD 2
10	Relais BCD 1

Socket connector F2 16pol.	
11	
12	I_d+
13	I_d-
14	GND I
15	I_d- bridge
18	U_+
20	GND BCD
21	BCD 20 or sign-
22	BCD 10
23	BCD 8
24	BCD 4
25	BCD 2
26	BCD 1

FastOn-male 6.3mm on case allows the connection of a protective earth wire.

Features		Code		
Position indicator interface REG-FI	wall mount case	REG-FI B2		
Auxiliary voltage galvanically isolated	AC 100..240 V / DC 100...353 V AC 20... 60 V / DC 20 ... 72 V	H1 H2		
Input current Id 0 .. 20 mA	BCD code: 1 ... 28 / 26 / 18 tap-positions out of range: code 39	E1;E2;E3		
Input current Id 4 .. 20 mA	BCD code: 1 ... 13 / 17 / 19 tap-positions Line breakage, < 4 mA: code 39	E8;E5;E9		
Output	BCD-Code 1 ... 38 tap-positions out of range: code 39	Y1		
Deviating current tap-change / code table (max. 6 outputs)		E99	Y99	

Other signals can also be assigned to the tap-change positions. Please include the requested code table with the order.

Example 28xId taps with offset (sign-), BCD code -12 ... -1 / -0 / 1 / ... 15; out of range: -19 feature: „Y2“

Example 28xId taps with offset (sign-), BCD code -9 ... -1 / -0 / 1 / ... 18; out of range: -19 feature: „Y3“

Example 15xId taps, BCD code 1 ... 15; out of range: 39 feature: „Y7“

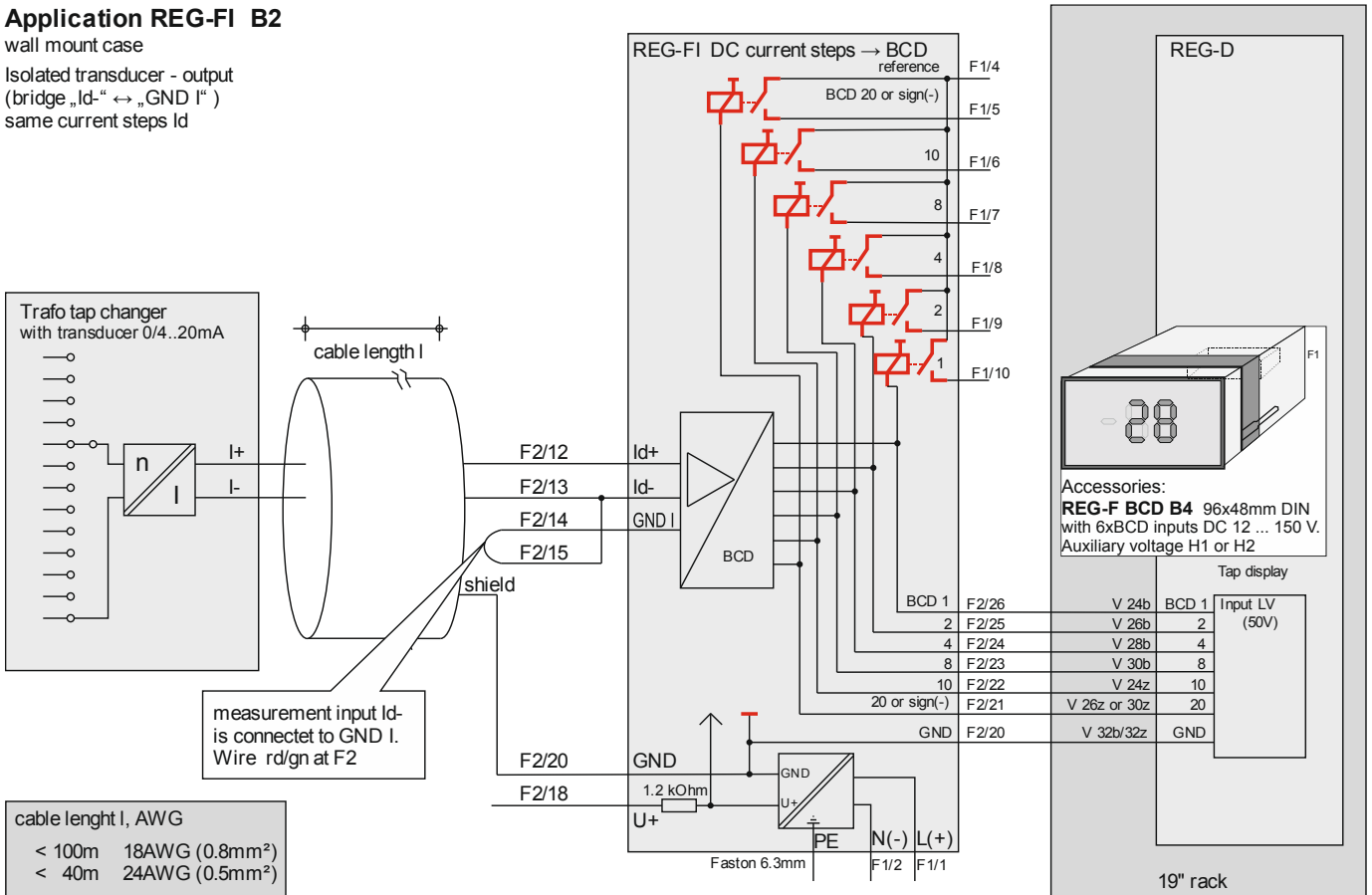
The device is available for standard current transducers 0 ... 20 mA or 4 ... 20 mA. It is also available as a 19" plug-in module 8T 3H (feature B1) or panel mount case with display (feature B3).

Alternative assemblies for binary output codes, AWZ, Gray-code or tap-change resistances are available in different implementations, with or without display.

Application REG-FI B2

wall mount case

Isolated transducer - output
(bridge „Id-“ ↔ „GND I“)
same current steps Id



In the case of a large distance between the REG-FI and the current transducer, the maximum cable length depends more on the interference influences of parallel cables than on the maximum output voltage of the transducer. A superimposed AC ripple higher than 0.1 mA AC is not allowed at the REG-FI input. As each application has different earthing and voltage conditions, the only general statement that can be made is that longer lines are possible for the case that the parallel cables are shielded and have a larger distance to the REG-FI cable.