PRESSOTEST 200

PORTABLE DIGITAL MANOMETER

- For UNI 7129-1: 2015 and UNI 11137: 2019 gas tightness tests
- Features gas tightness test printout
- Pressure recorder function (Data Logger)
- Programmable min/max alarm levels
- Auditory and visual display alerts for off-range values
- Manual set for main parameters
- Automatic switch off function
- Operates on 6 1.5V alkaline AAA batteries

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Fig. 1: External appearance.

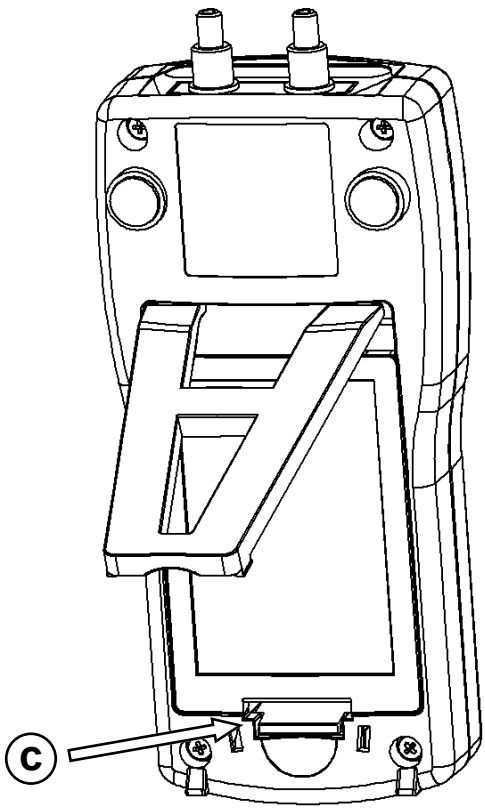

Fig. 2: Battery compartment location.

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OVERVIEW

The instrument is a portable digital manometer which has been designed for hydraulic systems. As well as all the standard manometer functions, instrument also features a digital auto-zero function, hold function, six different measurement units, overflow and underflow alarms, minimum and peak alarms with programmable thresholds, date and time display clock, programmable automatic switch off function. The instrument's distinguishing characteristic is that it carries out UNI 7129-1: 2015 (new systems) and UNI 11137: 2019 (existing systems) gas tight tests and prints out the results on an infrared ray printer. It also features a Data Logger which records and prints instantaneous, minimum, mean and peak values at programmable time intervals. This instrument has very low energy consumption levels and is powered by six 1.5V AAA batteries.

Warning! This manual is only valid form FW version 1.13. The FW version appears on the first screen when the instrument is switched on; for the update call an authorized Seritron service center.

TECHNICAL SPECIFICATIONS

Supply :	9V, 6x1,5V AAA alkaline batteries
Input:	10 mA
Measuring range:	± 130 hPa
Measurement units:	Pa, hPa, kPa, PSI, mmHg, mmH_2O
Accuracy :	±1% readout value P > 15 hPa
	±0.1 hPa -15 hPa < P < 15 hPa
	±1.5% readout value P < -15 hPa
	Including linearity, repeatibility and hysteresis
Resolution:	According to the unit and measuring range:

Unit	Interval	Resolution
Pa	±9999	1
hPa	±99.99	0.01
	elsewhere	0.1
kPa	±9.999	0.001
	elsewhere	0.01
PSI	±1.885	0.001
mmHg	±9.999	0.008
	elsewhere	0.01
mmH_2O	±999.9	0.1
	elsewhere	1

Sensor type:		semiconductor
Overload:		750 hPa
Display:		2 x LCD 4 digits + sign.
Protection level:		IP30
Operating temperature:		0°C .. +40°C
Storage temperature:		-10°C .. +50°C
Humidity:		20% .. 80% RH non condensing
Auto switch off:		Programmable from 1 to 30 mins
Case:	Material:	ABS V0 self-extinguishing
	Colour:	Dark blue Pantone 5534
Size:		87 x 162 x 41mm (L x A x P)
Weight:		~ 264 gr.

START UP

Preliminary operations

Before use please take the following steps:

- Insert batteries (included) in the battery housing unit ensuring correct polarity. To remove battery housing protection panel press gently downwards on the plastic lever (c in fig. 2).
- Connect silicon tubes (supplied) to the instrument's input (b in fig. 1) and output (a in fig. 1).

Battery check and replacement

If battery tension goes below the 6.5V threshold the low battery icon '  ' will appear in the display's top righthand corner. To replace batteries follow the instructions in the paragraph above.

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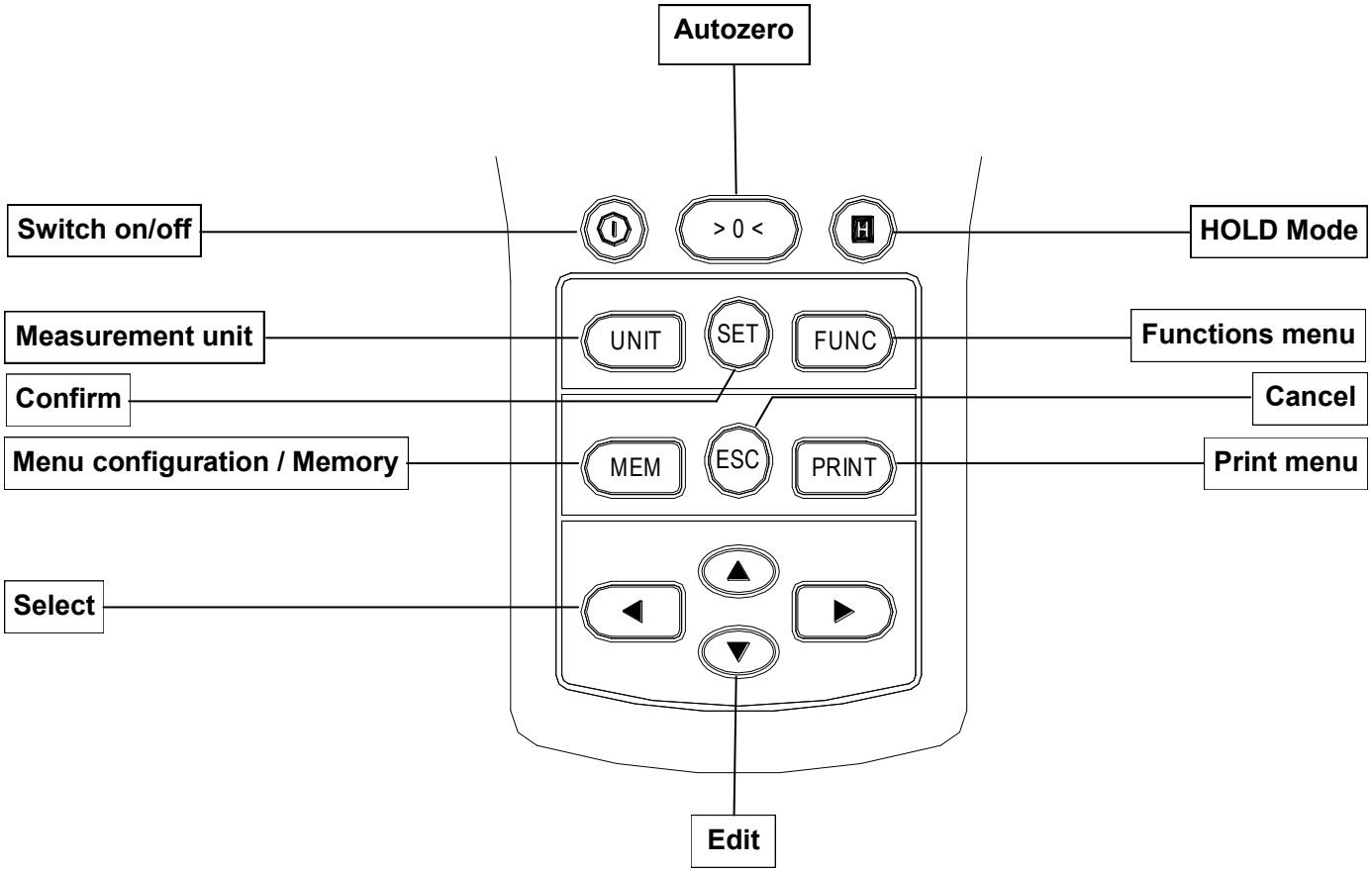
OPERATION

Keyboard description



Switching on/off
To switch the instrument on or off press the ' ⏻ ' key for at least 2 seconds.

Measurement unit
The ' **UNIT** ' key edits the pressure measurement unit. All the most common measurement units are available: **Pa**, **hPa**, **kPa**, **PSI**, **mmHg**, **mmH_2O**. The set measurement unit will remain valid after the instrument has been switched off.

Autozero
The ' **> 0 <** ' key activates the autozero procedure. During autozero the instrument samples the input pressure and sets it as the zero reference for the following measurements. During this procedure the display will read ' **auto-zero** ' and the numbers in the lower display will flash.

Hold
The ' **H** ' key activates the ' **HOLD** ' mode that ' freezes ' the pressure measured at that moment. At the same time the upper display will continue to show the pressure reading at input. Each time the ' **H** ' key is pressed the pressure reading shown in the upper display will be transferred to the lower display and shown as a fixed value. The hold mode is not available in the Functions menu.

Select / Edit
Use the horizontal arrow keys ' ◁ ▷ ' to move around the menu, scroll the list of functions, select the configuration parameters and display gas tight test results and Data Logger.
Use the vertical arrow keys ' △ ▽ ' to edit parameters. Pressed once they activate the edit function (the selected parameter will flash), further pressure will change the values. Numeric values can be altered when flashing by pressing the horizontal arrow keys and, when available, decimal figures can be set by pressing the horizontal arrow keys again to place the decimal point where required. To exit the edit mode confirm the parameters by pressing ' **SET** ' or return to previous parameters by pressing ' **ESC** '.

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Confirm/ Cancel

The ' **SET** ' key confirms operations. It must be pressed each time a function is activated or to confirm a parameter.

The ' **ESC** ' key cancels current operations. This key can be used to interrupt a gas tight test or to reset the previous parameters.

Configuration menu/ Memory menu

The ' **MEM** ' key accesses the memory where the configuration parameters and the results from the functions in the Func menu are stored. Access to either of these areas depends on the active menu.

To access configuration parameters press the ' **MEM** ' key on the pressure measurement screen (main screen), which is accessed by pressing ' **ESC** ' several times. To access function results press the ' **MEM** ' key on the function selection screen which is accessed from the pressure measurement screen by pressing the ' **FUNC** ' key and the arrow keys. In both cases visualise values using the horizontal arrow keys once the memory area has been accessed.

Instrument configuration parameters are described below:

' **buZZ** ' Activates the auditory alerts (buzzer).

' **toff** ' Activates automatic switch off (time off). The instrument will switch off automatically after the time set by the last key pressure. Set from 1.. 30 minutes or Off. Approaching switch off is signalled by 5 beeps at one second intervals. The ' ⏻ ' icon in the top lefthand corner of the display shows that the automatic switch off function is activated. This function is temporarily suspended during gas tight tests and Data Logging.

' **ASuP** ' Activates the peak alarm.

' **LSuP** ' Sets the peak alarm threshold. The alarm is triggered when pressure exceeds the set threshold. The threshold can be set between -9999 and +9999, and may include numbers with decimal points. The threshold is associated to a measurement unit that can be edited using the ' **UNIT** ' key.

' **AInF** ' Activates the minimum alarm.

' **LInF** ' Sets the minimum alarm threshold. The alarm is triggered when the pressure falls below the set threshold. The threshold can be set between -9999 and +9999, and may include numbers with decimal points. The threshold is associated to a measurement unit that can be edited using the ' **UNIT** ' key.

' **Pout** ' Sets printout speed:
Slow: the instrument waits until the printer has printed each line before sending the data for the next line.
Fast: all the data is sent to the printer.

Date Sets the clock date ' **year** '
day . month

Time Sets the clock time ' **seconds** '
hour : minutes

Print function

To print align the black panel on the right of the instrument with the printer sensor and press the ' **PRINT** ' key. This function can be activated from both the pressure measurement screen, where either the current pressure measurement or the blocked value in Hold can be printed, and the gas tight test results display and Data Logger screens, for printouts for the systems owners.

PORMDXBI00SE 034343 260320

Functions menu

Use the ' **FUNC** ' key to access functions. Use the arrow keys to select a gas tight test or the Data Logger function from the menu:

UNI 11137: 2019: Gas tight test for working systems.
UNI 7129-1: 2015: Gas tight test for new or reconditioned systems.
Data Logger: Acquires and saves pressure trends.

UNI 11137: 2019: Gas tight test for existing systems

The UNI 11137: 2019 standard is applied to the VII species operating systems, defining the leakage limits depending on the fact that the leak is located inside or outside the building. To carry out UNI 11137: 2019 gas tight tests with the instrument input the required parameters for the test (system volume, the gas type the system runs on, the test gas), adjust the system to the test pressure specified by the instrument, stabilise the test gas and then wait for one minute for Methane and LPG in air and 2.5 minutes for the LPG fuel while the manometer evaluates the fall in pressure in the system. From the pressure fall figure and the system characteristics the instrument calculates the extent of the leak and compares it to the range required by the norm to generate the result of the test.

Start the UNI 11137: 2019 gas tight test by pressing ' **SET** ' on the **UNI 11137: 2019** function selection screen. Step by step the instrument requests the operator to insert the parameters detailed below and confirm them with ' **SET** '. Other details are supplied in the flow diagrams illustrated further on in the manual.

' **Vol** ': The system volume is a required parameter for carrying out the UNI 11137: 2019 gas tight test. With the instrument it can either be inserted, if known, or measured by a simple procedure. Given the large number of small systems, the instrument also has a third option for systems of up to 18 dm^3 (litres); here no specific volume is required because the instrument automatically considers a volume of 18 dm^3.
The first option displayed for setting the gas tight test parameters is the option for systems of up to 18 dm^3, shown on the display by ' -18L ' (volume of less than 18 litres). This selection can be confirmed by using ' **SET** ' or the system volume can be input using the horizontal arrow keys.
For manual input the instrument automatically displays the volume used for the last gas tight test carried out. This value can be edited by using the arrow keys as described in the Select/edit paragraph on page 3.
On the insert volume screen it is also possible to calculate the volume directly using the syringe supplied with the pipe kit for gas tight tests. The procedure is summarised in a few simple steps below:

- Connect the syringe to its pipe from the gas tight test kit (opposite the pump).
- Open the tap and extract exactly 100 ml (100 cc) of gas from the plant
- Wait until the system restabilises. Removing the syringe full of gas disturbs the system's pressure and the manometer displays its variability by a flashing volume indication. Wait until it has stopped flashing before continuing.
- Inject the contents of the syringe back into the system and close the pipe kit tap.
- Wait until the system restabilises again. As before the volume indicator will flash until it has stabilised. Wait until it stops flashing.
- As soon as the system restabilises and the display stops flashing the measured volume will be shown.

To carry out the test with the volume shown, whether it has been input or measured, press ' **SET** '.

' **Comb** ': System combustible gas.
Gas tight tests are carried out under different test conditions and according to the type of gas the system uses. Select combustible gas from the options: natural gas ' **GnAt** ' and LPG. ' **GPL** '.

' **GAS** ': Test gas.
Gas tight testing is carried out under different conditions according to the test gas used. Select the test gas from either the system's combustible gas ' **Comb** ' or air ' **ArIA** '.

' **StAb** ': Stabilisation time.
Set the test gas stabilisation time when added to the system.

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An important point to bear in mind with regards the sequence of settings for a gas tight test is that the values inserted are saved and retrieved for carrying out the test only if the test itself is started.
This stores the test data until a new test is carried out, but has the disadvantage that if a screen is cancelled by pressing ' **ESC** ' it goes back to the beginning of the whole sequence and causes the loss of the data previously recorded.

Table 1: Examples relating to the various lengths of indoor systems, capacity approximately corresponding to 18dm^3, depending on the material and the diameter of the fuel gas adduction pipe.

Steel		Copper / Multilayer/ Polyethylene	
Diameter	**length (m)**	**Internal diameter (mm)**	**length (m)**
1/2"	82 (68)	10	228 (190)
3/4"	49 (40)	12	160 (133)
1"	28 (23)	14	116 (97)
1 1/4"	17 (14)	16	90 (75)
		19	64 (53)
		25	37 (31)
		26	34 (28)
		34	20 (17)

Note: When the measurement group can not be excluded from the test, the indicative length of the plant is given in brackets.

The system priming screen is visualised after the test parameters have been recorded.
The upper display shows the message ' **PomP** ', indicating the operator should start pumping gas, alternating with the pressure to reach. The lower display reads off the system pressure.
The test must be carried out using the positive pressure connection: if a negative pressure value is detected during pressurisation the display will visualise an error message ' **Err** ' to show the wrong connection is being used.
Test pressures must be as close as possible to the specific reference conditions shown in the table ' Reference standard pressures ' depending on the system's combustible gas and the test gas used.
Because it is virtually impossible to accurately meet these conditions, the instrument evaluates the '**q mis**' leakage amount in the measurement conditions, then adjusts this value in order to calculate the ' **q rif** ' amount according to the reference conditions. In order to evaluate the piping safety conditions the correct parameter that must be taken into account is the leakage amount in the reference conditions ' **q rif** '.

Table 2: Reference pressures

Combustible gas	Test gas	Pressure [Pa]
GnAt (Methane)	combustible gas	2200
	air	2200
GPL (LPG)	combustible gas	3000
	air	3000

The values indicated do not have to be precisely observed. For test purposes it is sufficient that the system is close to those required.

After the system has been primed the test gas stabilisation phase is started by pressing ' **SET** '. The display visualises the pressure measured in the system and the residual stabilisation time. The stabilisation phase is automatically terminated when the time set has expired or can be interrupted by pressing the ' **SET** ' key.

After stabilisation the actual gas tight test is run by evaluating the fall in the system's pressure over a 1 minute interval for Methane and LPG in air and 2.5 minutes for the LPG fuel.

PORMDXBI00SE 034343 260320

During the test the display visualises the pressure and the test time remaining. Pressing the ' **MEM** ' key will show the fall in pressure from the beginning of the test.
Running the test automatically saves the parameters involved and deletes data from previous tests. The flashing ' **REC** ' icon shows the data is being recorded.

At the end of the test the results are displayed automatically:

tESt: ' **Si** ' Positive test result. The system (external or internal) is approved to run (leak flow ≤1 dm^3/h for methane and ≤0.4 dm^3/h for LPG).

' **30GG** ' Limited positive test result. The system is approved for a maximum of 30 days running.

- leak location: Internal, methane limit: From 1 l/h to 5 l/h, GPL limit: From 0.4 l/h to 2 l/h.
  Or
- leak location: External, methane limit: From 1 l/h to 10 l/h, GPL limit: From 0.4 l/h to 2 l/h.

' **no** ' Negative test result. The system is not approved to run.

- leak location: Internal, methane limit: Higher or equal to 5 l/h, GPL limit: Higher or equal to 2 l/h.
  Or
- leak location: External, methane limit: Higher or equal to 10 l/h, GPL limit: Higher or equal to 2 l/h.

' **Err** ' Non valid test result. Errors occurred during sensor measurement (Overrange, Underrange). The value P2 is higher than P1 of at least 10 Pa.

' **OPEr** ' The test out come must be assessed by the operator.

Comb: System combustible gas.
GAS: Test gas used.
Vol: System volume in dm^3.
P1: System pressure at start of test.
P2: System pressure at end of test.
dP: P1 - P2 pressure difference. When pressure is falling dP is negative.
Q MIS: Leakage amount in the measurement conditions (in dm3/h).
Q RIF: Leakage amount adjusted according to reference conditions (in dm3/h).
- - -: Date of test.
- - -: Time test run started.

Test results can be printed on a printer with infrared ray linkup by pressing the ' **PRINT** ' key. During printout a screen with the description ' **Pout** ' and the message ' **Att** ' is visualised. This screen is automatically exited on completion. The printout function is not available during test runs.

Test results are retained in the memory even after the instrument has been switched off, until a new test run overwrites them.
Saved parameters can be retrieved by pressing ' **Mem** ' in the ' **UNI 11137: 2019** ' test selection screen and can be visualised and printed like those just run.

PORMDXBI00SE 034343 260320

UNI 7129-1: 2015: <u>Gas tight tests for new or reconditioned systems</u>

The standard UNI 7129-1: 2015 can be adopted for testing new piping systems or reconditioned ones.
This test requires to charge the piping up to a pressure between 100 hPa and 150 hPa, then wait for a stabilization which must last at least 15 minutes and required in order for the thermal effects caused by the test gas compression to fade out, and finally to test the piping tightness by analysing the decay of pressure over time.
The maximum pressure decay measured, espresse as a function of the piping volume, must be smaller than the values shown in the following table:

Internal piping volume (litters)	Wait time (minutes)	Maximum pressure decay allowed (hPa)
V ≤ 100	5	0,5
100 < V ≤ 250	5	0,2
250 < V ≤ 500	5	0,1

Select the **UNI 7129-1: 2015** norm and press ' **SET** ' to start the test, select the time interval for the test gas stabilisation phase from a range of 15 .. 99 minutes.

Once the time interval for the stabilisation of the test gas has been set the system priming screen is displayed. The upper display shows the message ' **PomP** ', indicating the operator should start pumping gas, alternating with the pressure to reach. The lower display reads off the system pressure.
The test must be carried out using the positive pressure connection: if a negative pressure value is detected during pressurisation the display will visualise an error message ' **Err** ' to show the wrong connection is being used.

After the system has been primed the test gas stabilisation phase is started by pressing ' **SET** '. The display visualises the pressure measured in the system and the residual stabilisation time. The stabilisation phase is automatically terminated when the time set has expired or can be interrupted by pressing the ' **SET** ' key.

After stabilisation the actual gas tight test is run. The UNI 7129-1: 2015 requires the evaluation of the fall in pressure in the system over a 5 minute interval. During the test the display visualises the pressure and the test time remaining. Pressing the ' **MEM** ' key will show the fall in pressure from the beginning of the test.
Running the test automatically saves the parameters involved and deletes data from previous tests. The flashing ' **REC** ' icon shows the data is being recorded.

At the end of the test the results are displayed automatically:

tESt: ' **Si** ' Positive test result. The system is gas tight.
' **no** ' Negative test result. The system leaks.
' **Err** ' Non valid test result.
' **OPEr** ' The test out come must be assessed by the operator.
Vol: System volume in liters (dm^3).
P1: System pressure at start of test.
P2: System pressure at end of test.
dP: P1 - P2 pressure difference. When pressure is falling dP is negative.
- - - : Date of test.
- - - : Time test run started.

Test results can be printed on a printer with infrared ray linkup by pressing the ' **PRINT** ' key. During printout a screen with the description ' **Pout** ' and the message ' **Att** ' is visualised. This screen is automatically exited on completion. The printout function is not available during test runs.

Test results are retained in the memory even after the instrument has been switched off, until a new test run overwrites them.
Saved parameters can be retrieved by pressing ' **Mem** ' in the ' **UNI 7129-1: 2015** ' test selection screen and can be visualised and printed like those just run.

PORMDXBI00SE 034343 260320

dAtA LoG: Data logger function

The ' **Data Logger** ' function records and saves pressare status over time. Analysed instantaneous, minimum, mean and peak value sizes and coupled with their observation instants can be evaluated.
Select the function, before activating recording using ' **SET** ', some parameters need to be set:

' **trEc** ': total recording time in minutes.
Total recording time in minutes is required. Select from a range of 1 to 9999 minutes.

' **nrEc** ': number of samples.
Select from 2 to 60.

At the end of the configuration sequence the recorder start up screen is visualised with the message ' **dLoG On** '. Activate recording by pressing ' **SET** ', this also deletes any previous recorded data. The ' **REC** ' icon flashes during recording.

When recording starts measured pressure is displayed. Pressing the ' **MEM** ' key accesses data record memory and pressure values, each coupled with its observation instant. At the end of the sequence the minimum, peak and mean size values are recorded (different to the sample minimum, peak and mean values).
All information is available in real time and can be displayed in the following order:

- **01:** First sample, 01 istant.
- **60:** Last sample, ' **nrEc** ' instant. Untaken samples are shown as ' **----** '.
- **MIN:** Pressure minimum. The observation instant is that of the last pressure sample taken before the reading.
- **MAX:** Pressure peak. The observation instant is that of the last pressure sample taken before the reading
- **AVG:** Mean pressure, evaluated by accumulating values with a 1 sec interval. The associated observation instant is that of the last pressure sample taken.
- **tREC:** Recording time in minutes.
- **nREC:** Number of samples taken.
- **- - -:** Recording start date.
- **- - -:** Recording start date.

Data from the Data Logger can be printed on infrared ray printers by pressing ' **PRINT** '.
During printout a screen with the description ' **Pout** ' and the message ' **Att** ' is visualised. This screen is automatically exited on completion. The printout function is not available during recording.

Records are retained in the memory even after the instrument has been switched off, until a new test overwrites them.
Saved data can be retrieved by pressing ' **Mem** ' in the test selection screen characterised by the message ' **dAtA LoG** ', and can be visualised and printed like those just run.

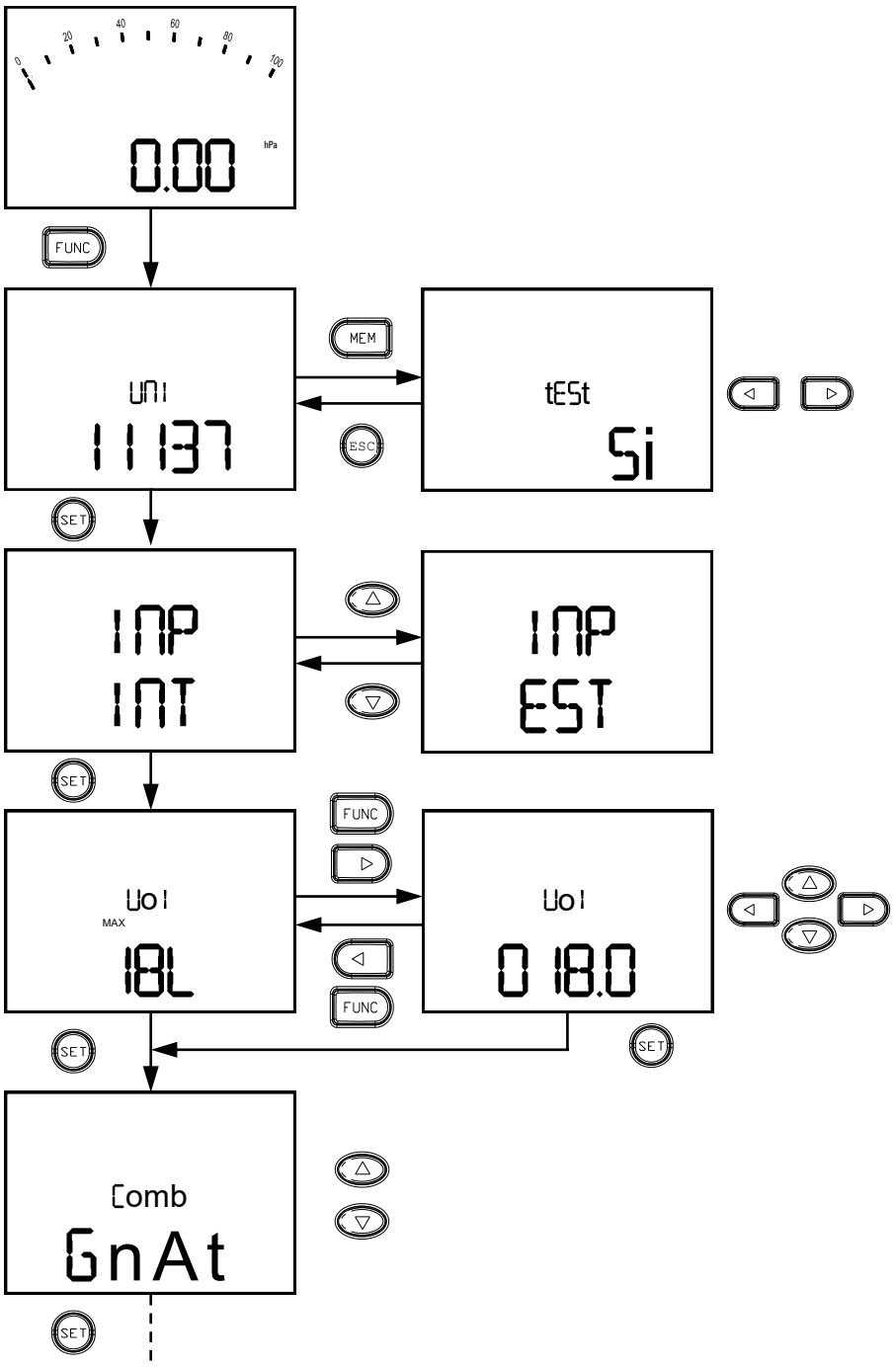
PORMDXBI00SE 034343 260320

Flow chart - functions menu

Procedure for inserting parameters:

- Press key ▲ or ▼ to activate the edit mode (parameter flashes).
- Press ▲ or ▼ to edit.
- If the parameter is numeric press ◀ or ▶ to edit the flashing figure.
- If numbers with decimal points are in the consented range press ◀ or ▶ to place the decimal point in the position required.
- Press ' **SET** ' to confirm or ' **ESC** ' to cancel.

UNI 11137: 2019: Gas tight test existing systems



Press ' **Func** ' to select UNI 11137: 2019 gas tight test.

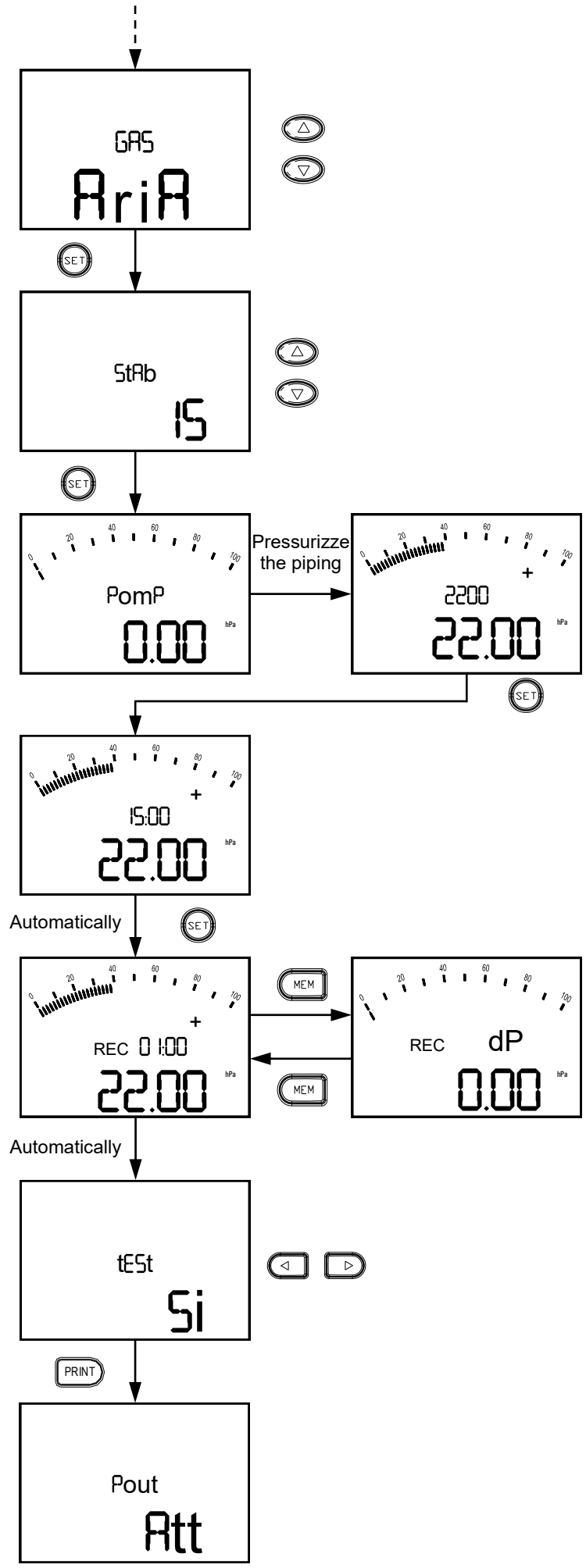
Press ' **Set** ' to start gas tight test, or press ' **MEM** ' to retrieve previous test results.

Select the type of system it is intended to test: INT (Internal) or EST (External). Press '**Set**' to confirm.

Select test for systems up to 18 liters (18dm^3) or insert the system volume in liters (dm^3).
On the volume data insertion screen volume measurement can be carried out as described on page 5.

Insert the combustible gas used for the system:
GnAt - GPL
(natural gas - LPG.).

PORMDXBI00SE 034343 260320



Insert the test gas: air or combustible (Comb).

Insert test gas stabilisation time in minutes.

Prime the system to the pressure shown on the upper display.

Start the test gas stabilisation. Press ' **Set** ' to stop stabilisation before allotted time expires.

Wait to run gas tight test. Press ' **MEM** ' to display system pressure or pressure change at the start of the test.

At the end of the test the result is displayed automatically. Use ◁ or ▷ to visualise test details.

Align printer with the manometer and press ' **PRINT** ' to print test results.
After printing press ' **ESC** ' to return to pressure measurements.

PORMDXBI00SE 034343 260320

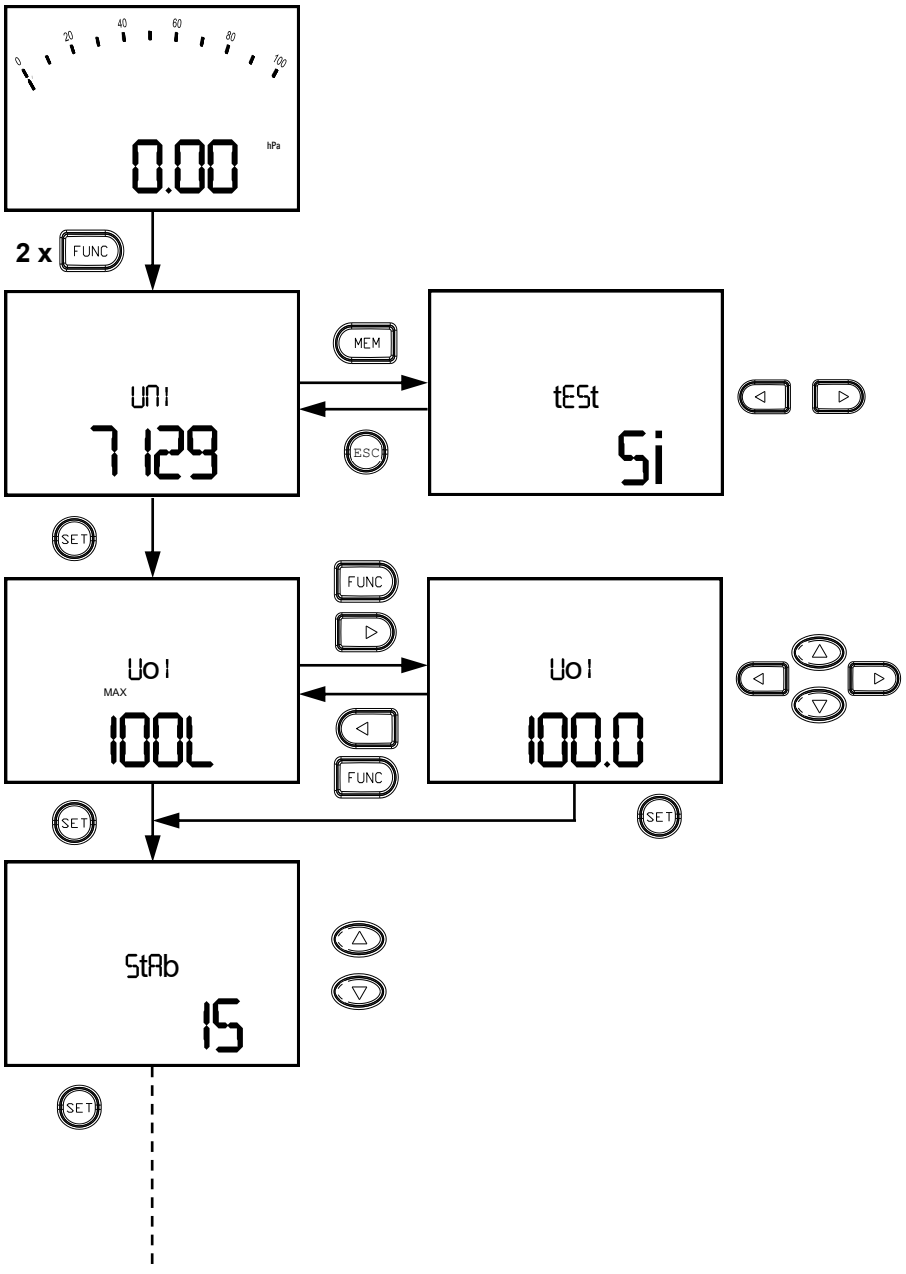
Flow chart - functions menu

Procedure for inserting parameters:

- Press key ▲ or ▼ to activate the edit mode (parameter flashes).
- Press ▲ or ▼ to edit.
- If the parameter is numeric press ◀ or ▶ to edit the flashing figure.
- If numbers with decimal points are in the consented range press ◀ or ▶ to place the decimal point in the position required.
- Press ' **SET** ' to confirm or ' **ESC** ' to cancel.

UNI 7129-1: 2015:

Gas tight test for new or reconditioned systems



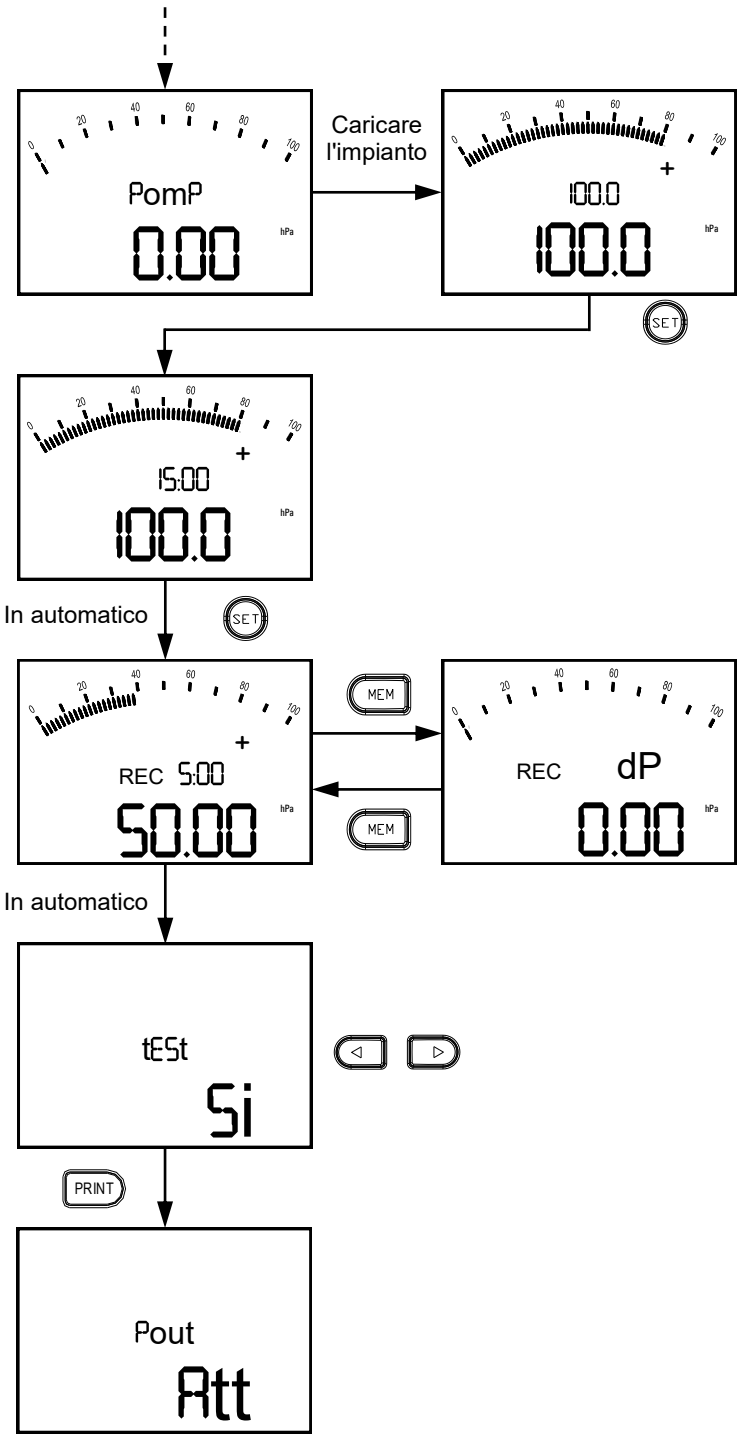
Press ' **Func** ' twice to select UNI 7129 gas tight test.

Press ' **Set** ' to start the gas tight test, or press ' **MEM** ' to retrieve previous test results.

Select test for systems up to 100 liters (100dm^3) or insert the system volume in liters (dm^3).
On the volume data insertion screen volume measurement can be carried out as described on page 5.

Insert test gas stabilisation time in minutes.

PORMDXBI00SE 034343 260320



Prime the system to the pressure shown on the upper display.

Start the test gas stabilisation.
Press ' **Set** ' to stop stabilisation before allotted time expires.

Wait to run gas tight test.
Press ' **MEM** ' to display system pressure or pressure change at the start of the test.

At the end of the test the result is displayed automatically. Use ◁ or ▷ to visualise test details.

Align printer with the manometer and press ' **PRINT** ' to print test results. After printing press ' **ESC** ' to return to pressure measurements.

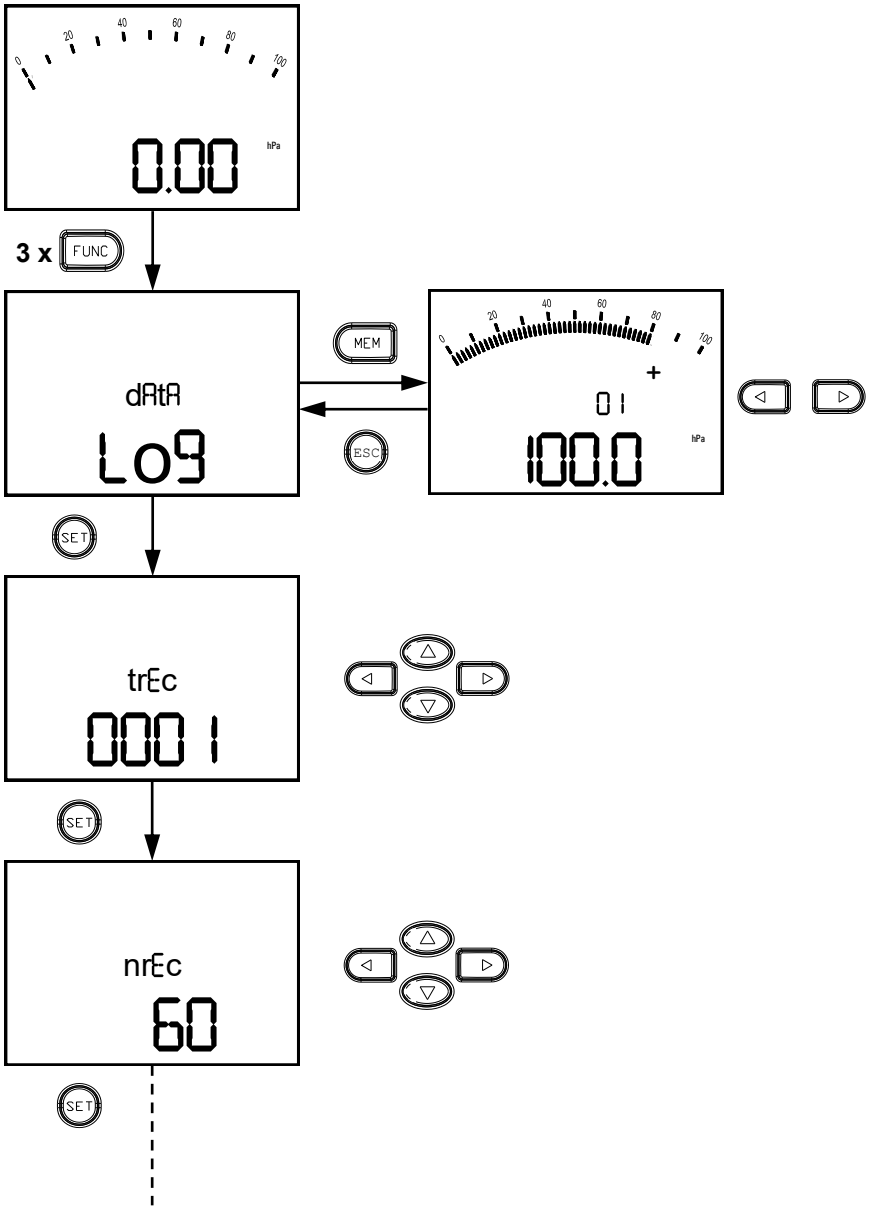
PORMDXBI00SE 034343 260320

Flow chart - functions menu

Procedure for inserting parameters:

- Press key ▲ or ▼ to activate the edit mode (parameter flashes).
- Press ▲ or ▼ to edit.
- If the parameter is numeric press ◀ or ▶ to edit the flashing figure.
- If numbers with decimal points are in the consented range press ◀ or ▶ to place the decimal point in the position required.
- Press ' **SET** ' to confirm or ' **ESC** ' to cancel.

Data Logger Function



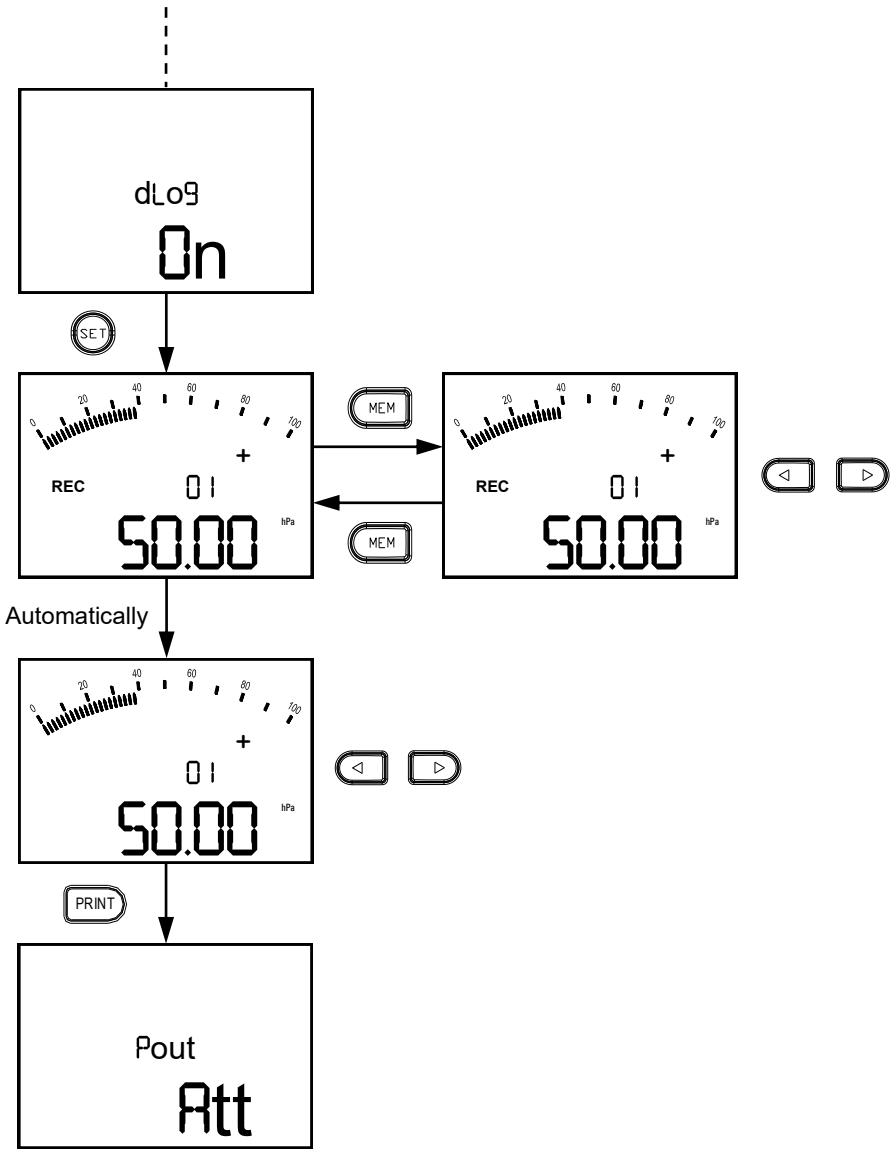
Press ' **Func** ' three times to select the data logger function.

Press ' **Set** ' to start data logger, or press ' **MEM** ' to retrieve the results of the previous test.

Insert recording time in minutes.

Insert the number of samples.

PORMDXBI00SE 034343 260320



Start recording by pressing ' **Set** '.

Press ' **MEM** ' to visualise system pressure or recorded values.

At the end of recording acquired data is displayed.
Use ◁ or ▷ .
To visualise details.

Align printer with the manometer and press ' **PRINT** ' to print test results.
After printing press ' **ESC** ' to return to pressure measurements.

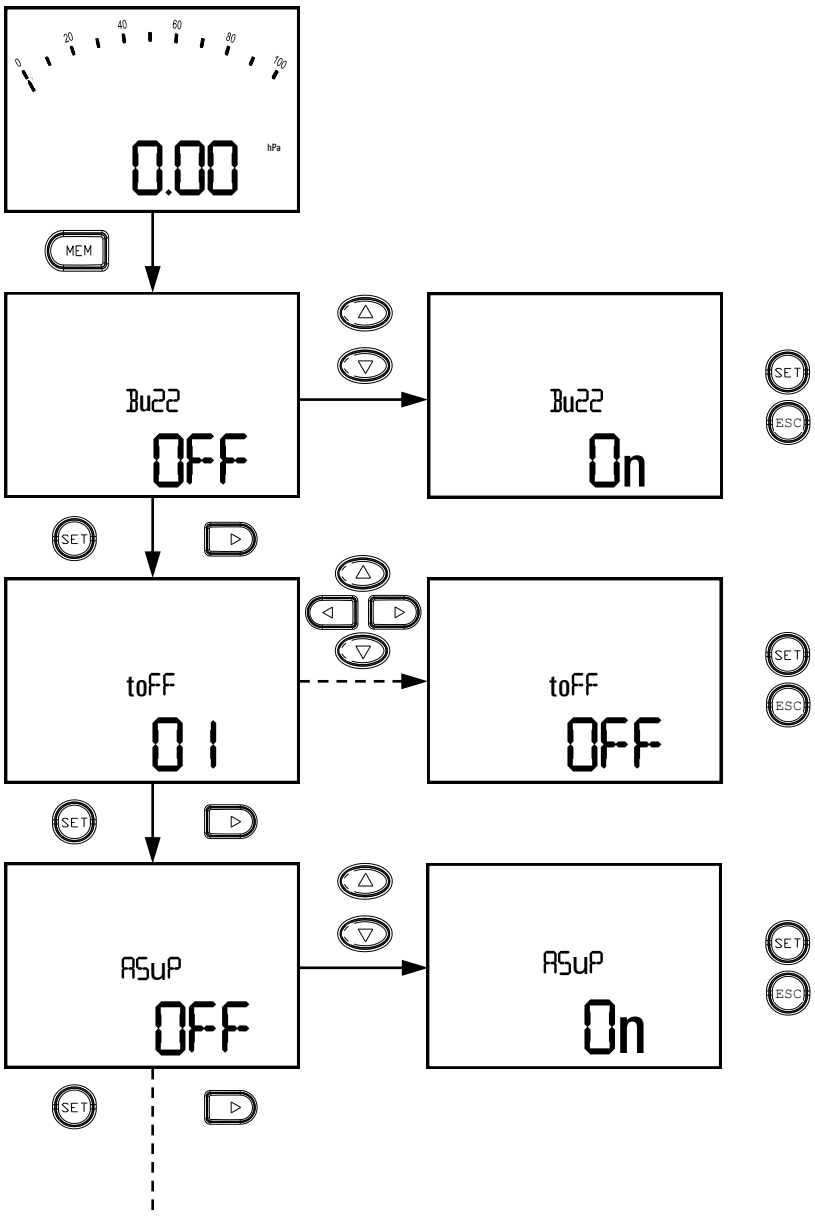
PORMDXBI00SE 034343 260320

Flow chart - functions menu

Procedure for inserting parameters:

- Press key ▲ or ▼ to activate the edit mode (parameter flashes).
- Press ▲ or ▼ to edit.
- If the parameter is numeric press ◀ or ▶ to edit the flashing figure.
- If numbers with decimal points are in the consented range press ◀ or ▶ to place the decimal point in the position required.
- Press ' **SET** ' to confirm or ' **ESC** ' to cancel.

Parameter configuration example



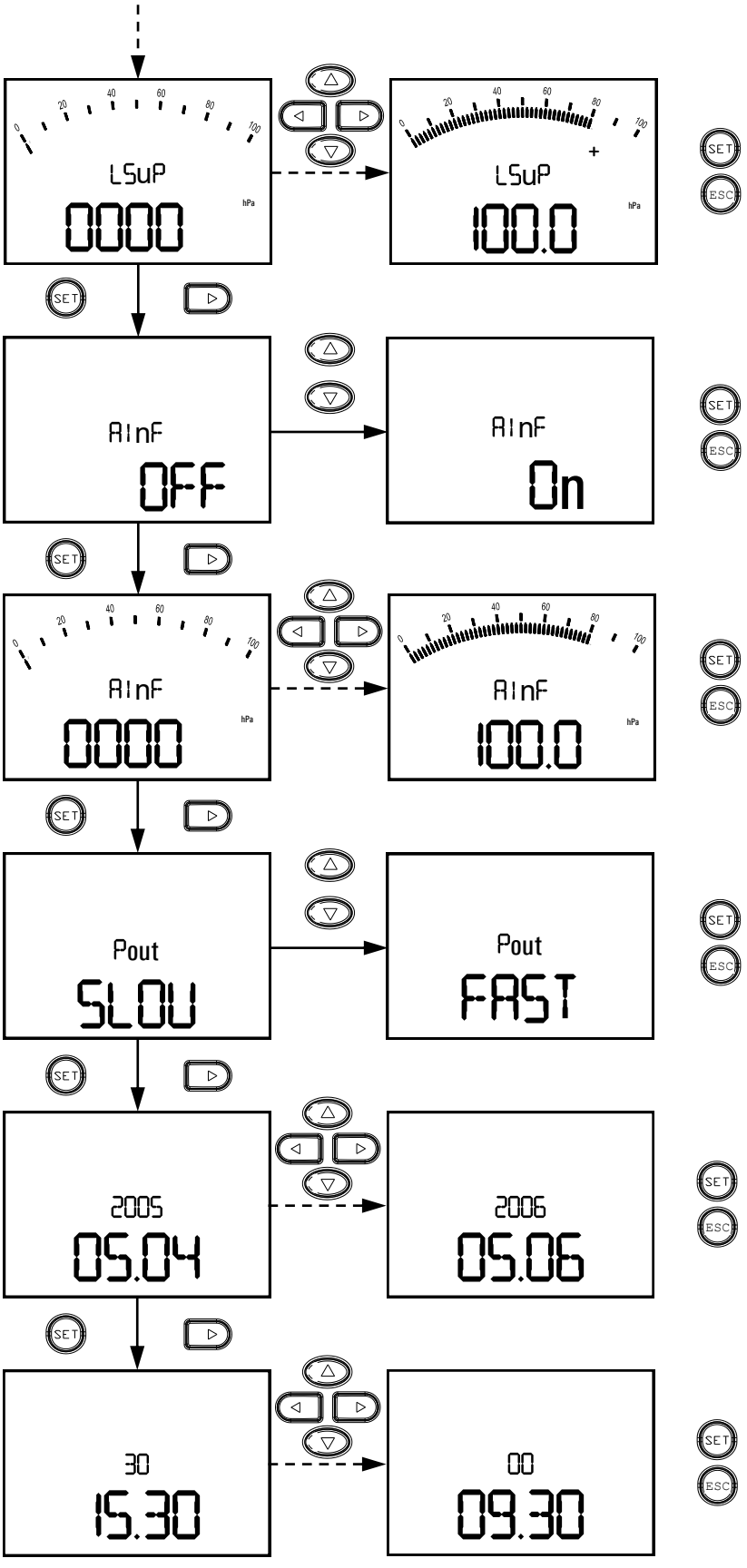
Press ' **MEM** ' to access the parameter configuration menu.

Activate ' buzzer '.

Set automatic switch off time from 1 .. 30 minutes or disable function using off.

Activate peak alarm.

PORMDXBI00SE 034343 260320



Set peak alarm threshold (the alarm goes off if the pressure exceeds the threshold). Decimal values are allowed. The ' **UNIT** ' key edits the threshold measurement unit.

Set minimum alarm.

Set minimum alarm threshold (the alarm goes off if the pressure falls below the threshold). Decimal values are allowed. The ' **UNIT** ' key edits the threshold measurement unit.

Set printout speed.

Adjust clock date.

Adjust clock time.

PORMDXBI00SE 034343 260320

PRESSURE MEASUREMENT

The manometer has two pressure connections which can be used to measure:

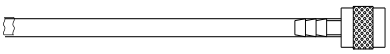
Pressure measurements: apply pressure to be measured to the positive (righthand) connection and leave the other connection open.

Vacuum measurements: apply pressure to be measured to the negative (lefthand) connection and leave the other connection open.

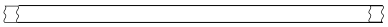
Differential pressure measurements: use both connections and visualise the pressure difference between the positive (righthand) connection and the negative (lefthand) connection. For pressure peak readings apply greater pressure to the positive connection.

ACCESSORIES SUPPLIED

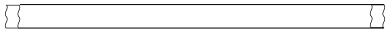
The instrument comes complete with the following accessories:



Rauclair pipe, internal ø 4mm, length 30cm, with 9mm ø female pipe fitting.



Silicon pipe internal ø 4mm, length 90cm.



Silicon pipe internal ø 7mm, length 15cm.

Brass pipe 4 x 5mm, length 16cm.

CALIBRATION

Our manometers leave the factory complete with a test certificate to show they have passed their final test and correspond to their declared precision performance as measured against a test sample instrument calibrated to international standards. Calibration certificates are available on request showing single calibration values.
The manufacturer advises recalibration every 12 months under normal operational conditions.

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