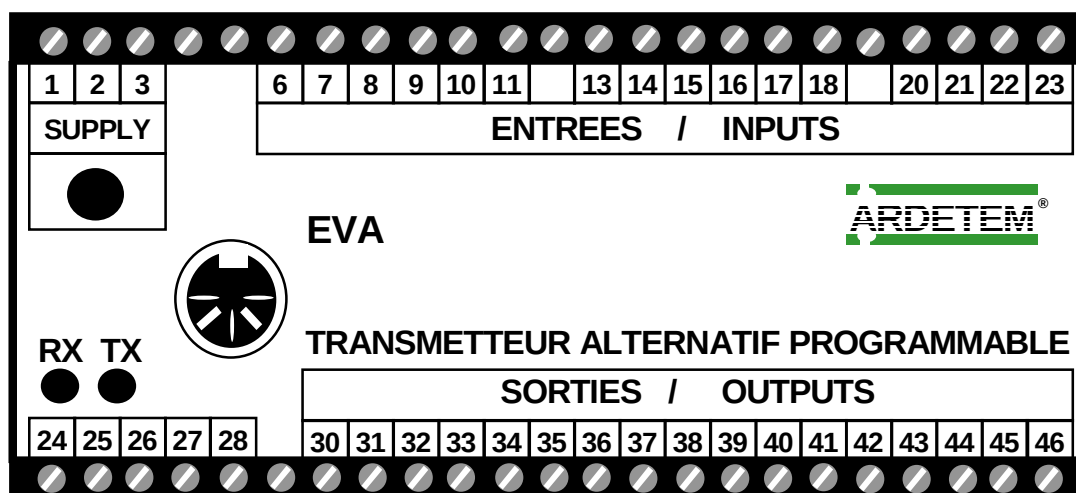


EVA 2000R

EVA 2501R



Signal analyser for electrical networks

Single-phase

Three-phase balanced without neutral

Three-phase balanced with neutral

Three-phase unbalanced without neutral

Three-phase unbalanced without neutral, measure of 3 currents

Three-phase unbalanced with neutral

Dealer :



PA d'Arbora N°2- Soucieu en Jarrest – FRANCE

France : Tél. : 04.72 31 31 30 Fax : 04. 72 31 31 31

Intern. : Tél. : 33.4. 72 31 31 30 Fax : 33.4. 72 31 31 31

Description

The analysers EVA are designed to measure and control all parameters in an electrical network, thanks to a digital data link.

Measure functions :

The analysers EVA 2000R and EVA 2501R monitor all following parameters in an electrical network :

- Simple voltages,
- U and I average,
- Active powers,
- Active energies IN/OUT
- Mesh voltages,
- Power factor,
- Reactive powers,
- Reactive energies IN/OUT...
- Line current,
- Phase, frequency,
- Apparent powers,

The device is inserted in a reduced casing for fitting on DIN rail according to EN 50022 (35x7,5mm). It includes all the following functions :

Output Ref	RS 485 Modbus/Jbus	Analogue outputs Uni-directional	Analogue outputs bi-directional	Pulse or self- diagnosis output	Insulated logic inputs (as option)
EVA 2501R	YES	3 outputs insulated from each other	2 outputs insulated from each other	1 pulse or self- diagnosis output	2
EVA 2000R	YES	-	-	-	-

The EVA regularly checks its calibration values , its program or internal reference values in order to ensure the validity of its measures.

The device also checks the levels of **voltage** or **current** inputs, so as to detect any overload or wiring error (reversing of the voltage phases or current polarities).

The analysers **EVA 2000R** and **EVA 2501R** displays on its front face 2 communication LEDS, which indicate the reception or emission of signals on its digital data link (serial interface), and a diagnosis LED.

This device can monitor all types of networks :

- Single-phase,
- 3-phased balanced, with or without neutral,
- 3-phased unbalanced, with or without neutral,
- with or without CT,
- with or without VT.

The accuracy of voltage and current measures is 0,5% (or 0,2% as option).

This systems are fully programmable by digital data link or through **ARDETEM CPI 2000** optional programming console. A detailed handbook in English is supplied.

Programming and development software (EVASION) is also supplied with each appliance.

All the data programmed by the operator is stored in a safe memory, and thus remains in case of power supply cut.

General features

Casing :	Polycarbonate UL 94V-2
Format :	149 x 110 x 75 mm
Mounting :	Fitting on DIN rail according to EN 50022 (35 x 75mm)
Protection :	IP20 for the terminals, IP40 for the casings
Connection :	Screw bolts 4mm ²
	Maximum permanent current : 20A
Digital outputs :	RS 485 and RS 422
	Protocole : MODBUS JBUS measure format floating or double word
	Baud rate : 1200 to 19200 bauds

Electrical features

<u>Power supply :</u>	
Voltage :	90 to 270 VAC 50-60 HZ, 88 to 350V DC 20 to 53 VAC 50-60 HZ, 20 to 75V DC
Power draw :	EVA 2501R : 11VA with AC supply, 6W with DC supply EVA 2000R : 6VA with AC supply, 3W with DC supply
<u>Inputs :</u>	
Voltage :	2 scales programmable Un = 150V and 500 VAC
Current :	In = 1A or 5A (to be specified on order)
Overload :	Permanent : 1,2 Un – 1,5 In During 10s : 2 Un -10In
Power draw :	Resistance voltage input : 1 Mohms Current input < 0,2 VA
Frequency :	45 to 65 HZ
Types of networks :	Single-phase 3-phase balanced with or without neutral. 3-phase unbalanced with or without neutral.
<u>Measures :</u>	
Accuracy :	0,5% on voltages (0,2 as option) for a scale over 5 to 120% of full range 0,5% on currents (0,2 as option) for a scale over 0,5 to 150% of full range 1% for energies (0,5 as option)
Measurement method :	Fast sampling and digital computation (32 bits)
Digital filtering :	5 programmable integration levels
Energies :	Stored on safe memory
Cycle time :	325 ms for a 3-phase unbalanced network 180 ms for a 3-phase balanced network
<u>Trial and operating conditions :</u>	
Operating temperature :	0 to +50°C
Storage temperature :	-10 to +70°C
Relative humidity :	20 to 80%, without condensation
Applying standards :	EN 61000-4-3 (801-3) : level 3 (10V/m from 80 MHz to 1 GHz) with amplitude modulation (1KHz at 80%) EN 61000-4-4 (801-4) : level 3 on current supply (2KV) Level 3 on inputs and outputs EN 61000-4-6 (801-6) : 10Veff from 150KHz to 80 MHz with amplitude modulation (1KHz à 80%) according to EN50081-2 and EN50082-2 CE marking according to European reference 83/336 revision 92/31
Galvanic insulation :	Inputs/outputs/supply : 2500 Veff 50Hz/1mn Digital, relay or analogue output : 2500 Veff Voltage/current inputs : 2500 Veff 50Hz/1mn

3 uni-directional outputs insulated from one another : (EVA 2501R only)

Output signal :	0 to 20mA, 4 to 20mA, 0 to 10 mA, 0 to 5mA
Galvanic insulation :	2500Veff 50Hz/1mn from voltage/current inputs 1000 Veff 50Hz/mn between each output.
Scale min. and max. :	0 to 100% of the measurement amplitude
Maximum load :	< 500 Ohms
Resolution :	12 bits

2 bi-directional outputs insulated from one-another : (EVA 2501R only)

Output signal :	-20 to +20mA, -10 to +10mA, -5 to +5mA and also 0 to 20mA, 4 to 20mA, 0 to 10mA, 0 to 5 mA
Galvanic insulation :	2500 Veff 50Hz/1mn from voltage/current inputs 1000 Veff 50Hz/1m between each output.
Scale min. and max. :	0 to 100% of the measure amplitude
Maximum load :	< 500 Ohms
Resolution :	12 bits

1 pulse output : (EVA 2501R only)

Type of contacts :	1T
Contact capacity :	5A, 250VAC/30VDC
Count rate :	0 to 5 pulses/sec
Pulse width :	100 ms to 1s in 50ms increases

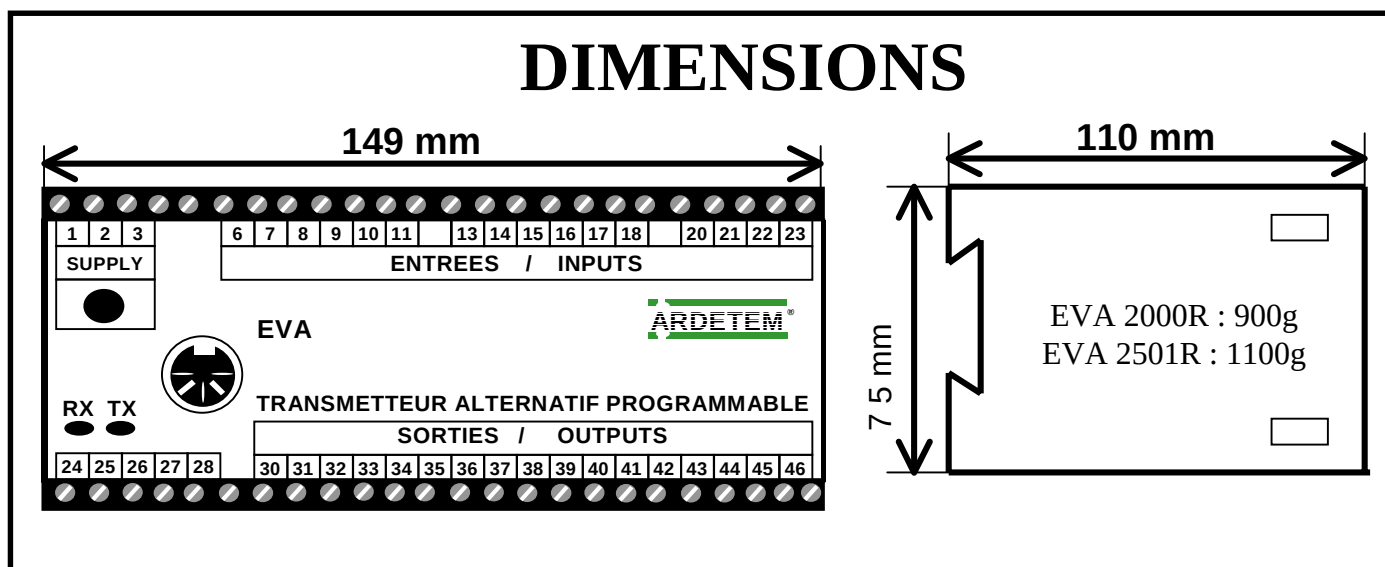
2 insulated logic inputs : (EVA 2501R only)

High setting :	20VDC < Vi < 28VDC (power draw 10mA)
Low setting :	0VDC < Vi < 2VDC
Insulation between each input :	2500 Veff 50Hz/1mn from voltage/current inputs 2500 Veff 50Hz/1mn between each input.

ARDETEM programming console CPI 2200 :

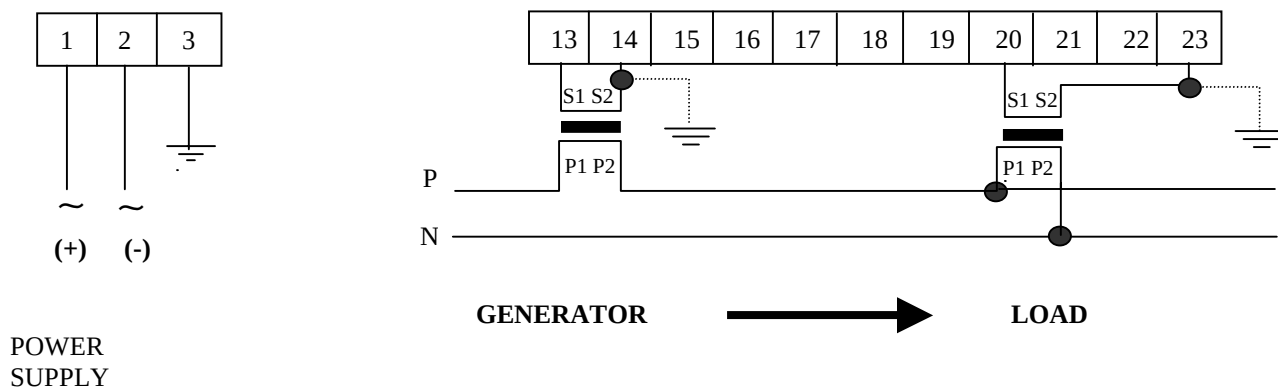
Keyboard :	16 keys
Panel :	LCD 2 lines with 16 alphanumerical positions

The EVA 2000R does not have any output, except for a digital data link RS485 MODBUS/JBUS

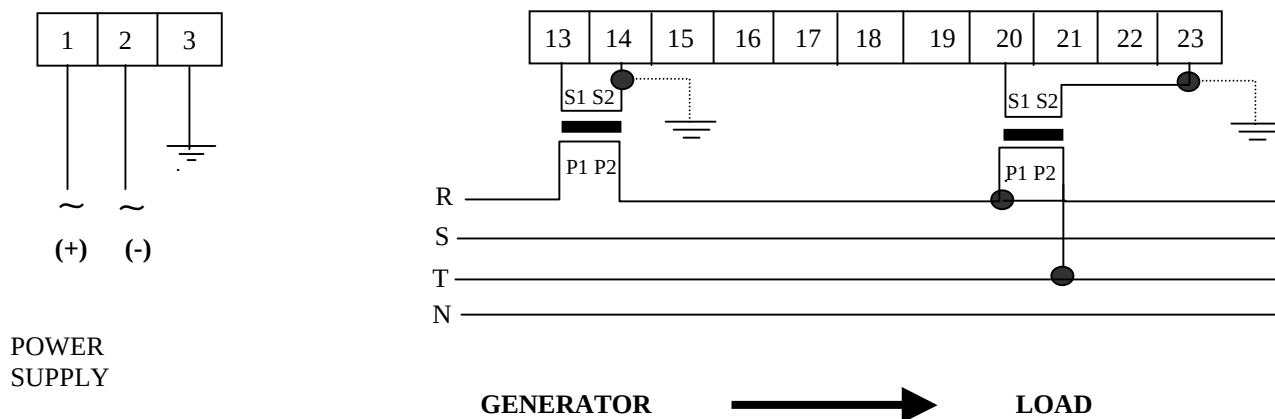


Wiring with current and voltage transformers CT and VT :

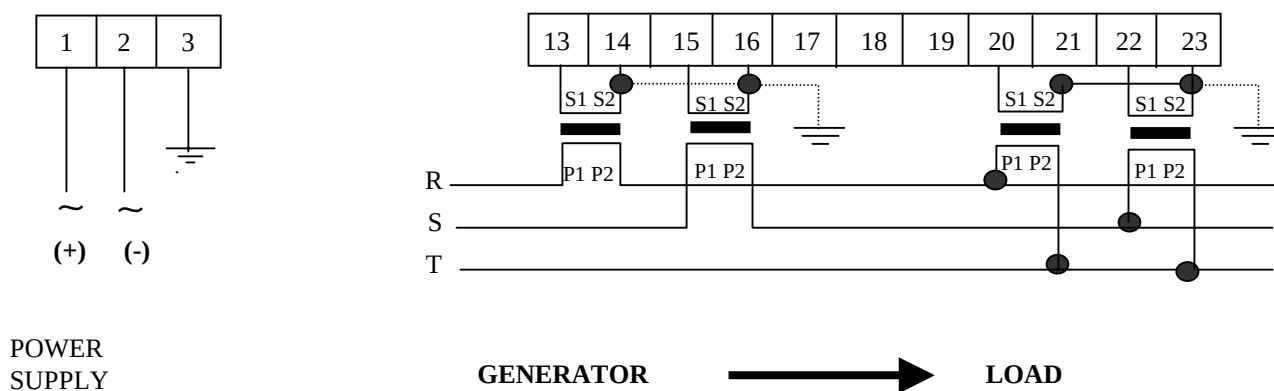
SINGLE-PHASE NETWORK



3-PHASE BALANCED NETWORK WITH OR WITHOUT NEUTRAL

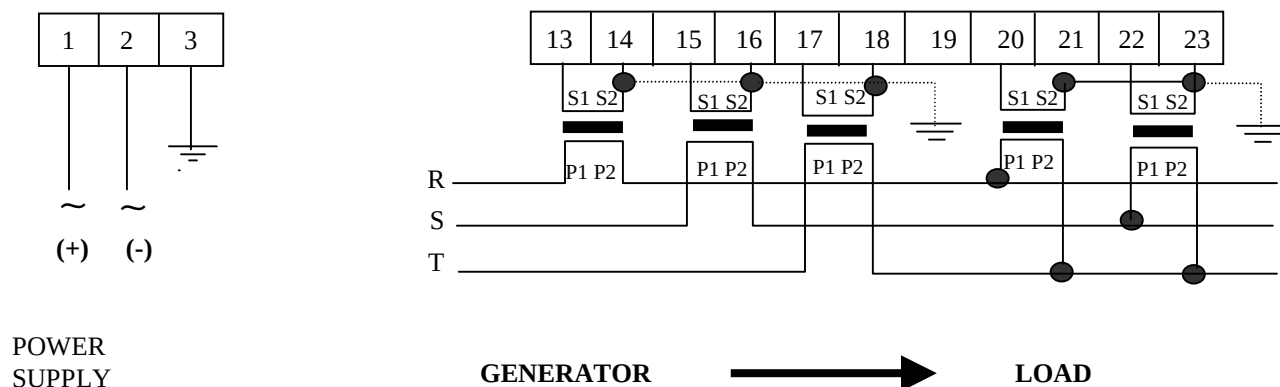


3-PHASE UNBALANCED NETWORK WITHOUT NEUTRAL

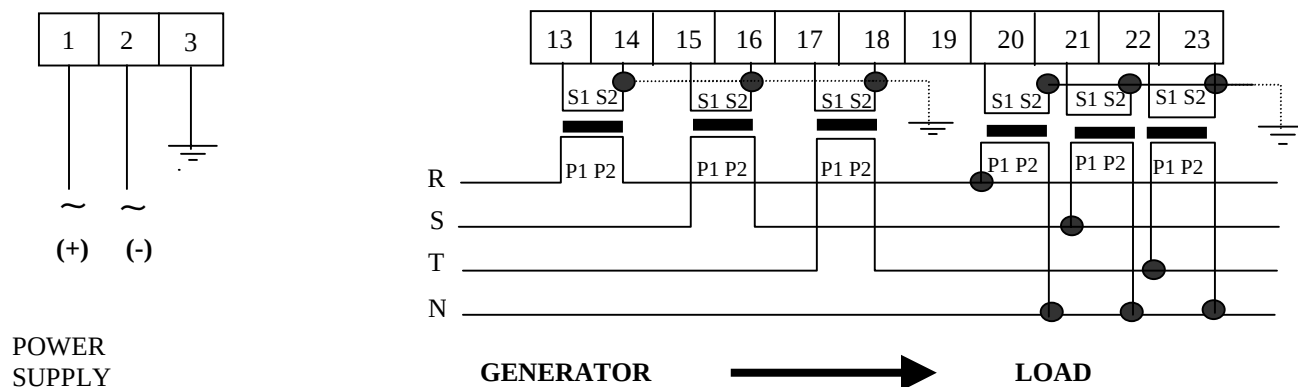


Wiring with current and voltage transformers CT and VT :

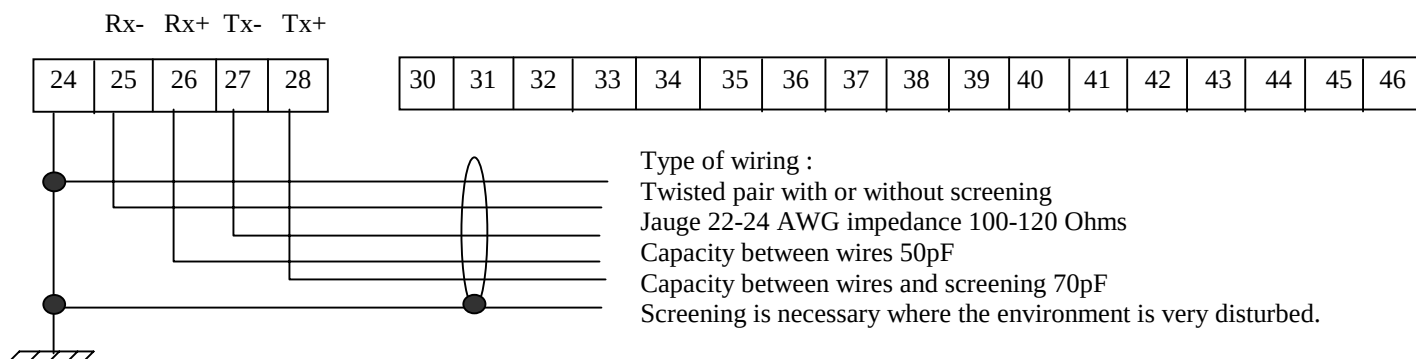
3-PHASE UNBALANCED NETWORK WITHOUT NEUTRAL, MEASURE OF 3 CURRENTS



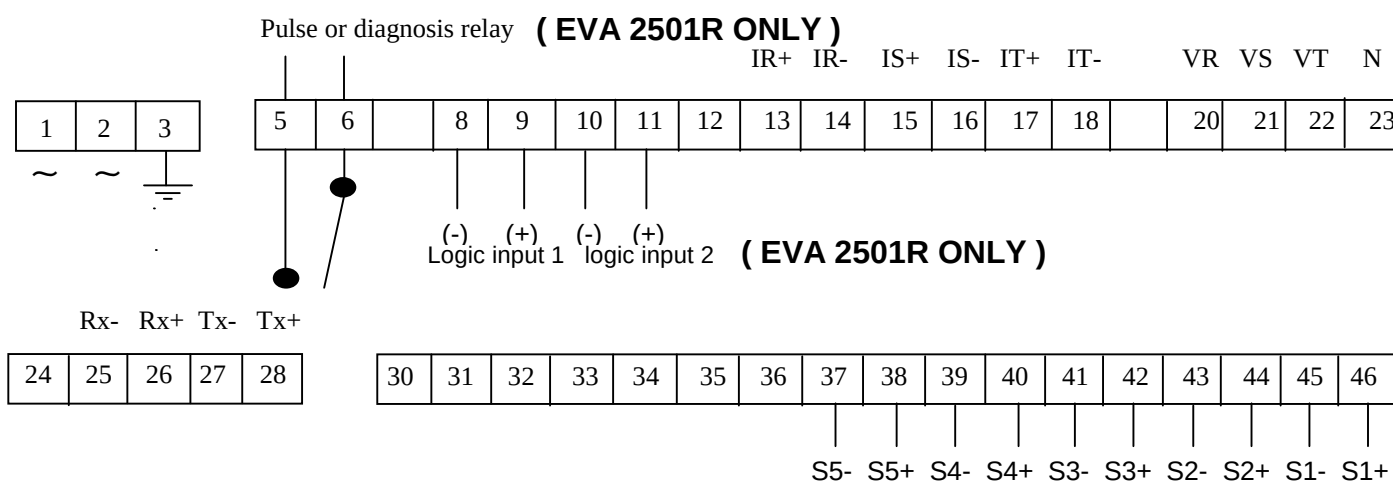
3-PHASE UNBALANCED NETWORK WITH NEUTRAL



WIRING OF DIGITAL OUTPUT



LOGIC INPUTS/OUTPUTS



S1, S2, S3 : uni-directional outputs

S4, S5 : 2 bi-directional outputs

(EVA 2501R ONLY)

Max. impedance. : $R_c = 500 \Omega$ pour 20 mA