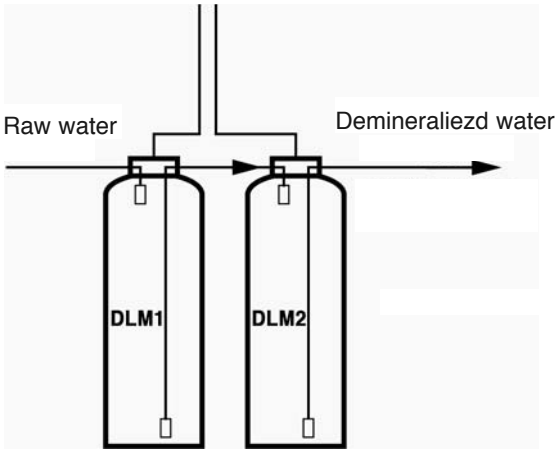
BAMOPHOX 319 ML-DB

Resistivity monitor



INSTRUCTION MANUAL

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RESISTIVITY MONITOR
BAMOPHOX 319 ML-DB
28-04-2009 319 M1 02 D

MES
319-02/1

Resistivity monitor
BAMOPHOX 319 ML-DB

Content

1. TECHNICAL FEATURES

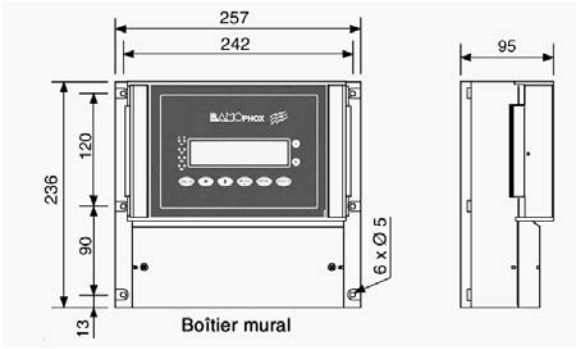
Displayed parameters:	Measurement values - Configuration Menu
Display:	Back lighted - 1 line of 16 alphanumerical characters ; 9,2 mm high
Indication:	LED alarms status
Configuration:	8 push buttons keyboard on front face - Keyword protected
Scales:	200 Ω .cm to 200 MΩ .cm
Accuracy:	± 0,3%
Probe input:	Coaxial connector BNC type DLM1: 20 MΩ .cm DLM2: adjustable
T° compensation /DLM2:	Automatic, with an input for a 3 wires Pt 100 Ω /0°
Relay outputs:	3 closing contacts (Silver alloy), voltage free
Thresholds:	3 programmable independent thresholds - with adjustable hysteresis 0…100% - and adjustable timer from 0 to 9999 sec
Output relay (S4):	Not available
Contact:	Initial resistance 100 mΩ as a maximum (voltage drop 6 V DC 1 A) Rated at 831 V AC / 3 A / 277 V AC ; 90 W / 3 A / 30 V DC Switching capacity (minimum) 100 mA, 5 V DC (depending of switching frequency, ambient conditions, accuracy) Mechanical life time (minimum) 5 $x10^6$ operations (180 commutation/min) Electrical life time (minimum) 2 $x10^5$ (20 comm./min) [3 A, 125 V AC], [3 A, 30 V DC] and 10^5 (evaluated charge) for 3 A, 125 V AC
Calibration sequence:	Relay outputs inhibited, analogical outputs stand on last values
Measurement output:	0/4-20 mA (maxi 600 Ω) proportional to measurement, galvanic insulated
Program Testing:	Simulation through the menu on measurement and relays outputs
Main power supply:	230 V AC / 50-60 Hz [other on request] - Consumption 10 VA
Models:	Wall mounting, IP65, cable glands, connections on screw terminal

OPTION

Data Logger:	Cycle average measurement record, with a programmable period, 150000 records maxi on MMC (multi media card) / External driver necessary

2. DIMENSIONS

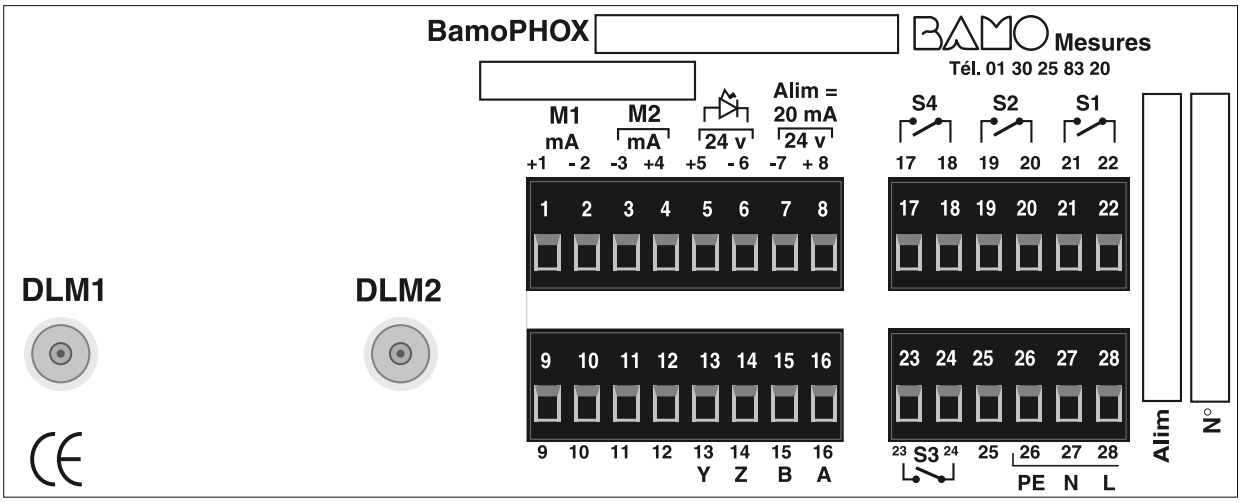
Extension model has the same dimensions.



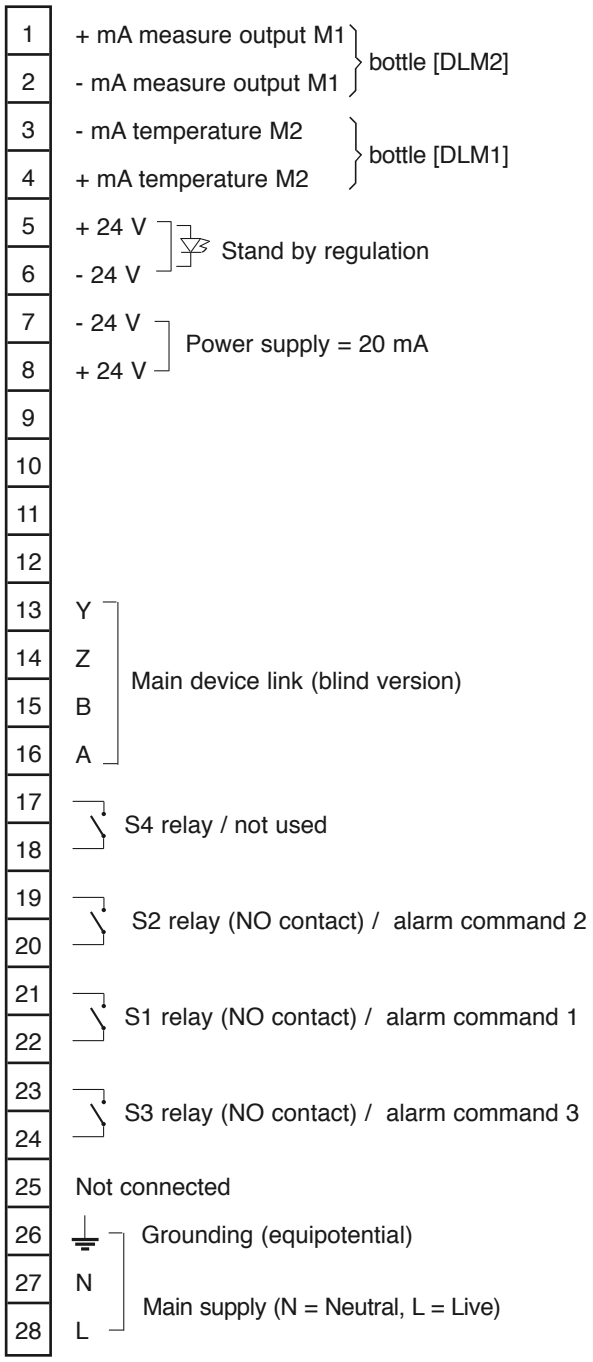
3. WIRING

WALL MOUNTING MODEL

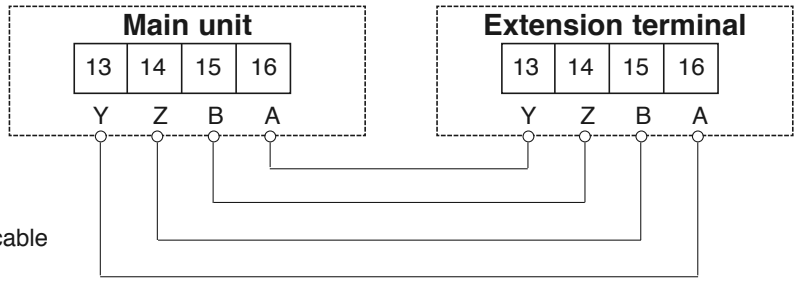
OPTION :
LOGGER
(access by the upper cover)



BAMOPHOX 319 ML-DB terminal



Wiring from BAMOPHOX 319 ML-DB to an Extension terminal BAMOPHOX 319 ML-DB



- Maximum length cable
  500 m

- Wire specifications:
  Mains cable or 4 wires shielded cable
  ≥ 0,25 mm² cross section

4. FRONT PANEL

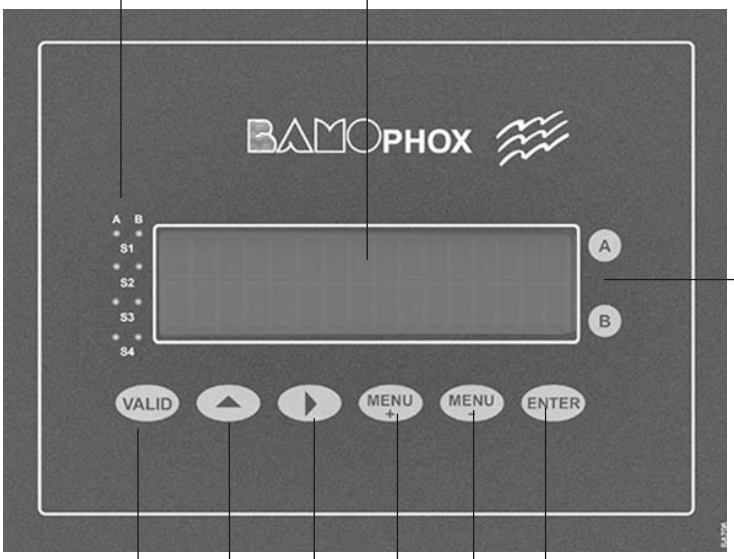
S1, S2, S3, and S4
indicate relays status:

LED lighting = contact ON
LED OFF = contact OFF
LED flashing = Timer in use

2 lines /16 alphanumeric characters
9.22 mm high - Back lighted

Key **"A"**
To display the parameters of upper line.
(main BAMOPHOX)

Key **"B"**
To display the parameters of lower line.
(Extension blind BAMOPHOX)



"VALID" key
To save the parameters on EPROM
when it asks:

VALIDATION ?

Caution, when you press this key,
all parameters are saved.
(previous data programmation
will be overwrited).
If you are not sure of any modification,
do not press the VALID key,

To change parameters of data capture:

Numéric input increase the
flashing digit (loop 0 after 9).

Reverse the choice Yes / No,
Up/Down, 0-20 mA / 4-20 mA etc.

To go to the next display or to change a value.

"ENTER" key
To change the step displayed menu.
At the last step, it comes back to the
first line.

"MENU - " key
To move the cursor during configuration.
At the last digit, comes back on the first
one.

"MENU +" key
To go to the next menu.

Pushing simultaneously both keys
"**MENU +**" and "**ENTER**"
allows a fast return to measurement display.

Measurement display

DLM2

ENTER

DLM1

SCROLLING MENU

MENU +

ABOUT BAMOPHOX

MENU +

CONSULTATION / MODIFICATION

MENU +

MEASUREMENT PARAMETERS

MENU +

ADJUST ALARM 1

MENU +

ADJUST ALARM 2

MENU +

ADJUST ALARM 3

MENU +

OUTPUT mA DLM1

MENU +

OUTPUT mA DLM2

MENU +

TEMPERATURE

MENU +

FORCED RELAY

MENU +

CLOCK

MENU +

RECORDING PERIOD

MENU +

SERIAL LINK

MENU +

With LOGGER option

See documentation

LOGGER

LANGUAGE

MENU +

ABOUT Bamophox

ABOUT Bamophox

ENTER

VERSION 1.00

ENTER

SERIAL N°

ENTER

20879 05

ENTER

CONSULTATION / MODIFICATION

CONSULTATION

▲

MODIFICATION

ENTER

CODE ? **0000**

ENTER

CODE ? 7905

ENTER

"ERROR"
DUREE : 30 mn

MENU +

▲ ▶

Last 4 digits (of serial number) are the key code to access the MODIFICATION menu.
When wrong code is entered, a message **"ERROR"** appears diring 30 seconds.
After 30minutes, the display returns automatically to the measurement mode.

MEASUREMENT SETTING (DLM2)

KIND OF MEASUREMENT

ENTER

RESISTIVITY

ENTER

K : _ _ _ _ _
(Cell constant)

ENTER

KR : _ _ _ _ _
(Corrective factor)

ENTER

SCALE : **kΩ / MΩ**
(20 MΩ)

ENTER

▲ ▶

▲ ▶

▲ ▶

Maximal length cable depends of range

Factor		0,01	0,1	1	10
scale					
200	MΩ	10 m			
20	MΩ	50 m	10 m		
2	MΩ	100 m	50 m	10 m	
200	KΩ		100 m	50 m	10 m
20	KΩ		100 m	100 m	50 m
2	KΩ			100 m	100 m
200	Ω				100 m

With automatic température compensation

Factor	0,01		0,1		1		10	
Scale 1	20,00	MOhms	2,000	MOhms	200,0	KOhms	20,00	KOhms
Scale 2	2,000	MOhms	200,0	KOhms	20,00	KOhms	2,000	KOhms

Without automatic température compensation

Factor	0,01		0,1		1		10	
Scale 1	200,0	MOhms	20,00	MOhms	2,000	MOhms	200,0	KOhms
Scale 2	20,00	MOhms	2,000	MOhms	200,0	KOhms	20,00	KOhms
Scale 3	2,00	MOhms	200,0	KOhms	20,00	KOhms	2,000	KOhms
Scale 4	200,0	KOhms	20,00	KOhms	2,000	KOhms	200,0	Ohms

ADJUST ALARM 1

MENU + → ADJUST ALARM 2

ENTER

ALARM 1 **ON/OFF** ▲

ENTER

ALARM 1 **DLM1 / DLM2** ▲

ENTER

HIGH/LOW ▲

HIGH= Energised if measure is higher to the set point
LOW= Energised if measure is lower to the set point

ENTER

ON **0000** MΩ ▲ ▶ Value to switch S1 relay will be energised

ENTER

OFF **0000** MΩ ▲ ▶ Value to switch S1 relay will be down

ENTER

DELAY UP **ON/OFF** ▲ With or without delay for S1 energising

ENTER

TIME **0000** SEC ▲ ▶ Duration of the delay for S1 energising

ENTER

DELAY DOWN **ON/OFF** ▲ With or without delay S1 will be down

ENTER

TIME **0000** SEC ▲ ▶ Duration of the delay for S1 will be down

ENTER

SAVING ?

VALID

ADJUST ALARM 2

MENU + → ADJUST ALARM 3 → see page 10

ENTER

ALARM 2 **ON/OFF** ▲

ENTER

ALARM 2 **DLM1 / DLM2** ▲

ENTER

HIGH/LOW ▲

HIGH= Energised if measure is higher to the set point
LOW= Energised if measure is lower to the set point

ENTER

ON **0000** MΩ ▲ ▶ Value to switch S2 relay will be energised

ENTER

OFF **0000** MΩ ▲ ▶ Value to switch S2 relay will be down

ENTER

DELAY UP **ON/OFF** ▲ With or without delay for S2 energising

ENTER

TIME **0000** SEC ▲ ▶ Duration of the delay for S2 energising

ENTER

DELAY DOWN **ON/OFF** ▲ With or without delay S2 will be down

ENTER

TIME **0000** SEC ▲ ▶ Duration of the delay for S2 will be down

ENTER

SAVING ?

VALID

ADJUST ALARM 3

MENU + → Sortie mA DLM2 → see page 11

ENTER

ALARM 3 **ON/OFF**

ENTER

ALARM 3 **DLM1 / DLM2**

ENTER

HIGH/LOW

HIGH= Energised if measure is higher to the set point
LOW= Energised if measure is lower to the set point

ENTER

ON **0000** MΩ — Value to switch S3 relay will be energised

ENTER

OFF **0000** MΩ — Value to switch S3 relay will be down

ENTER

DELAY UP **ON/OFF** — With or without delay for S3 energising

ENTER

TIME **0000** SEC — Duration of the delay for S3 energising

ENTER

DELAY DOWN **ON/OFF** — With or without delay S3 will be down

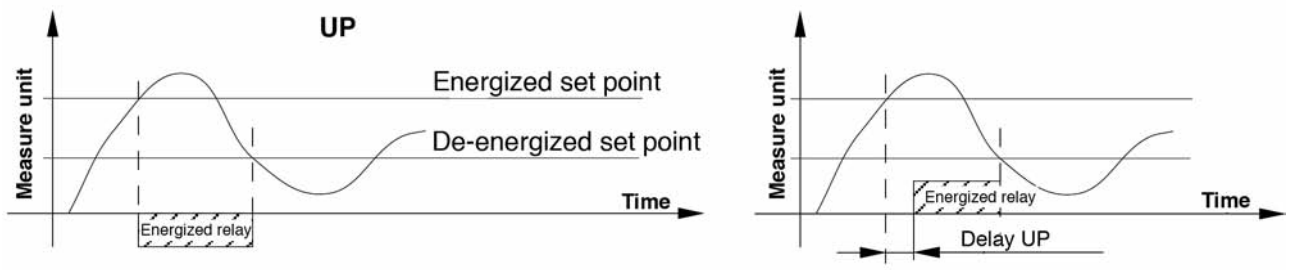
ENTER

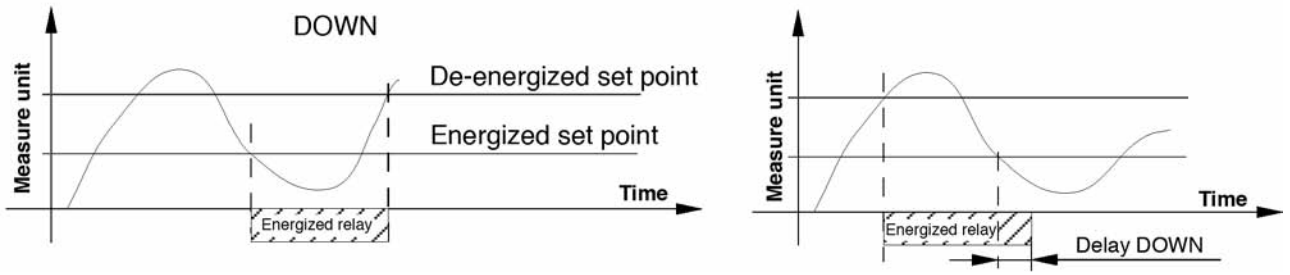
TIME **0000** SEC — Duration of the delay for S3 will be down

ENTER

SAVING ?

VALID





Sortie mA DLM2 — MENU + → Sortie mA DLM1

ENTER — HIGHER **200 MΩ** — ▲ ▶ Valeur corresponding to 20,00 mA output

ENTER — LOWER **200 Ω** — ▲ ▶ Valeur corresponding to 4,00 mA output (0,00 mA)

ENTER — OUTPUT **4-20 mA/ 0-20mA** — ▲ Output selection 0,00 mA or 4,00 mA

ENTER — SAVING ?

VALID

Sortie mA DLM1 — MENU + → TEMPERATURE

ENTER — HIGHER **200 MΩ** — ▲ ▶ Valeur corresponding to 20,00 mA output

ENTER — LOWER **200 Ω** — ▲ ▶ Valeur corresponding to 4,00 mA output (0,00 mA)

ENTER — OUTPUT **4-20 mA/ 0-20mA** — ▲ Output selection 0,00 mA or 4,00 mA

ENTER — SAVING ?

VALID

TEMPERATURE — MENU + → FORCED RELAY

ENTER — FLUID T°+ **025,0** °C

ENTER — AUTO TC : **YES / NO**

ENTER — SAVING ?

VALID

FORCED RELAY — MENU + → LANGUAGE

ENTER — ALARM 1 OFF / ON — ▲

ENTER — ALARM 2 OFF / ON — ▲

ENTER — ALARM 3 OFF / ON — ▲ Alarm manual test mode

ENTER — *ALARM 4* *Not available*

VALID

LANGUAGE — MENU + → Go back to display

ENTER — FRENCH / ENGLISH / ITALIAN — ▲

ENTER — SAVING ?

VALID