DIGITAL PROGRAMMABLE BARGRAPHS

analog display 64 segments on 92mm
digital display 3 eight millimeter digits

DIP-BAR

DISAI
Automatic Systems
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The DIP-BAR 1 and DIP-BAR 2 series indicators allow measure visualising on 2 types of display simultaneously :

‣ Analog : programmable bargraph
(92mm column consisting of 64 red segments), display of alarm setpoints, oversteppings and sensor rupture, location of 0 programmable ...

‣ Digital (3 eight millimeter high red digits)
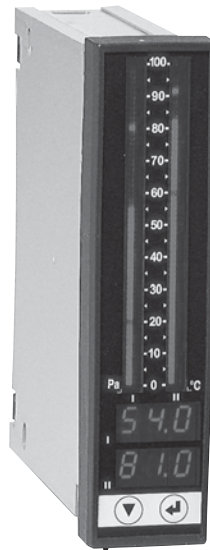
DIP-BAR 1 : 1 programmable measure channel
DIP-BAR 2 : 2 programmable measure channels
(not insulated from each other)

Universal programmable inputs :
Process inputs (DC bidirectionnal current or voltage).
Temperature inputs (thermocouple or sensor).
Potentiometer or resistance inputs.

COMBINABLE OPTIONS :
(to be specified on order).

Insulated analog outputs :
(not insulated from each other)
Output active or passive current, or voltage.
Programmable scale ratio with enlarging effect.
Return value in case of sensor rupture and/or self-diagnosis error.
The two analog outputs are programmable either in current or voltage.

Relay output :
2 or 4 relays : mode setpoint or mode window.
Recording of alarms.
Time delay and hysteresis adjustable on each setpoint.
Alarm messages.
Each analog or relay output can be dedicated to one or the other of the 2 channels.

External view

The series DIP-BAR 1 and DIP-BAR 2 offer a broad range of high accuracy programmable indicators.
The frontal display enables fast and simple visualising of the measure state. They allow display, control and transmission of data from any measurable magnitudes.

Programming :
- 2-key keyboard accessible on front face.
Bargraph measure :
- Measure and value to be entered : (3 digits) -199 to 999.
- The bargraph up, down and zero are programmable in display value.
Display :
- Of the zero location, (column inverted around the zero).
- Of oversteppings on the bargraph (10%), (shown by a flashing column).
- Of the position of alarm setpoints, (shown by a segment of the column).
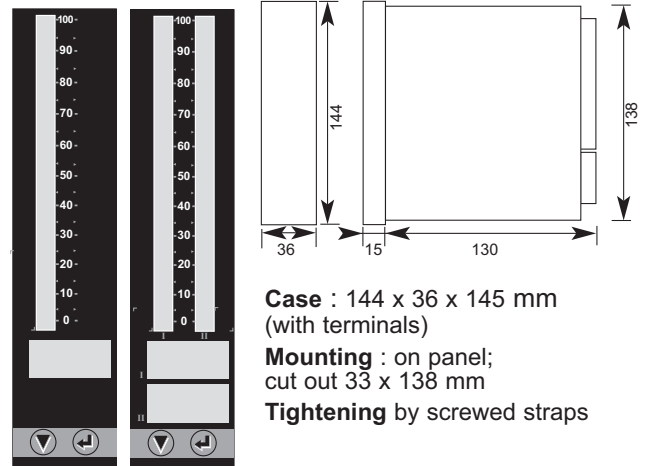- Of alarm set off, (shown by a flashing segment).
- The brightness of bargraph and digits is programmable separately.

Dimensions

DIP-BAR 1   **DIP-BAR 2**
1 channel   **2 channels**   **external case dimensions**

144   138   36   15   130

Case : 144 x 36 x 145 mm
(with terminals)
Mounting : on panel;
cut out 33 x 138 mm
Tightening by screwed straps

Technical features

TYPES OF OUTPUT OPTIONS

option A

2 analog outputs, programmable in voltage or in current

Active current output 0/4-20mA
Passive current output 0/4-20mA (Vmax. = 30Vdc)
Voltage output 0-10V

- Accuracy 0.1 % in relation to display (at +25°C).
- Residual ripple ≤ 0.2%.
- Admissible load $0\Omega < Lr < 500\ \Omega$ (current)
                      $Rc > 2\ k\Omega$ (voltage)
- Programmable scale ratio with enlarging effect.
- Response time : 40 ms. (to be added to the measure response time).

option R4 or R

Relay output : 2 types on choice

R : 2 independently programmable setpoint relays
R4 : 4 independently programmable setpoint relays

- Hysteresis independently programmable from 0 to 100% of setpoint in the display unit.
- Time delay independently programmable from 0 to 25 s. in 0.1s.increases
- NO-NC contact 8 A - 250 V on resistive load.

INPUT TYPES : (1 OR 2 CHANNELS)

Current or voltage

DC current or voltage

Bidirectionnal ±100mV, ±1V, ±10V, ±300V, ±20mA.

- Accuracy 0.05 % of full scale at +25 °C.
- Thermic drift < 150 ppm/°C.
- Measurable scale overstepping from -5% to +5%.
- Programmable scale factor.
- Enlarging effect - Square root extraction.
- Special linearisation : 20 points.
- Supply for 2 or 3 wire sensor
26 V_{DC} (±15%) -25 mA protected from short-circuits.

Potentiometer and resistance

Potentiometer and resistance

Resistive sensors : calibers 0-400 Ω and 0-2 kΩ (0-8 kΩ option).

- Accuracy : 0.1% for calibers 0-400 Ω and 0-8 kΩ and 0.5% for caliber 0-2 kΩ (of full scale at +25°C).
- Thermic drift < 150ppm/°C.

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Potentiometers : from 100 Ω to 10 kΩ.

- Accuracy : 0.1% of full scale at +25°C.
- Thermic drift < 150ppm/°C.

Temperature

Temperature

Thermocouples :

Type J	min. -160 °C	max. +999 °C
Type K	min. -199 °C	max. +999 °C
Type N	min. +0 °C	max. +999 °C
Type S	min. -50 °C	max. +999 °C
Type B	min. +200 °C	max. +999 °C
Type W5	min. +0 °C	max. +999 °C
Type T	min. -199 °C	max. +410 °C
Type R	min. -50 °C	max. +999 °C
Type E	min.-120 °C	max. +999 °C
Type W3	min. 0 °C	max. +999 °C
Type L	min. -150 °C	max. +910 °C

- Accuracy : 0.1% of full scale at +25°C, or 25μV typical (50μV max.).
- Thermic drift < 150ppm/°C (except CJC)
CJC efficiency : < 0,03°C/°C ± 0.5°C from   -5°C to +55°C.

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Sensors :

Pt 100Ω min -199 °C   max. +850 °C
Ni 100Ω min -60 °C   max. +260 °C

- Line resistance influence in 3 wire measurement included in the class for 0<Rl<25Ω.
- Measuring of Δ Pt100 2 wire from -199°C to +270°C (0<Rl<10Ω)
(Resistance max. 400Ω).
- Max. measure current : 250 μA.
- Accuracy : 0.1% of full scale at +25°C.
- Thermic drift < 150ppm/°C.

Environment

- Operating temperature : -5 to 55°C.
- Storage temperature : -30°C to +80°C.
- Relative dampness : 80% annual average.
- **Case** : Moulded plastic casing, grey body, black front face (for panel mounting).
  Front dimensions : 36 x 144 mm
  Weight with / without output board : 420g / 290g.
- **Connectors** plug-off connectors on rear face for screwed connections (2,5mm², flexible or rigid).
- **Protection** : Front face : IP 50   Case/terminals : IP20
- **Standards** : Complies with standards EN 50081-2 on emissions and EN 50082-2; on immunity (in industrial environment)
EN 61000-4-2 level 3, EN 61000-4-3 level 3,
EN 61000-4-4 level 4, EN 61000-4-6 level 3
CE marking according to Directive CEM 89-336.

Auxiliary power supply

2 Versions : High Voltage or Low Voltage
(to be specified on order)

High Voltage :   90...270 V_{AC} 50/60/400 Hz
       and   88 ...350 V_{DC}

Low Voltage :   20...40 V_{AC} 50/60/400 Hz
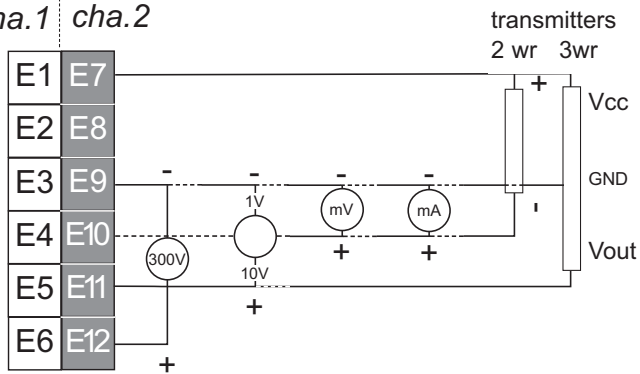   and   20...64 V_{DC}

Power draw : 6 W max. 10 VA max.

♦ Features

- Sampling time : 100ms per measure channel
- Input impedance $\geq$ 1 MΩ for voltage inputs
  Drop 0,9 V max. for the current input
- Rejection rate :
  Common mode : 130 dB   Mode series : 70 dB 50/60 Hz
- Zero drift compensation and self-calibration
- Insulation : Input / Power supply : 2,5 kV eff. 50Hz-1min

  Input / Output : 2.5 kV eff. 50Hz-1min

♦ Programmable integration indice

Allows display stabilizing in case of unsteady input.

♦ Line or sensor rupture detection

- Can be detected on inputs mV, CT, Pt 100, Ni 100,
  ΔPt100, resistance and current (4-20 mA).
- Return value programmable on the analog output in case of
  sensor rupture.
- State of each of the 4 relais in case of sensor rupture
  programmable.
- Sensor rupture can be disconnected.

♦ Self-diagnosis :

- Permanently watches any drifts that may occur on the
  components. Serves to warn the user before they provoque false
  measures.
- State of each of the 4 relays in case of self-diagnosis error
  programmable
- Return value programmable on the analog output in case of self-
  diagnosis error.

♦ Input scale overstepping

Visualised on the display by a flashing measure

♦ Linearisations

- Linear input
- Square root extraction (current or voltage inputs)
- Special linearisation on 20 points (in X and in Y)
  (inputs : voltage, current, potentiometer or resistance)

♦ Scale shifting (slope and offset)

Programmable on all inputs.

♦ Brightness setting

Independent setting of digits and leds/bargraphs programmable :
4 levels, according to the location of the appliance (outdoor,
control room...)

♦ Fast reading on the digital display

- Of the setpoints value.
- Of the input signal electrical value.
- Of min. and Max. values.

♦ Fast reading on the bargraph

- Of the level of alarm setpoints
- Of the state of the relays.
- Of oversteppings or sensor ruptures.

♦ Function simulation

- The analog output can be simulated (mode generator).
- The measure can be simulated, in order to validate the

configuration of the analog and relay outputs in the
installation (mode simulation).

♦ Access code

An access code adjustable from 000 to 999 serves to
prevent unauthorized programming of the indicator and of
its setpoints, and to lock access to some functions. The
factory code is 000.

x x x		
	0 to 5	Access to scale shifting
	6 to 9	No access
	0 to 5	Access to measure and output simulations
	6 to 9	No access
	0 to 5	Access to fast entering of alarm setpoints
	6 to 9	No access

Coding

Input type

DIP-BAR 1 : 1 measure channel
DIP-BAR 2 : 2 measure channels

Output options

A   : Analog (2 outputs programmable in U or I)
R   : 2 relays
R4   : 4 relays

Options combinable simultaneously

A
A / R
A / R4
R4

Type of power supply

2   : High Voltage
3   : Low Voltage

Ordering examples :

For a bargraph indicator with 1 input, 2 analog outputs
and 2 relays, in 230 Vac power supply, request reference :
DIP-BAR 1 AR 2

For an indicator with 2 inputs, 2 analog outputs and
4 relays, in 230 Vac power supply, request reference :
DIP-BAR 2 AR4 2

*This instrument is designed for industrial applications. It has to be
mounted in an electrical switchbox, or equivalent.*
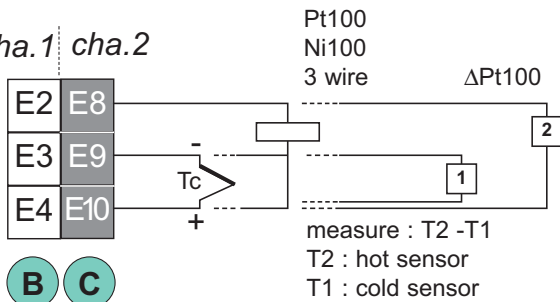
Wiring

INPUTS

PROCESS

cha.1 cha.2

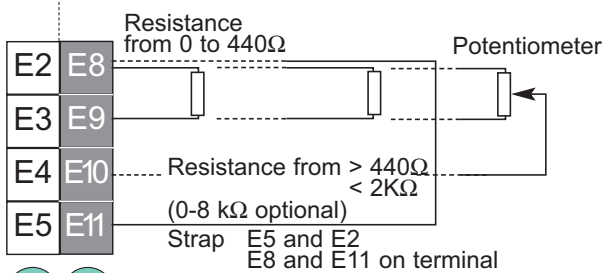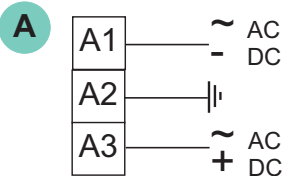| E1 | E7 |
E2	E8
E3	E9
E4	E10
E5	E11
E6	E12

B C

transmitters
2 wr   3wr

Vcc

GND

Vout

1V
10V
300V
mV
mA

+   -

TEMPERATURE

cha.1 cha.2

E2	E8
E3	E9
E4	E10

B C

Tc
+   -

Pt100
Ni100
3 wire

ΔPt100

2
1

measure : T2 -T1
T2 : hot sensor
T1 : cold sensor

RESISTANCE AND POTENTIOMETER

cha.1 cha.2

E2	E8
E3	E9
E4	E10
E5	E11

B C

Resistance
from 0 to 440Ω

Potentiometer

Resistance from > 440Ω
< 2KΩ
(0-8 kΩ optional)
Strap   E5 and E2
E8 and E11 on terminal

POWER SUPPLY

A

A1	~ AC − DC
A2	⏚
A3	~ AC + DC

Drawing of terminals location (view of case rear face)

D
Output
current or
voltage

| S1 |
| S2 |
| S3 |
| S4 |
| S5 |
| S6 |

A
power supply

| A1 |
| A2 |
| A3 |

E
Output
2 relays

| S7 |
| S8 |
| S9 |
| S10 |
| S11 |
| S12 |

B
Input
channel 1

| E1 |
| E2 |
| E3 |
| E4 |
| E5 |
| E6 |

F
E+F
Output
4 relays

| S13 |
| S14 |
| S15 |
| S16 |
| S17 |
| S18 |

C
Input
channel 2

| E7 |
| E8 |
| E9 |
| E10 |
| E11 |
| E12 |
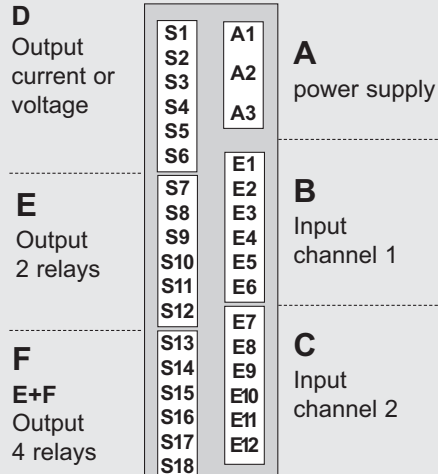
OUTPUTS (options)

CURRENT OR VOLTAGE

2 outputs S1 and S2, not insulated, programmable in voltage or current

| S1 |
| S2 |
| S3 |
| S4 |
| S5 |
| S6 |

S2 V2
S1 V1
S1 mA 1
S2 mA 2

mA 2
passive
Rc2

mA 1
passive
Rc1
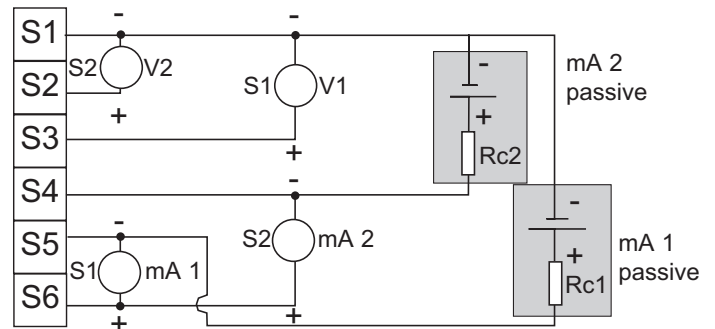
D 0 - 4 - 20 mA passive
external source 30V max.

2 OR 4 RELAIS

E 2 relays

S7	R1 C1
S8	T1
S9	
S10	R2 C2
S11	T2
S12	

F 4 relays (E+F)

S13	R3 C3
S14	T3
S15	
S16	R4 C4
S17	T4
S18	

T : NO
C : Common
R : NC