

# DIGITAL PANEL METERS

programmable  $\pm 10\ 000$  points

**DISAI**  
Automatic Systems  
T-962 448 450 [www.disai.net](http://www.disai.net)

## DIP 404

The series DIP 404 offers a complete **range of high accuracy digital panel meters**, with **IP 65** front face protection. Each instrument is equipped with a 14mm high red digit display, whose brightness fits applications in industrial control rooms perfectly. They allow display, control and transmission of data from alternating voltage, alternating current and of frequencies from alternating signals.

### ► Display :

3 magnitudes can be programmed for display accessible simply by pressing one key.

### ► Combinable with various option types : (to be specified on the order)

### Insulated analog output :

Output active or passive current, or voltage.  
Programmable scale ratios, with enlarging effect.  
Return value in case of error self-diagnosis.



### Relay output : 2 or 4 relays :

- mode setpoint or window.  
Memorising of alarms.  
Delaying and hysteresis adjustable on each setpoint.  
Alarm messages

### Insulated digital output :

RS 485 2 wires, protocole MODBUS-JBUS.

### LOGIC input : 2 insulated LOGIC inputs, with programmable functions


Display blocking, min. and max. zero reset

### Bargraph display : (display 16 leds)

Enables fast evaluation of the measured value variations.  
Programmable scale factor.

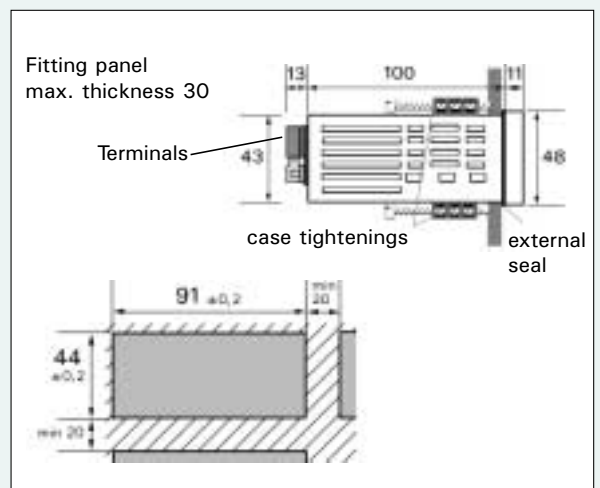
## External view

Easy programming from the front face via a 4-key keyboard.

- **Display** :  $\pm 10\ 000$  points (14 mm)  
Electroluminescent red, 4 alarm messages  
-2 000 / +10 000 points (20 mm) (consult with Ardetem)
- **Casing** : Self-extinguishing case in black UL 94 V0 ABS.
- **Connectings** plug-off connectors on the rear for screwed connections (2,5mm<sup>2</sup>, flexible or rigid)
- **Protection** : Front face : IP 65 Case/terminals : IP20
- **Standards** : Complies with standards EN 50081-2 on emission and EN 50082-2; 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  
Marking  according to directive CEM 89-336

## Dimensions

Case : 96 x 48 x 124 mm (including terminals)



**Mounting** : on panel, cut out 44 x 91 mm

# Technical features

## Input types

### Current, AC voltage network frequency DIP 404

DIP 404

- 2 programmable voltage calibers 150V and 500V  
Un = 150 VAC and 500 VAC  
overstepping 1,2 Un
- 2 programmable current calibers 1A and 5A  
In = 1,2A and 6A  
overstepping 1,2 In  
automatic calibers at 0-5A or 0-500V possible
- Voltage overload  
permanent : 750 V  
during 10s : 1000 V
- Current overload  
permanent : 10A  
during 10s : 50A
- Frequency : 45 Hz to 65 Hz
- Accuracy rating :  
0,2 % voltage / current (at 25°C)
- Measure cycle  
55 ms
- Display :  
3 magnitudes can be programmed for display accessible simply by pressing one key.

### ◆ Power supply

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

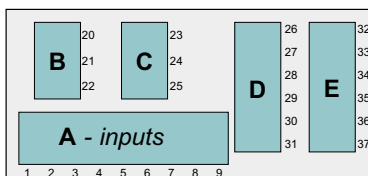
High Voltage : 90...270 VAC 50/60/400 Hz  
and 88 ...350 VDC

Low Voltage : 20...53 VAC 50/60/400 Hz  
and 20...75 VDC

**Power draw** : 5 W max. 8 VA max.

### ◆ Locations and combinations of options

All options can be combined, except in one case :  
*options* : logic input, 4 relays, with the analog output.



**Location of terminals**  
(view from case rear side)

#### Locations

- B** : option N (digital output)
  - C** : option A1, A2, A3 (analog output) or logic option
  - D** : option R (2 relays only)
  - E** : option logic input or **E+D** : option R4 (2+2 relays)
- Note* : location E is used in priority for option logic input

## Types of options

option A1 or A2 or A3

### Analog output : 3 types on choice

- A1** : Active current output 0/4-20mA
- A2** : Passive current output 0/4-20mA (Vmax.=30Vdc)
- A3** : Voltage output 0-10V

- Accuracy 0,1 % in relation to display (at +25°C)
- Residual drift ≤ 0,2%
- Admissible load  $0\Omega < R_c < 500\Omega$  (current)  
 $R_c > 2\text{ k}\Omega$  (voltage)
- Programmable scale ratio, with enlarging effect
- Response time : 40 ms

option R or R4

### Relay output : 2 types on choice

- R** : 2 independently programmable relays
- R4** : 4 independently programmable relays

#### Setpoint relays :

- Hysteresis programmable independently from 0 to 100% of setpoint in the display unit
- Time delay programmable independently from 0 to 25 s in 0,1s. increases
- NO-NC contact 8 A - 250 V on resistive load

option N

### Digital output

- N** : Data link RS485 (2 wires)

- Protocoles MODBUS-JBUS in the data format : integer / double integer
- Slave number programmable from 1 to 255 with a speed rate from 1200 to 19200 Bauds

option TOR

### LOGIC inputs

- tor** : 2 insulated LOGIC inputs

- Display blocking,
- min. and max. zero reset

option B

### Bargraph display

- B** : 16-Led display

- Enables fast evaluation of the measured value variations
- Possible programming of 3 bargraphs (1 for each displayed parameter)

### ◆ Features

- Input impedance  $\geq 1 \text{ M}\Omega$  for voltage input  
< 0,2 VA for current input
- Rejection rate :  
Common mode : 130 dB      Mode series : 70 dB 50/60 Hz
- Insulation : Input / Power supply : 2,5 kV eff. 50Hz-1min  
Input / Output : 2,5 kV eff. 50Hz-1min
- Thermic drift < 200 ppm / °C

### ◆ Programmable integration indice

Enables display stabilising in case of unsteady input.

### ◆ Self-diagnosis :

- Permanently watches any component drift that may surge.  
Serves to warn the user before they provoke false measures.
- Self-diagnosis error detection programmable on the 4 relays.
- Return value programmable on the analog output in case of error self-diagnosis.

### ◆ Input caliber overstepping

Visualised on the display by an error self-diagnosis.

### ◆ Brightness setting

Sets brightness of digits and bargraph leds independently  
Programmable : 4 levels  
According to instrument location (exterior, control room...)

### ◆ Fast reading on the display

- Of setpoint values.
- Of min. and max. values.

### ◆ Simulation function

- Simulation possible via the analog output.
- Simulation of measure possible : enables validating the configuration of analog output and relay outputs in the system.

### ◆ Access code

Access code adjustable from 0000 to 9999 serves to prevent unauthorised programming of indicator, of setpoints and lock access to some functions.  
Factory code is 0000.

x	x	x	x	
↓	↓			0 to 5 Access to setting of voltage / current cut-offs
				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

### ◆ Environment

- Front face protection IP 65.
- Operating temperature : -5 to 55°C.
- Storage temperature : -30°C to +80°C.
- Relative dampness : 80% annual average
- Connection by plug-off screwed connectors  
(for 2,5 mm<sup>2</sup> cable, flexible or rigid).
- Black ABS self-extinguishing case UL 94 VO.
- Weight with / without output board : 250g / 150g.

## coding

### ◆ Types : DIP 404

#### Display type

±10 000 points (14 mm)

-2 000 / +10 000 points (20 mm)

(add **H** at the end of type name : eg.  
DIP 404 H)

### ◆ Output options :

**A** : Analog (A1, A2 or A3 : to specify)

**R** : 2 relays

**R4** : 4 relays

**N** : Digital link (RS 485 2 wires)

**tor** : 2 LOGIC inputs

**B** : Bargraph display

*Simultaneously combinable options :*

A / R / N / B / tor

A / R4 / N / B

R4 / N / B / tor

### ◆ Power supply type

**2** : High Voltage

**3** : Low Voltage

### Ordering example :

For a 10000 point meter with an analog output and 2 relays with a 230 V<sub>AC</sub> power supply, request reference :  
**DIP 404 A2R 2** (passive current output)

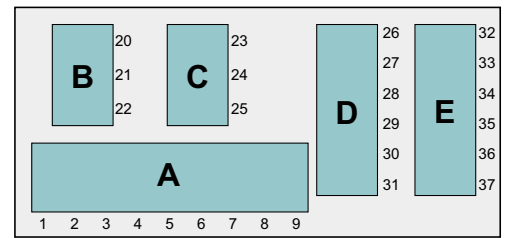
*This instrument is designed for industrial applications. It has to be mounted in an electrical switchbox, or similar.*

# Connections

## Wiring recommendations

The input network may carry significant disturbances, and they may disturb the complete chain. In order to avoid this, disturbance immunity can be made significantly better by respecting following rules :

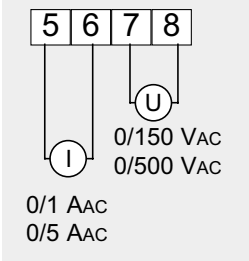
- do not connect close to each other : input network and DIP 404 power supply wires,
- do not connect close to each other : input network and all the DIP 404 output wires,
- use for all DIP 404 outputs shielded cables connected to the ground on both extremities.



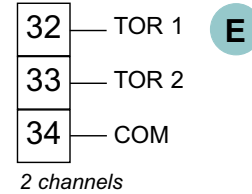
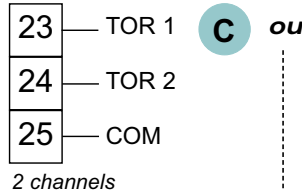
## Location of terminals

(view of case rear face)

## INPUTS

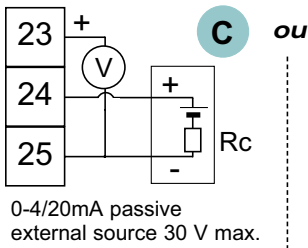


## LOGIC INPUTS (options)

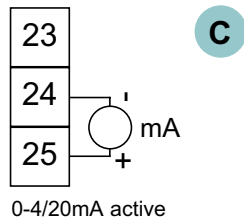


## OUTPUTS (options)

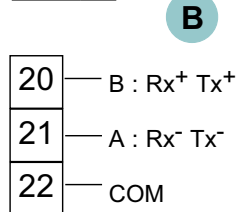
### VOLTAGE PASSIVE CURRENT



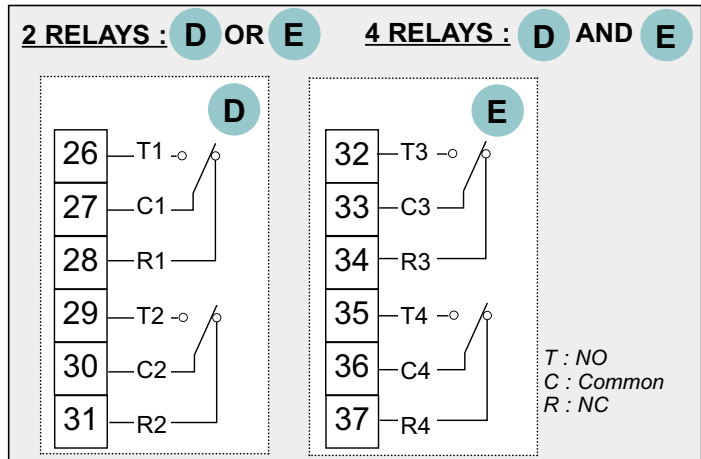
### ACTIVE CURRENT



### DIGITAL



RS 485 connection



## POWER SUPPLY

