TWO-COLOUR DIGITAL PANEL METER
INTEGRATOR TOTALLER

DIP1603

The DIP1603 is a highly accurate **programmable digital panel meter**, with **IP 65** front face protection.
Each appliance is equipped with a two-colour 6 digits 14 mm high display with a brightness which integrates perfectly in applications in industrial control rooms.
The extra-thin front face allows a better integration in cabinet fronts.
It allows the display of an instant or cumulated measure, which can be managed on the different outputs.

Two display versions are available:

Two-colour display, red and green

Two-colour display, red and white

Introduction

● **Inputs:**
   - Bidirectional current or voltage input:
   ±20 mA, ±100 mV, ±1 V, ±10 V, ±150 V, ±300 V.

   The totalling function allows converting any instant magnitude into a cumulated magnitude after integration.

   When connected to a flowmeter or to a measure converter, the DIP1603 displays the instant measure and the cumulated measure according to a programmable time basis.
   Applications: Flow / Volume, Power / Energy …

   - 2 isolated logic inputs (24VDC signal)

● **Universal power supply**

   20 to 250 VAC and 20 to 250 VDC

● **Options:**
   (to be specified on order)
   • **Isolated analogue output**
   Active current output, or voltage output.
   • **Output 2 or 4 relays**
   Mode setpoint or window.
   • **Isolated digital communications**
   RS485 2-wire, protocol MODBUS-JBUS

Easy programming on front face with a 5-key tactile keyboard, or via the software SlimSET with a standard USB-µUSB cable (optional).

• **Display**:
   Electroluminescent red and green (or red and white)
   Selection of the basic colour and the condition for colour change programmable.
   ±100000 points for the instant value.
   -20000000/+2000000000 for the cumulated value.
   16-leds bargraph allowing a quick visualisation of one of the two values.
   4 alarm leds + 2 Leds for indication of the displayed value.

• **Housing**: Self-extinguishing case of black UL 94 V0 ABS.
   Extra-thin 1.4 mm front face

• **Connectors**: Removable terminal blocks on rear face for screwed connectings (2.5mm², flexible or rigid)

• **Protection**: Front face: IP 65 Housing/terminals: IP20

• **Compliance with standards**:
   Directive LV 2014/35/UE………EN 61010-1
   Directive EMC 2014/30/UE……EN 61326-1
   Directive ROHS 2011/65/UE

C€ Marking

Technical features

Types of inputs

DC current or voltage input
Bidirectional current or voltage input:
±20 mA, ±100 mV, ±1 V, ±10 V, ±150 V, ±300 V.

- Accuracy: 0.1 % of the full scale at +25 °C
- Measurable scale overrange from -10% to +10%
- Scale factor programmable
- Enlarging effect
- Square root extraction
- Special linearisation on 20 points
- Supply for 2 or 3-wire sensor
  21 V_{DC} (±15%) 100 mA protected from short-circuits

2 logic inputs: 24 VDC signal

Totaller reset / Stop of the integration start.
Display hold.
Changing of displayed value.
0 reset of the min. and max.
Tare function.

Types of options

option A1,A2,A3

Analogue output: 3 types on choice
A1: Active current output 0/4-20mA
A2: Passive current output 0/4-20mA
A3: Voltage output 0-10V

- Accuracy: 0.1 % in relation to the display (at +25°C)
- Residual ripple ≤ 0.2%
- Admissible load 0Ω < Lr < 600 Ω (current)
  Lr > 5kΩ (voltage)
- Scale ratio programmable with enlarging effect.
- Response time: 40 ms.

option R, R4

Relay outputs:
2 or 4 independently programmable setpoint relays

- Hysteresis programmable independently in display points.

- Time delay programmable independently from 0 to 999.9 s in 0,1s. increments.

- Break-make contact 8 A - 250 V on resistive load.

option N

Digital output:
RS485 2-wire, protocol MODBUS-JBUS
Slave number programmable from 1 to 255.
Baud rate from 1200 to 19200 bauds

♦ **Power supply**

20 to 250 VAC 50/60Hz, and 20 to 250 VDC
Power consumption: 6,5 W max. 10 VA max.

♦ **Galvanic isolation**

3 kVeff 50HZ 1mn, between supply, input, analogue output, relay outputs, RS485 output and logic inputs.
1.5 kV between analogue output and RS485.

♦ **Response time**

Average response time: 150 ms (for a variation from 10 to 90 % of the input signals)

♦ **Features**

- Sampling time: 100ms
- Rejection rate:
  - Common mode: 130 dB
  - Serial mode: 50 dB 50/60 Hz
- Zero drift compensation

♦ Integration indice (programmable)

Allows stabilizing the display in case of unsteady input.

♦ Detection of the line or sensor break

- Can be detected on inputs mV or mA (if the down and up scale are < 3,5 mA)
  Fall back value programmable on the analogue output in case of sensor break.
- Detection of the sensor break programmable on the 2 relays.

♦ Self-diagnosis

- Permanently watches any drifts of the components. Serves to warn the user before they may provoque false measures.
- Self-diagnosis detection of the errors programmable on the 2 relays.
- Fall back value programmable on the analogue output in case of self-diagnosis error.

♦ Input scale overrange

Shown on the display by a blinking measure.

♦ Linearisations

- Linear input
- Extraction of the square root
- Special linearisation in 20 points (in X and in Y)

♦ Process calibration (slope and offset)

Programmable on all inputs.

♦ Brightness setting

Setting of the digits brightness programmable on 4 levels, depending on the location of the device (outside, control room...)

♦ Quick reading on the display

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

♦ Function simulation

- Possibility to simulate the analogue output (generator mode).
- Possibility to simulate the input or the displayed measure: allows validating the configuration of the analogue output and the relay outputs in the installation.

♦ Changing of the display colour

- Programming of the main display colour.
- Programming of the display colour change on alarm or self-diagnosis.

♦ Access code

An access code adjustable from 0000 to 9999 serves to protect the digital panel meter from unauthorized programming and to lock the access to some functions.

On factory exit the code is 0000.

♦ Environment

- IP65 front face protection.
- Operating temperature: -20 to +60°C.
- Storage temperature: -20 to +70°C.
- Relative dampness: 80% annual average.
- Use in pollution degree 2 and voltage surge category II or better.
- Max. altitude: 2000m
- Weight: 150g (with packaging)

Coding

♦ Type: DIP1603

♦ Output options:
- **A** : Analogue (A1, A2 or A3: specify)
- **R** : 2 relays
- **R4** : 4 relays
- **N** : Digital communications RS485

♦ Colour code:
RG: Two-colour display, Red/Green
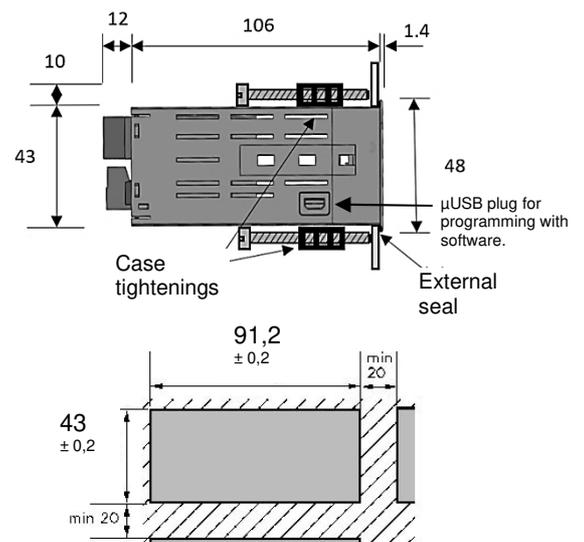**RW:** Two-colour display, Red/White

Order example:

For a two-colour digital panel meter in Red/Green with universal input, active current analogue output and 2 relays, request the reference:
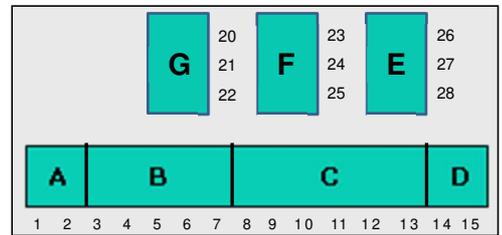**DIP1603 A1R RG**.

Dimensions

Housing: 96 x 48 x 119.4 mm (with terminals)

Mounting: on panel, cut out 43 x 91.2 mm

This appliance is dedicated to industrial applications. It has to be installed in an electrical cabinet, or equivalent.
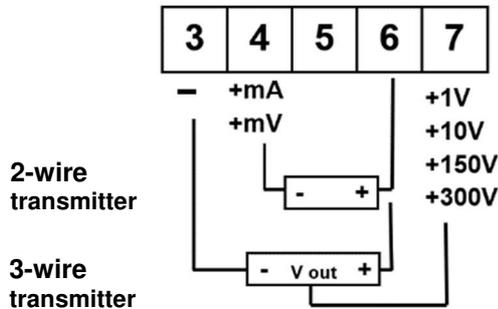
Connectings

Location of the terminals
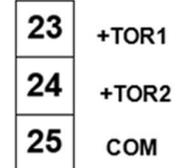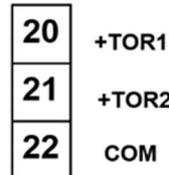(view of case rear side)

G	20 21 22	F	23 24 25	E 26 27 28

A	B	C	D
1 2	3 4 5 6 7	8 9 10 11 12 13	14 15

INPUTS B

3	4	5	6	7
−	+mA +mV			+1V +10V +150V +300V

- +

2-wire transmitter

- V out +

3-wire transmitter

LOGIC INPUTS G   or   **LOGIC INPUTS F**

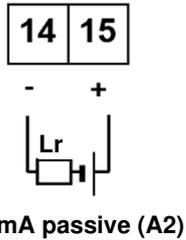| 20	+TOR1
21	+TOR2
22	COM

23	+TOR1
24	+TOR2
25	COM

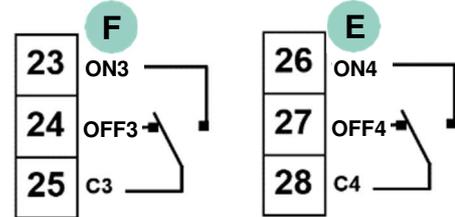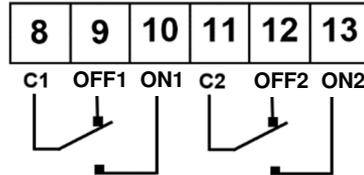## OUTPUTS (optional)

ANALOGUE OUTPUT D

14	15
+	−

mA active (A1)

14	15
−	+

V (A3)

14	15
−	+

Lr

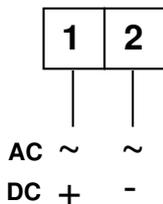**mA passive (A2)**

RELAYS 1 AND 2 C

8	9	10	11	12	13
C1	OFF1	ON1	C2	OFF2	ON2

RELAYS 3 AND 4

F

23	ON3
24	OFF3
25	C3

E

26	ON4
27	OFF4
28	C4

RS485 G

20	B
21	A
22	GND

SUPPLY A

1	2
AC ~	~
DC +	−

ARDETEM®

e-mail : info@ardetem.com
www.ardetem-sfere.com
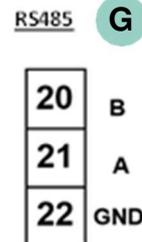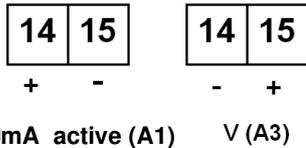
Route de Brindas
Parc d'activité d'Arbora N°2
69510 SOUCIEU EN JARREST
FRANCE

Tél. : 33 (0)4 72 31 31 30
Fax. : 33 (0)4 72 31 31 31

Your representative