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PI-DIN IM ML cod. 8022002 26/11/2019

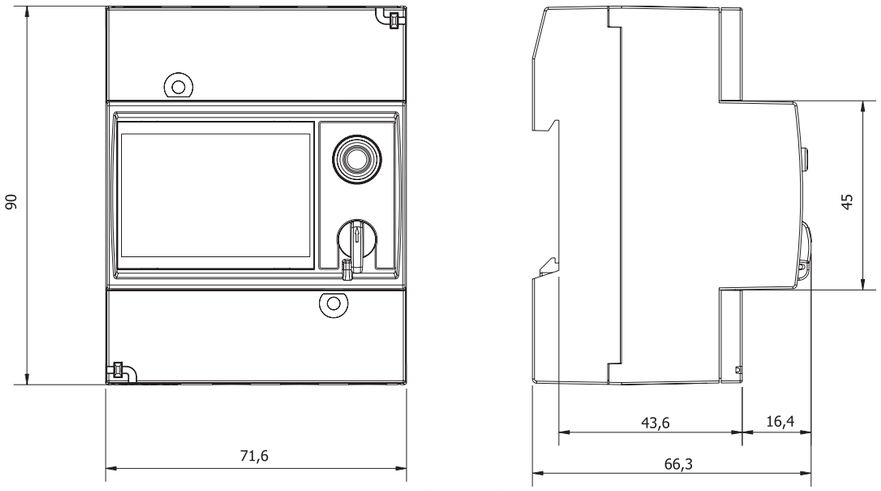
Installation Sheet

Thanks
for choosing our products.

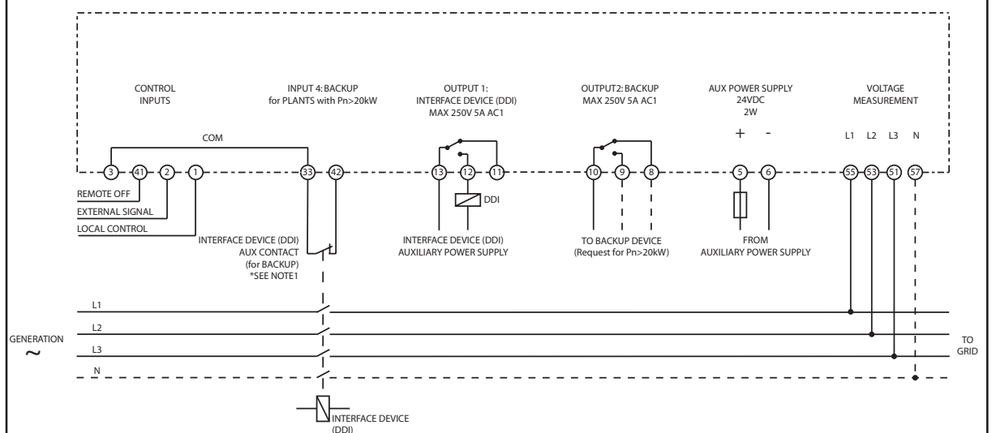
CE CEI 0-21: ed. 2012-06 e V1: 2012-12

MAINTENANCE AND DISPOSAL
Responsibility for disposal

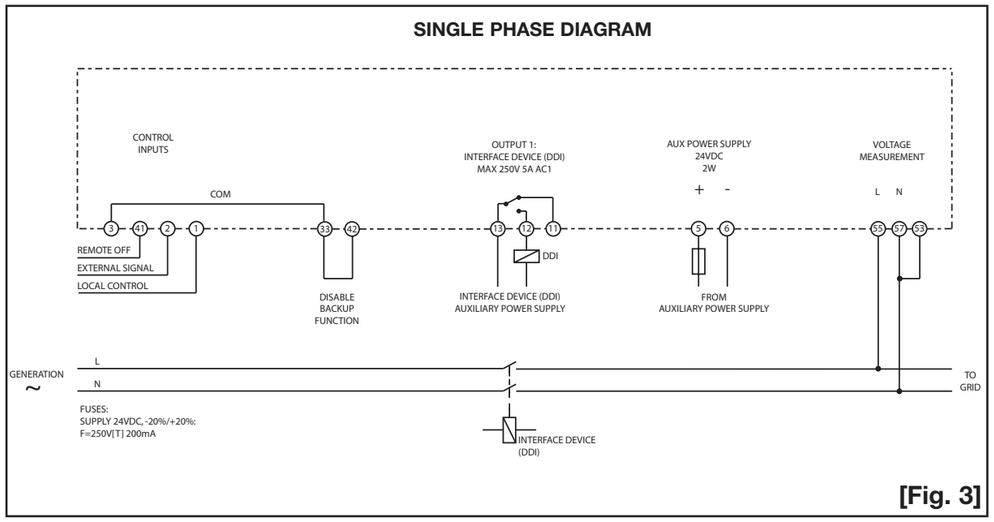
The product must be disposed of at the relative recycling centers specified by the government or local public authorities. Correct disposal and recycling will contribute to the prevention of potentially harmful consequences to the environment and persons. CAUTION! Toxic substances. Environmental pollution and hazard. Intoxication. Dispose of the battery together with the device. The embedded metal-ion battery of this product must be removed exclusively by specialised personnel to be correctly disposed of.



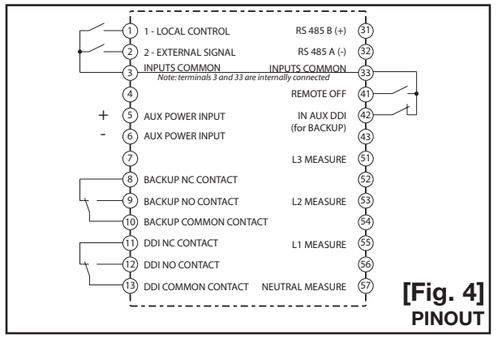
[Fig. 1]
MECHANICAL DRAWINGS



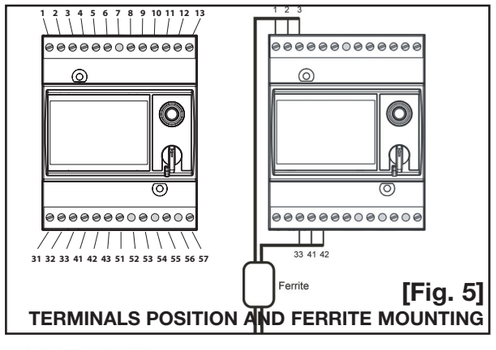
[Fig. 2]



[Fig. 3]



[Fig. 4]
PINOUT



[Fig. 5]
TERMINALS POSITION AND FERRITE MOUNTING

GENERAL NOTES

A. Read carefully the present document. In case the device is used in an unspecified way, the protection might be impaired with consequent damages to personnel and / or device and installation.
B. PI-DIN shall be installed by skilled and qualified personnel; Carlo Gavazzi cannot be liable for damages arising from improper use or without following the hereby listed recommendations.
C. Installation Notes: disconnect power before performing any operation on the device. Verify terminals are all voltage free. Becareful when touching metallic parts.
D. Servicing, in case of failure, shall not be carried out. In case of evident malfunction the device shall be returned for repair, recalibration or replacement.
E. Maintenance: PI-DIN does not require a particular maintenence program. Make sure that all connections are properly made in order to avoid any malfunction or damage. To clean the device use a damp cloth, do not use alcohol, abrasive or solvents.
F. By nature the device is usually permanently installed hence the following precautions shall be taken:
1. Install a protection switch or a fuse before power supply input;
2. Protection shall be positioned in a proper and easily accessible site;
3. This protection shall be marked and identified as “breaker for interface protection”.
G. The PI-DIN is designed for the installation for DIN Rail installation in distribution panels or cabinets.
NOTE: terminal screws torque 0.5Nm.

ENVIRONMENTAL CONDITIONS

A. Protection degree: front IP50, terminals IP20
B. Pollution degree 3
C. Operating temperature -20…+55°C
D. Storage temperature -30…+70°C
E. Relative Humidity: 10…90%
F. Maximum altitude 2000m
Environmental conditions different from those above listed adequate measures shall be put in place before commissioning (conditioning systems). When pollutants are present (corrosive substances or dusts) proper filters or countermeasures shall be adopted in order to protect the unit.

MECHANICAL DRAWINGS AND PINOUT

[Fig. 1] Mechanical Drawings
[Fig. 4] Pinout
[Fig. 5] Terminals position and ferrite mounting

ELECTRICAL WIRING

[Fig. 2] Three phase system diagrams 3P+N, 3P
[Fig. 3] Single phase diagram

DIAGRAMS OF VIEWS

[Fig. 6] [Fig. 7] [Fig. 8] [Fig. 9] Rotary selector in positions: LOCK, 1, 2, 3

INSTALLATION INSTRUCTIONS

The PIDIN 0021 conforms to Norm CEI 0-21:2012-06 and V1:2012-12. The installation, in order to comply to the Norm, shall be carried out following these instructions carefully. This device can exclusively be used as interface protection relay for LV voltage plants. It can be used on the LV side of an MV plant only at specific conditions (When the section to be controlled has a power of less than 30kW and the power of the section does not exceed 30% of total plant generated power), else a CEI 0-16 compliant device has to be used. For any information not specifically indicated in the present sheet, please refer directly to the Norm CEI 0-21:2012-06 and V1:2012-12.

WIRING

1.1 Carry out the device wiring following the functions represented in the related diagram [Fig. 2] or [Fig. 3]. a ferrite is provided, together with the device, to be used to eliminate possible auxiliary power supply lines disturbances. In order to pursue that purpose it is recommended to place the ferrite around the digital inputs cables, all 4 including the 2 common wires.
1.2 The PI-DIN shall be used to drive the main breaker (DDI). The DDI has to be CEI EN 60947-4-1 compliant, category AC3. When the installation provides the management of a backup breaker (Pn>20kW), the DDI shall have at least an auxiliary contact, normally closed, to be used as feeback of the DDI operation and to be connected to terminal 42. Connect the DDI to terminals 12 and 13 of PI-DIN.
1.3 On installations, single phase and three phase, with nominal power 20kWp or less, the backup breaker function («Rincalzo») has to be deactivated by inserting a jumper between terminals 42 and 43.
1.4 Only for plants with Pn>20kW, connect the backup breaker to terminals 8 and 10 (Normally Closed), or to terminals 9 and 10 (Normally Open), depending upon release coil type. Remember that the backup breaker has to be manually resettable only, the release coil can either be positive edge or either negative edge tripping.
1.4 Connect Remote Off (Teledistacco) between terminals 41-33.
1.5 Connect External Signal (Segnale Esterno) between term. 2-3.
1.6 Connetc Local Control (Controllo Locale) between term. 1-3.
1.7 **ATTENTION**: ESCLUSIVELY on single phase installations insert a jumper between terminals 53 and 57.
Connect the auxiliary supply to an UPS, in order to guarantee supply continuity for at least 5s in case of power interruption or failure. **Max length of digital inputs connection cables** with unshielded cable: 10m. In case of connections with length >10m use twisted shielded cables only. **Connect RS485 Serial** line using a shielded cable grounded on the user side.

INITIAL INFORMATION - PROGRAM SETTINGS

On the PI-DIN front panel there are a joystick and a 4 positions rotary switch to be used for the navigation in the menu and for data selection or modification. The rotary switch allows, password protected, the access to different menus with different functions according to the position on which is set. The joystick provides 4 positions: Up, down, left and right. If pressed in the central position the settings are confirmed (ENTER). In order to better understand it is suggested to have a look at the flow charts of the menus (next page) with all the programming steps.

Position of switch and functions.

Different positions of the rotary switch allow to read and/or modify the device parameters.Positions 1, 2 and 3 can only be accessed by removing the seal or padlock if present, furthermore they are password protected. Default password is 0, once accessed it is possible to change the password with any value up to 9999 (make sure of keeping record of the entered password, if password is lost it is not possible to enter the programming menu anymore. If restoring is necessary the device has to returned to Carlo Gavazzi for service). New settings are stored only by following the entire menu flow until the indication «End» is displayed.

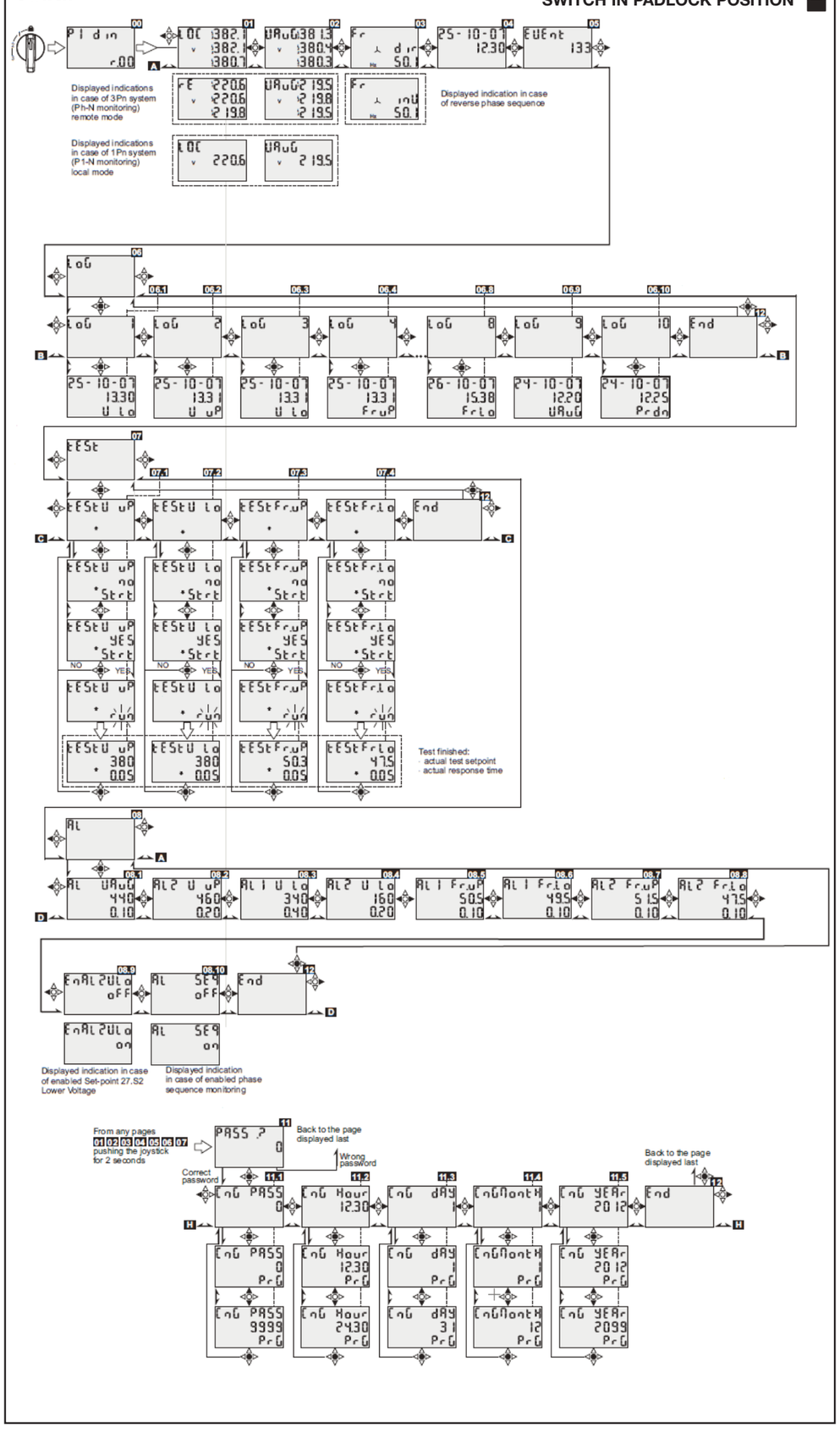
Position: PADLOCK

This is the normal operating position. In such position the joystick is used to scroll the instant values of Voltage, frequency (steps from 00 to 05), logged events (see steps 06.x), self test (steps 07.x), Alarm settings display (Steps 08.x), date and time (steps 11.x).
Note: The function EnAL1ULo (step 08.9) allows the deactivation of alarm 27.S1 in order to simplify the test of the 27.S2 Alarm.
Position 1: (step 10) Allows to set the primary parameters such as the insertion, the operation mode (Local, Remote) allows the parameter setting, the default values loading and the reset of the Datalogger and the average value meter for 59.S1.
Position 2: (Step 09) allows to modify the preset values for the interface protection function and to activate or deactivate the phase sequence detection.
Position 3: Serial communication parameters setting (Step 08 of diagram of position 3). The PI-DIN 0021 is factory programmed and configured according to Norm CEI 0-21:2012-06 and V1: 2012-12. According to actual use conditions it shall be set in relation to:
INSERTION: step 10.2, single phase, three phase with neutral or without neutral. See steps on diagram for position 1 or selector.
OPERATING MODE: step 10.3, select remote or local mode according to availability of control signals from DNO.

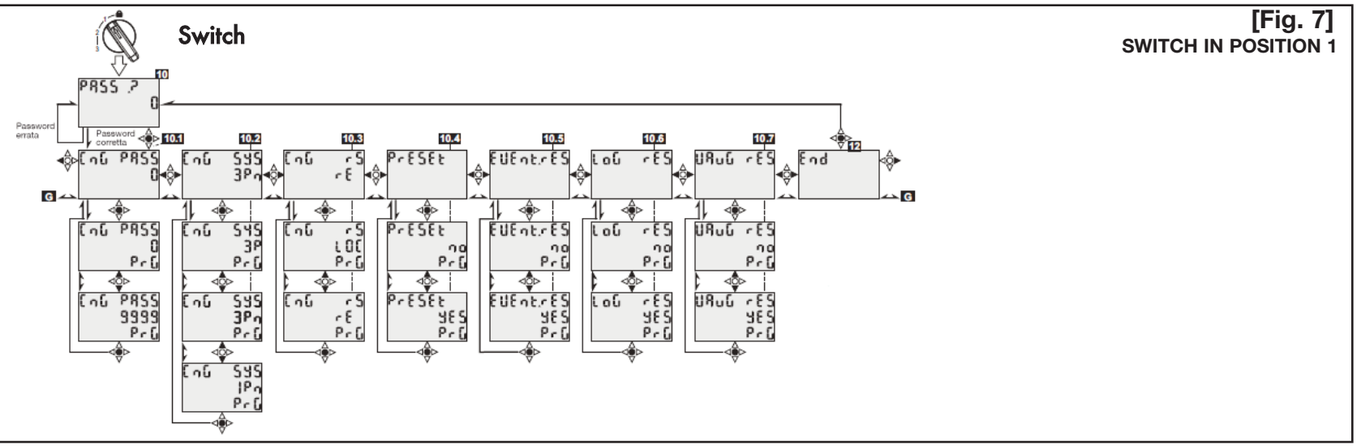
TABLE FOR SETTINGS AS INPUTS

“OP MODE”	Inputs		Frequency thresholds	Tripping timings
	Input 2 “External Signal” Terminals 2-3 or 2-33	**Input 3 “Local Control”** Terminals 1-33 or 1-3		
“Loc”: local operation	Irrelevant	**Open**	**Restrictive** 49,50Hz ÷ 50,50Hz	49,50Hz - 0,1s 50,50Hz - 0,1s
	Irrelevant	**Close**	**Permissive** 47,50Hz ÷ 51,50Hz	47,50Hz - 0,1s 51,50Hz - 0,1s
“Rem”: remote operation	**Open**	Irrelevant	**Restrictive** 49,50Hz ÷ 50,50Hz	49,50Hz - 0,1s 50,50Hz - 0,1s
	Close	Irrelevant	**Permissive** 47,50Hz ÷ 51,50Hz	47,50Hz - 4s 51,50Hz - 1s

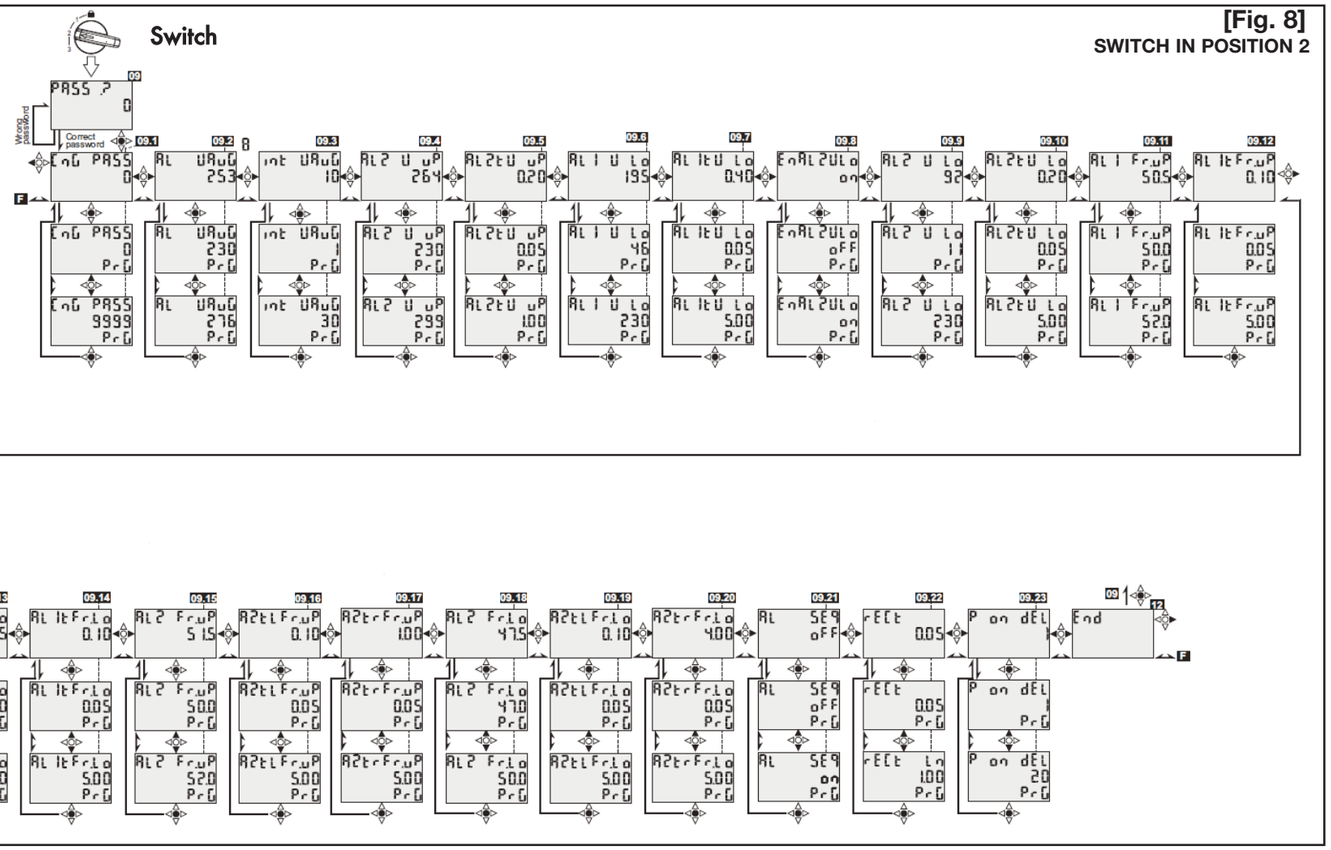
[Fig. 6]
SWITCH IN PADLOCK POSITION



[Fig. 7]
SWITCH IN POSITION 1



[Fig. 8]
SWITCH IN POSITION 2



[Fig. 9]
SWITCH IN POSITION 3