2-COLOUR ELECTRICAL NETWORK ANALYSER

DIVA105

*The DIVA105 is a high accuracy **electrical network analyser**, with **IP 65** front face protection.*
Each appliance is equipped with a two-colour 4 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.
They allow the display, the control and the transmission of all the parameters of AC electrical networks.

Two display versions are available:



Two-colour display, red and green





Two-colour display, red and white



Introduction

- **Inputs:**

  True RMS measure (TRMS) of the voltages and the currents.
  2 voltage calibres: 150 / 500 V
  2 current calibres: 1 / 5 A
  Network types: single or 3-phase balanced with or without neutral
  Measured parameters: voltage, current, frequency, power factor, powers (active, reactive and apparent) and energies.

- **Universal power supply**

  20 to 250 VAC and 20 to 250 VDC

- **Options:**

  (Specify 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
  - **2 isolated logic inputs (24VDC signal)**
  - **16-leds bar graph display**

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.
  ±10000 points.
  4 alarm leds.
  Possibility to programme 3 magnitudes for display, accessible simply by pressing 1 key.

- **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

CE Marking

sfere
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Technical features

Types of inputs

DIVA105

- 2 voltage calibres (programmable): 150V and 500V.
  Un = 150 VAC and 500 VAC
  Overrange: 1.2 Un
- 2 current calibres (programable): 1A and 5A.
  In = 1 AAC anf 5 AAC
  Overrange: 1.2 Un
- Voltage overrange:
  Permanent: 750 V
  During 10 s: 1000 V
- Current overrange:
  Permanent: 10 A
  During 10 s: 50 A
- Frequency: 10…50…65 Hz
- Accuracy rating:
  Class 0.2 for voltage / current (at 25°C)
  Class 0.5 for the powers
  Class 1 for the energies
- Measure cycle: 50 ms
- Saving of the energy counters
- Thermal drift < 200 ppm/°C
- Digital filtering programmable
- Input impedance:
  > 2 MOhms for the voltage input.
  < 0.2 VA for the current input.

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 relays

Alarm mode:

- 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

Pulses mode:

- Width and weight of the pulse adjustable.

option N

Digital output:

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

option T

2 logic inputs: 24 VDC signal

Display hold, 0 reset of the min. and max.

option B

16-leds bargraph display:

- Quick evaluation of the variations of the measured value.
  Scale factor programmable.

Power supply

20 to 250 VAC 50/60Hz, and 20 to 250 VDC

Power consumption: 3 W max. 6 VA max.

Galvanic isolation

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

1.5 kV between analogue output and RS485.

♦ Integration indice (programmable)

Allows stabilizing the display in case of unsteady input.

♦ Self-diagnosis

- 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.

♦ Brightness setting

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

♦ Quick reading on the display

- Of the value of the setpoints.
- Of the min. and max. values

♦ Function simulation

- Possibility to simulate the analogue output (generator mode).
- Simulation of the relays.

♦ 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.

Programming of the functions accessible by code.

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 for 500 V AC, and III or better for a voltage lower than 300 V AC.
- Max. altitude: 2000 m
- Weight: 150g (with terminals)

Coding

♦ Type: DIVA105

♦ **Output options***:*
A : Analogue (A1, A2 or A3: specify)
R : 2 relays
R4: 4 relays
N : Digital communications RS485
T : 2 logic inputs
B : Bar graph display

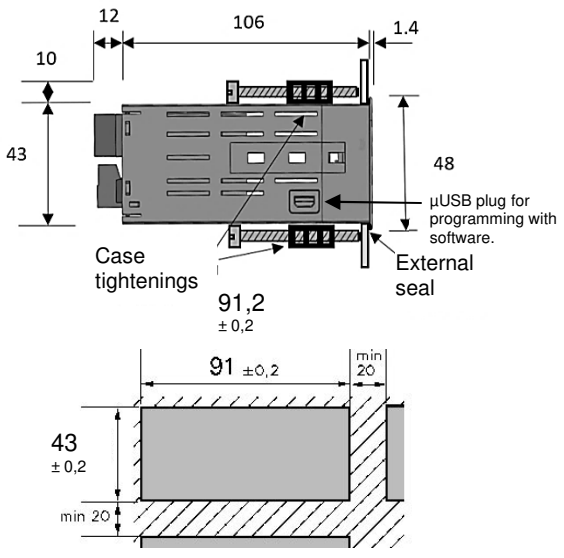
All outputs can be combined except for the configuration: AR4NT.

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

Order example:
For a two-colour analyser in Red/Green with active current analogue output and 2 relays, request the reference:
DIVA105 A1R RG.

Dimensions

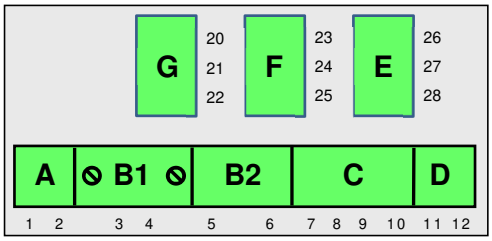
Housing: 96 x 48 x 119.4 mm (with terminals)



Mounting: on panel, cut out 43 x 91.2 mm

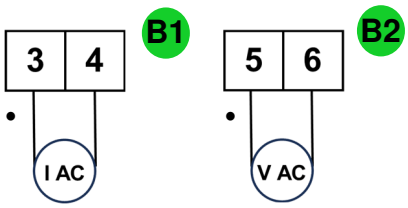
This appliance is dedicated to industrial applications. It has to be installed in an electrical cabinet, or equivalent.

Connectings



Location of the terminals
(view of case rear side)

INPUTS

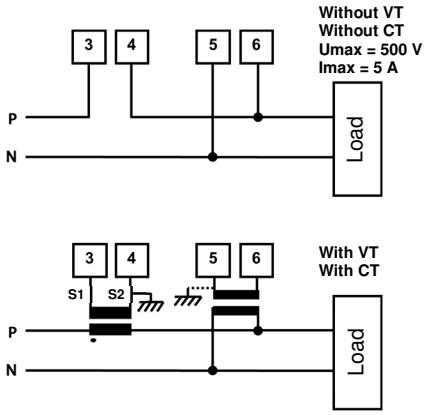


1 A AC
5 A AC

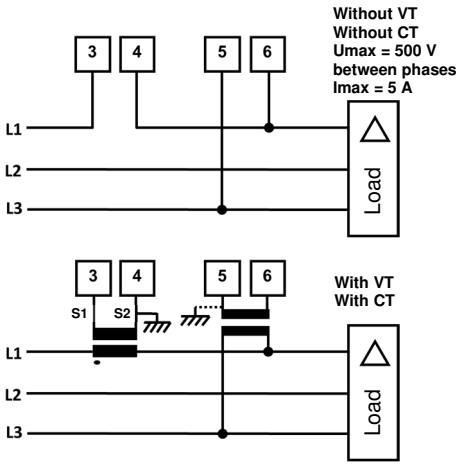
150 V AC
500 V AC

To avoid any influence of the current intake on the voltage measure, connect the CTs before the VTs.
Respect the wiring of the CTs: S1 corresponds to P1, and S2 corresponds to P2.
The secondaries S2 of the CTs and the VTs must be set to the earth.

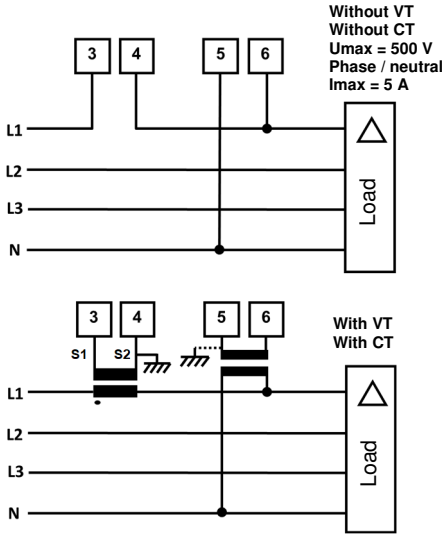
Single-phase



3-phase balanced without neutral: 3WB

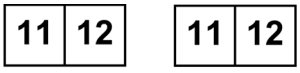


3-phase balanced with neutral: 4WB

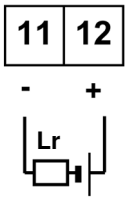


OUTPUTS (optional)

ANALOGUE OUTPUT D

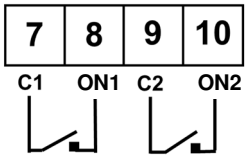


mA active (A1) V (A3)

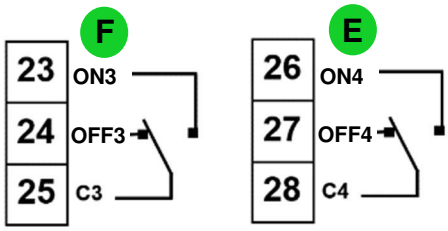


mA passive (A2)

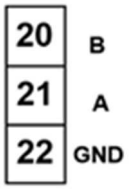
RELAYS 1 AND 2 C



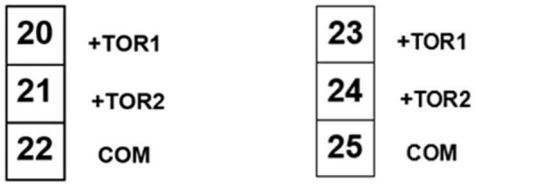
RELAYS 3 AND 4



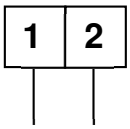
RS485 G



LOGIC INPUTS G or LOGIC INPUTS F



SUPPLY A



AC ~ ~
DC + -

Recommendations for the wiring:
The input network may carry significant disturbances, and this may disturb the complete chain.
In order to avoid this, the immunity from parasites may be made significantly better by respecting the following rules:
- Do not connect too close: the input network and the wires of the DIVA105 power supply.
- Do not connect too close: the input network and all the DIVA105 output wires.
- Use for all the outputs of the DIVA105 shielded cables connected to the GND on both ends.

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