DIGITAL PANEL METER FREQUENCY/COUNTING

1 frequency input

2 inputs for frequency or counting

DIP605 / DGN95I
DIP605C / DGN95IC

ARDETEM   **SFERE**

· ·

They can be connected to npn, pnp, logic, namur or contact type sensors (without external components), and they have an AC input, up to 500 V eff. (Input A only)
Programming of the functions associated with the keys.

• In mode frequencymeter
Measurement of signals ranging from 0.01 Hz to 200 kHz (according to the chosen input type), with an accuracy of 0.025 % of the measure and a thermal drift < 50 ppm/°C.
Special linearisation in 20 points on each input.
Enlarging effect..

• In mode counting
Programming of a pulse weight, of a re-load value and a self reload value
Saving of the counters in case of power supply cut.
Possibility to associate the 2 inputs either by using an incremental coder type sensor with a counting resolution multiplied by 1, 2 or 4; or for the use of a mode counting / decounting.

Display from -99 999 to +1 000 000 points for the frequency and 6 +3 digits for the counting function.
Display of input A, input B, and possibility to display the sum or the difference of these 2 inputs in the case where they are used in the same operating mode.

External view

Easy programming on front face with a 4-key keyboard.

• **Display**: Electroluminescent red,
frequency measurement on 6 digits
counting on 6 + 3 digits
16 led bargraph : allows quick visulisation of 1 of the 3 displayable values: input A, input B, sum or difference.

• **Case**: Self-extinguishing casing of black UL 94 V0 ABS.

• **Connectors** plug-off terminals on rear face for screwed connections (2.5mm², flexible or rigid).

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

• **Standards**: Complies with standards EN 50081-2 on emissions 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

CE marking

The DIP605/DGN95I is a high accuracy programmable digital panel meter, for the measurement of frequencies or speeds, or for counting/de-counting applications (version C).

It is equipped with a six 14mm high red digits display, whose brightness suits applications in industrial control rooms perfectly. They allow display, control and transmission of data from any measurable magnitudes.

Combinable option types: *(specify).*

Isolated analog outputs:
Programmable on 1 of the 3 displayable values.
Active or passive current, or voltage output.
Programmable scale ratio with enlarging effect.

Relay output: 2 or 4 relays:
Programmable on 1 of the 3 displayable values, either as pulse output with adjustable weight or as alarm in mode setpoint or mode window with:
Recording of the alarms.
Time delay and hysteresis adjustable on each setpoint.
Messages associated with alarms

Isolated digital output:
RS 485 2 wire, protocole MODBUS-JBUS.

LOGIC inputs:
2 isolated LOGIC inputs with programmable functions.
Display hold, min. and Max. zero reset as well as all types of actions on the counters (eg. : zero reset, counting stop/ start, re-load etc... programmable on front or on the LOGIC input levels.

Bargraph: (16 led display)
Allows quick evaluation of the measured value variations.
Programmable scale factor.

Technical features

OPTION TYPES	INPUT TYPES

OPTION TYPES

A1 or A2 or A3

Analog output: **3 types on choice** (specify on order)
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 the display (at +25°C).
- Residual ripple ≤ 0.2%.
- Admissible load $0\Omega <$ $Lr < 500\ \Omega$ (current)
                    $Lr > 2\ k\Omega$ (voltage)
- Programmable scale ratio with enlarging effect on 1 of the 3 displayable values.
- Response time: 40 ms.

R or R4

Relay output: **2 types on choice**
R : 2 relays
R4 : 4 relays

- NO-NC contact 8A - 250V on resistive load
- Independently programmable on 1 of the 3 displayable values.
- **Mode pulses:** 400 ms; adjustable pulse weight (DIP605C/DGN95IC)
- **Mode alarm:** setpoint or window
- Hysteresis adjustable in the display unit
- Time delay adjustable from 0 to 25 sec in 0.1s increases.

option N

Digital output
N : Data link RS485 (2 wire)

- Protocoles **MODBUS-JBUS** format of data : integer / double integer.
- Slave number programmable from 1 to 255 with a speed from 1200 to 19200 Bauds.

option tor

Logic inputs
logic: 2 isolated LOGIC inputs

- Display hold,
- min. and Max. zero reset
- zero reset / re-load/ counter stop and start (DIP605C/DGN95IC)

option B

Bargraph display
B : 16 led display

- Allows quick evaluation of the measured value variations.

INPUT TYPES

Type of sensor: **npn, pnp, Namur logic, contact, Alternating from 5 to 500 V eff. (input A only)**

Measurable frequency from 0.01 Hz to 200 kHz type AC (according to the type of sensor)

- Accuracy 0.025 % of measure.
- Thermal drift <50 ppm/°C.
- Scale factor of each input programmable
- Enlarging effect
- Special linearisation of each input on 20 points
- Supply for 3 wire sensor
  26 V_{DC} (±15%) / 25 mA protected from short-circuits.

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…53 V_{AC} 50/60/400 Hz
        and   20…75 V_{DC}

Power draw: 5 W max. 8 VA max.

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

Coding

ARDETEM reference:
DIP605 : Version frequency - 1 input
DI605C : Version frequency/counting - 2 inputs
SFERE reference:
DGN95I : Version frequency - 1 input
DGN95IC : Version frequency/counting - 2 inputs

Output options:
  A   : Analog (A1, A2 or A3 : specify)
  R   : 2 relays
  R4 : 4 relays
  N   : Digital data link (RS 485 2 wire)
  tor : 2 LOGIC inputs
  B   : bargraph display

  Simultaneously combinable options:
  A / R / N / tor
  A / R4 / N
  R4 / N / tor

Type of supply:
  2 : High Voltage
  3 : Low Voltage

Features

Logic: voltage up to 18V
Low level ≤ 1.2V
High level ≥ 2.1V

Npn or contact:
Pull up resistance to +26Vdc of 5KΩ

Pnp:
Pull up resistance to GND of 7.5KΩ

Namur:
Supply 8.2V (10mA max)
Input resistance : 1KΩ
Low level ≤ 1.2mA
High level ≥ 2.1mA

Alternating:
Signal can range from 5 to 500 Veff (only on input A)
Input resistance: 800KΩ

Sampling time: 100ms + 1 period of the measured signal
(Minimum measurable frequency programmable)

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

Measure filtering

Analog filter programmable on each input, allows deleting of any parasite noises.
Digital filter, coefficient and action range programmable, allows display stabilising in case of unsteady input.

Self-diagnosis

the instrument permanently watches some of its parameters.
If an error is detected, it can be reported on the 4 relays and on the analog output (return value).

Linearisation

Linear input or special linearisation of each input in 20 points (in X and Y).
Cut off programmable.

Display

3 possible displays: input A, input B and the sum or the difference of the 2 inputs.
Display on 6 digits (± 100 000 points)
Brightness adjusting on 4 levels

Mode counting (version DIP605C/DGN95IC)

Display of the 3 counters (input A, input B and the sum or the difference of the 2 inputs) on 6 +3 digits.

Programmable counting mode
Ascending fronts, or ascending front and rescinding front
Incremental coder: X1, X2 or X4
Re-load value and self-reload function
Saving of the counters in case of power supply cut

Quick programmable functions

• Programming of the keys associated with the functions: reading of min. and Max., quick setting of setpoints, visualisation of the input direct value, etc…

Simulation function

• The analog output can be simulated (mode simulation).
• The measure can be simulated: allows validation of the analog output and the relay outputs in the installation.

Access code

An access code adjustable from 0000 to 9999 serves to prevent unauthorized programming of the meter and its setpoints, and to lock the access to some functions.
On factory exit, the code is 0000.

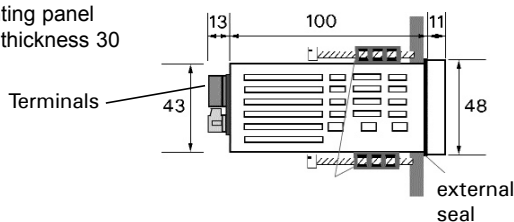| x x x x		
	0 to 5	Access to the measure and output simulations
	6 to 9	No access
	0 to 5	Access to the counters initialisation and command menus
	6 to 9	No access
	0 to 5	Access to the quick entering of alarm setpoints
	6 to 9	No access

Environment

• IP65 front face protection.
• Operating temperature: -5 to 55°C.
• Storage temperature: -30°C to +80°C.
• Relative dampness: 80% annual average.
• Connection by plug-off screwed terminals (for 2.5 mm² cable, flexible or rigid).
• Case of self-extinguishing black UL 94 VO ABS.
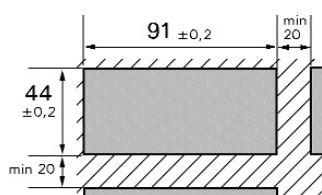• Weight with/without output board: 250g / 150g.
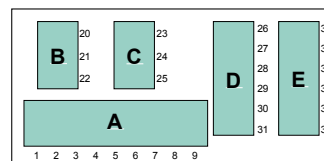
Wiring

Case: 96 x 48 x 124 mm (with terminals)
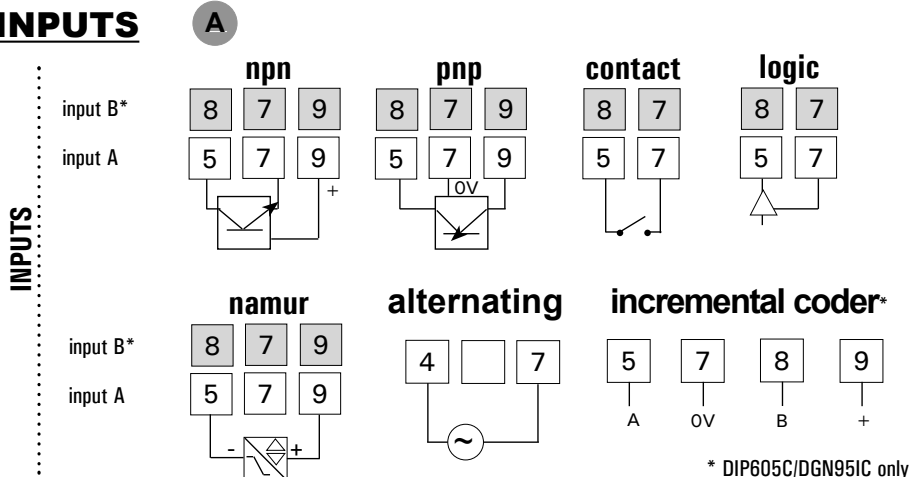
Mounting panel
Max. thickness 30

Terminals

13 · 100 · 11
43 · 48

external seal

Mounting: on panel;
cut out 44 x 91 mm

91 ±0,2 · min 20
44 ±0,2
min 20

Location of terminals
(view of case rear face)

| B | C | | D | E |

A
1 2 3 4 5 6 7 8 9

INPUTS A

npn
input B* | 8 | 7 | 9 |
input A | 5 | 7 | 9 | +

pnp
| 8 | 7 | 9 |
| 5 | 7 | 9 | 0V

contact
| 8 | 7 |
| 5 | 7 |

logic
| 8 | 7 |
| 5 | 7 |

namur
input B* | 8 | 7 | 9 |
input A | 5 | 7 | 9 |
- +

alternating
| 4 | | 7 |
~

incremental coder*
| 5 | 7 | 8 | 9 |
A   0V   B   +

* DIP605C/DGN95IC only

Locations and combinations of options

All options can be combined, except in one case:
options: LOGIC, 4 relays and the analog output.

Locations

B: option N (digital output)

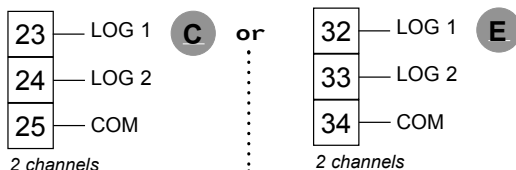**C**: option A1, A2, A3 (analog output)
or option LOGIC

D: option R (2 relays only)

E: option LOGIC or **E+D** : option R4 (2+2 relays)

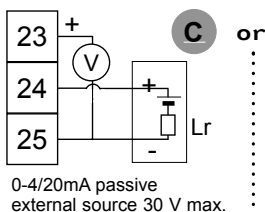*Note*: *location E is used in priority for the LOGIC option.*

OPTIONS
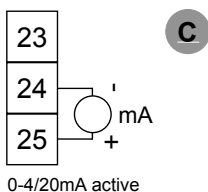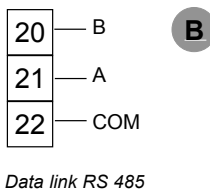
LOGIC INPUTS
(options)

| 23 | — LOG 1 | C or
| 24 | — LOG 2 |
| 25 | — COM |
2 channels

| 32 | — LOG 1 | E
| 33 | — LOG 2 |
| 34 | — COM |
2 channels

OUTPUTS (options)

VOLTAGE PASSIVE CURRENT

| 23 | + | C or
| 24 | | V + Lr
| 25 | - |

0-4/20mA passive
external source 30 V max.

ACTIVE CURRENT

| 23 | | C
| 24 | | mA
| 25 | | +

0-4/20mA active

DIGITAL

| 20 | — B | B
| 21 | — A |
| 22 | — COM |

Data link RS 485

2 RELAYS D
26	— T1
27	— C1
28	— R1
29	— T2
30	— C2
31	— R2

4 RELAYS E
32	— T3
33	— C3
34	— R3
35	— T4
36	— C4
37	— R4

T : ON
C : Common
R : OFF

POWER SUPPLY

| 1 | 2 | 3 | A

AC ~ ⏚ ~
DC + -

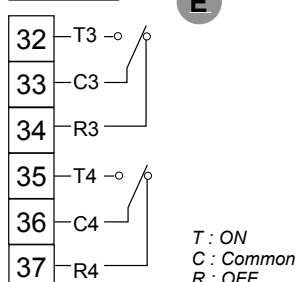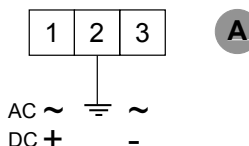**ARDETEM SFERE** ®
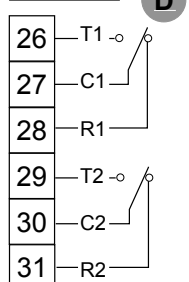
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