

Technical specification

VISION DUAL

1100-3000 VA SINGLEPHASE/SINGLEPHASE

Line Interactive technology (VI)



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1 GENERAL DESCRIPTION

The VISION DUAL UPS is a line interactive single-phase unit for tower/rack installation.

The units are available with power ratings of 1100 VA-1500 VA-2200 VA-3000 VA, with an output power factor equal to 0.9.

The units with power ratings of 2200 VA and 3000 VA are also available in relative ER (extended autonomy) versions, with a high-powered 6A battery charger in place of the battery tray.

The 1100 VA and 1500 VA version is not equipped with extended autonomy.

This family of UPS units is completed with relative battery cabinets.

The Battery Boxes have the same aesthetic design as the UPS units and are capable of housing one (7 Ah) or two (14 Ah) battery branches in parallel.

All of the Battery Box versions are supplied without battery charger boards.

For increased recharging current, ER version UPS units are available, which contain high-powered battery charger boards instead of batteries.

1.1 UPS main features

The VISION DUAL main features are:

- VI type (Line Interactive) / pure sinusoidal waveform during battery-powered functionality
- High voltage (230V)
- Output frequency with automatic selection (auto-sensing)
- Front/rear ventilation
- LCD display
- AVR Buck/Boost
- UPS with configurable and customizable functions (i.e. AVR, by-pass thresholds, automatic testing, acoustic alarm, etc.) through proprietary configuration software
- The internal battery tray is of a hot-swap typology and the connector is secured to the test finger and the pin based on the requirements of the TUV.
The battery tray can be replaced using the manual bypass function. This function can be enabled by pressing and holding down the ON and SEL keys for 4 seconds.
- Protected battery expansion connector.
- Unlimited expandability of autonomy with dedicated or custom Battery Boxes
- Expansion slot for communication cards (i.e. second USB and RS 232 Port, SNMP, ModBus, etc.).
- RS232 and USB port
- REPO contact
- Eco mode function (AVR disabled)
- Energyshare socket

1.2 Standard version

- 1100VA – 990W – PF 0,9 – 3 batteries, 12V, 7Ah – short cabinet
- 1500VA – 1350W – PF 0,9 – 3 batteries, 12V, 9Ah – short cabinet
- 2200VA – 1980W – PF 0,9 (*) – 6 batteries, 12V, 7Ah – long cabinet
- 3000VA – 2700W – PF 0,9 (*) – 6 batteries, 12V, 9Ah – long cabinet

(*) With BBox the PF is derated to 0,8

1.3 Special version ER

- 2200VA – 1760W – PF 0,8 – 6 batteries, 12V, 7Ah – long cabinet – without internal batteries – with auxiliary battery charger
- 3000VA – 2400W – PF 0,8 – 6 batteries, 12V, 9Ah long cabinet – without internal batteries – with auxiliary battery charger

2 VISION DUAL SERIES UPS AESTHETICS

2.1 VISION DUAL front panel

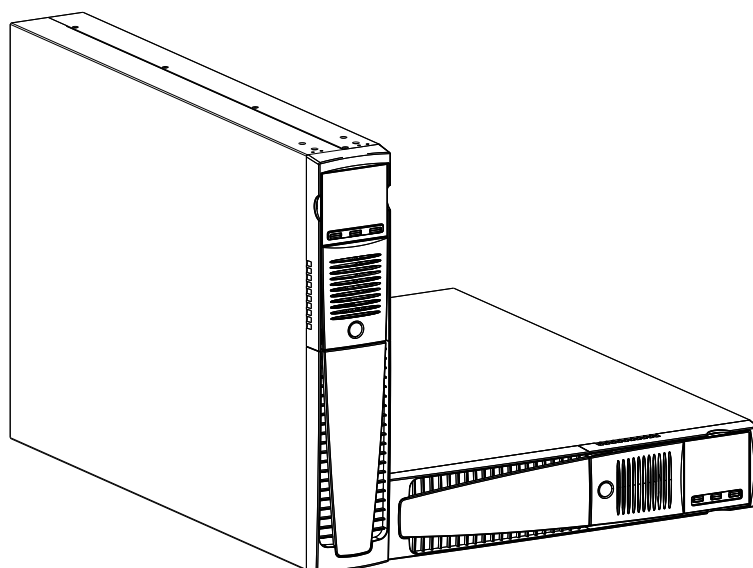


Chassis reference colour:: Pantone black C
Colour of the glossy parts: Pantone black C

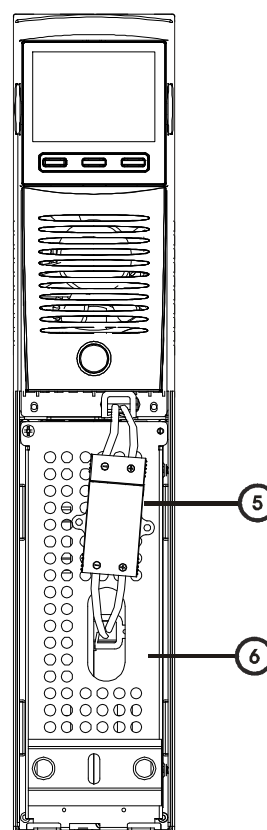
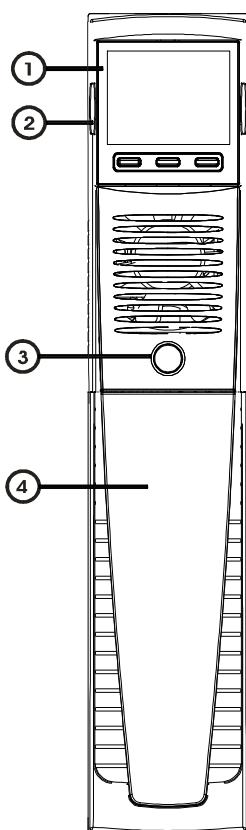
2.2 Views

(Tower version)

(Rack version)



FRONT VIEW

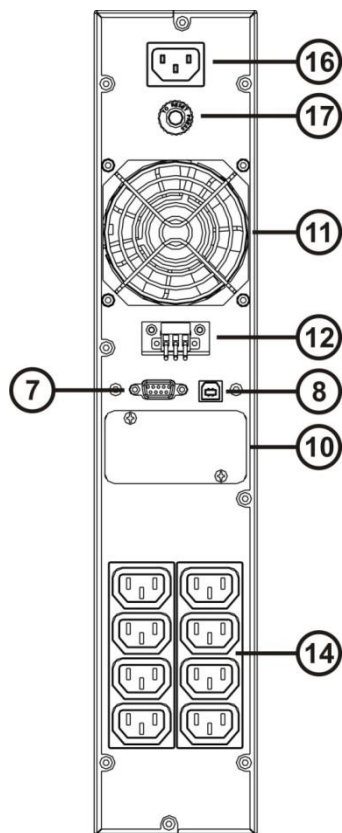


- ① Extractable/rotatable display plate
- ② Release slits
- ③ ON/OFF Switch

- ④ Removable front panel
- ⑤ Battery pack connector
- ⑥ Battery pack retention panel

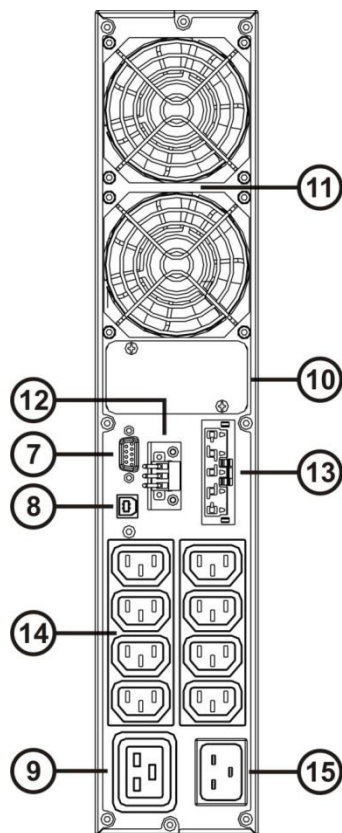
REAR VIEW

Model 1100VA / 1500VA



- ⑦ Communication port RS232
- ⑧ USB communication port
- ⑨ IEC 16A output socket
- ⑩ Communication Card Slots
- ⑪ Cooling fans
- ⑫ Remote control terminal board

Model 2200VA / 3000VA



- ⑬ Battery expansion connector (optional)
- ⑭ IEC 10A output socket
- ⑮ IEC 16A input plug
- ⑯ IEC 10A input plug
- ⑰ Circuit breaker

3 TECHNICAL DATA TABLE

3.1 UPS VISION DUAL

UPS VISION DUAL	1100 VA	1500 VA	2200 VA / 2200 VA ER	3000 VA / 3000 VA ER
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INPUT

Rated voltage [Vac]	220 - 230 - 240			
Maximum allowed input voltage [Vac]	300 Vac RMS / 400 V Peak			
Voltage range for no battery intervention (configurable through UPSTools)	Default: 280 Vac Maximum: 290 Vac Default: 172 Vac Minimum: 162 Vac Options: Normal range – Wide range – Narrow range – AVR off normal range – AVR off wide range			
Voltage range for no AVR intervention (configurable through UPSTools)	Default: 242 Vac Default: 202 Vac Options: Normal range – Wide range – Narrow range			
Rated frequency [Hz]	50 – 60			
Frequency range for no battery intervention (configurable through UPSTools)	$\pm 5\%$ default [configurable 3% ÷ 10%]			
Rated current @220Vac(1) [A]	5.3	7.2	10.6 / 12.1	14.2 / 15.8
Circuit breaker [A]	8	10	N/A	N/A

(1) @ rated load, nominal voltage of 220 Vac, battery charging

BATTERY

Number of batteries / V [n°] / [V]	3 / 12 V	3 / 12 V	6 / 12 V	6 / 12 V
Standard capacity [Ah]	7 Ah (a)	9 Ah (b)	7 Ah (a) / NA	9 Ah (b) / NA
Recharging current [A]	0,8 ÷ 0,95 A @ UPS on with maximum fan speed About 1 A @ UPS in Stand-By			
Recharging time (c) [h]	< 4h for 80% of the load			
Expandability and rated voltage of Battery box	Non expandable		72 Vdc	
Charging current (only for ER versions)	N/A		6 A (d)	
Minimum Battery box capacity (only for ER versions)	N/A		> 24 Ah (e)	

- (a) 12V/7Ah Batteries: CSB GP1272-F2 or CSB GP1272(28W) or CSB UPS12360-7 or YUASA NPW36-12
 (b) 12V/9Ah Batteries: CSB HR1234W-F2 or YUASA NPW45-12
 (c) For the ER versions, the charging time depends on the batteries installed in the Battery Box
 (d) The charging current depends on the input voltage and the internal temperature of the UPS. Under normal conditions, temperature derating of about 2-3A may occur
 (e) In order to select the minimum capacity of the Battery Box, verify the maximum charging current accepted by the batteries.

OUTPUT

Rated voltage (configurable through UPSTools) [Vac]	Selectable: 220 / 230 / 240 Selectable in step of 1 V from 220 V to 240 V
AVR coils ratio	In buck mode: $V_{out} = V_{in} \times 0,87$ In boost mode: $V_{out} = V_{in} \times 1,15$
Rated voltage in mains mode (configurable through UPSTools)	Default: 230 Vac +5% -13%
Waveform (8)	Sinusoidal

UPS VISION DUAL	1100 VA	1500 VA	2200 VA / 2200 VA ER	3000 VA / 3000 VA ER
Voltage distortion @ linear load (8)	≤ 3% @ Vbatt=11 Vdc ≤ 10% @ end discharge batteries			
Voltage distortion @ distorting load (8)	≤ 8% @ Vbatt=11 Vdc ≤ 10% @ end discharge batteries			
Rated frequency [Hz]	Selectable: 50 / 60 / automatic detection			
Output frequency accuracy (8)	0,1 Hz			
Switching time low input impedance high input impedance	<5 ms <6.5 ms		<6 ms <6.5 ms	
Current crest factor (8)	≥ 2.5 : 1			
Rated power [VA]	1100 VA	1500 VA	2200 VA	3000 VA
Rated power [W]	9900 W	1350 W	1980 W / 1760 W (ER)	2700 W / 2400 W (ER)
Overload: 100% < load < 110%	Line mode: shutdown after 5 min Battery mode: shutdown after 60 sec			
Overload: 110% < load < 150%	Line mode: shutdown after 10 sec Battery mode: shutdown after 10 sec			
Overload load > 150%	Line mode: shutdown after 1 sec Battery mode: shutdown after 0,5 sec			
Inverter short circuit	Short circuit current ≤ Power [VA] / 220 V x 3 shutdown after 60ms			

(8) In battery working mode

AUTONOMIES

Measured autonomy @ 100% linear load – only internal batteries	4'15"	3'	4'15"	3'15"
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MISCELLANEOUS

Leakage current to ground [mA]	$<1\text{mA}$ (0.54/0.36/0.62mA)			
AC/AC efficiency in LINE mode	97,4%	97,24%	97,32% / 95,51%	97,11% / 95,64%
AC/AC efficiency in ECO mode	98,17%	98,34%	98,04% / 96,24%	98,03% / 96,47%
Autoconsumption in ECO mode (AVR disconnected)	7,9 W	8,2 W	12,5 W / 40,3 W	14,3 W / 41,1 W
DC/AC efficiency in BATTERY mode	84,01%	88,06%	88,78%	91,16%
Autoconsumption from mains (batteries disconnected)	16,7 W	19,5 W	27,8 W / 54,5 W	32,4 W / 59,2 W
Autoconsumption in Stand-by (batteries disconnected)	5,97 W	6,6 W	11,8 W / 36,6 W	10,5 W / 36,6 W
Autoconsumption with on/off switch turned off	1,06 W	1 W	0,95 W	1 W
Autoconsumption without load from battery	36,89 W	46,16 W	53 W	53 W
Power loss with resistive nominal load [W]	26	37	53	78
[BTU/h]	89	126	180	266
[kcal/h]	22	32	46	67

UPS VISION DUAL	1100 VA	1500 VA	2200 VA / 2200 VA ER	3000 VA / 3000 VA ER
Operating temperature (6) [°C]	0 – 40			
Humidity	5 - 95% without condensation			
Installation height	Operation: 1000 m at nominal power (-1% power for every 100 m above 1000 m) 4000 m maximum Transport: <15000 m			
Protection	Excessive battery discharge – overcurrent – short circuit – over voltage – undervoltage – thermal			
Overvoltage protection	n°2 VDR x 148 Joule			
Noise levels	< 40 dB(A) at 1 m			
Dimensions L x D x H [mm]	87 x 425 x 450		87 x 625 x 450	
Packaging Dimensions L x D x H [mm]	600 x 500 x 240		760 x 600 x 240	
Net weight [Kg]	16.5	17.5	28 / 15.5	31.5 / 16.5
Gross weight [Kg]	20	21	33 / 20.5	36.5 / 21.5

(6) 20 - 25 °C for a long life battery

OTHER

Safety compliance	EN 62040-1
EMC compliance	EN 62040-2 category C2

4 PART NUMBER AND PACKAGING

4.1 UPS VISION DUAL - Part Number and GTIN-13 code

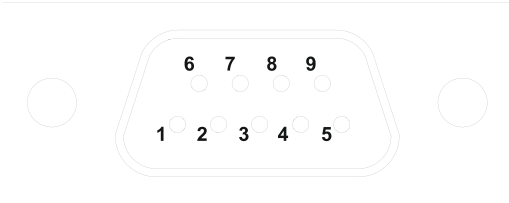
Part Number e GTIN – 13 code

MODELS (only for RPS internal use)	PART NUMBER	GTIN – 13	DESCRIPTION
VISION DUAL 1100VA	BVSD1K1AA3	8023251004469	UPS VSD 1100 A3
VISION DUAL 1500VA	BVSD1K5AA5	8023251004476	UPS VSD 1500 A5
VISION DUAL 2200VA	BVSD2K2AA3	8023251004483	UPS VSD 2200 A3
VISION DUAL 3000VA	BVSD3K0AA5	8023251004490	UPS VSD 3000 A5
VISION DUAL 2200VA ER	BVSD2K2LNB	8023251004506	UPS VSD 2200 ER
VISION DUAL 3000VA ER	BVSD3K0LNB	8023251004513	UPS VSD 3000 ER

5 COMMUNICATION PORTS AND FIRMWARE

The UPS comes with a standard RS 232 port with input and output signals, a USB Port and an expansion slot for connecting additional electronic boards.

RS 232 CONNECTOR

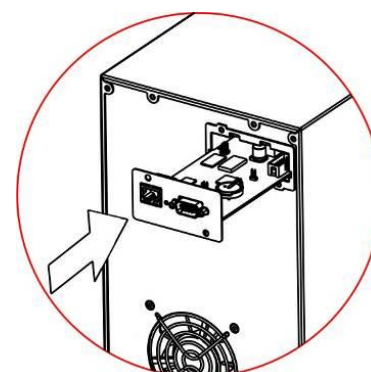
RS 232 CONNECTOR		
		
PIN #	SIGNAL	NOTES
1	Programmable output *: [default: UPS shutdown]	(*) Opto-isolated contact max. +30Vdc / 35mA. These contacts can be associated with other events using the appropriate software For additional information about interfacing with the UPS unit, please refer to the appropriate manual
2	TXD	
3	RXD	
5	GND	
6	DC Power Supply (Imax = 20mA)	
8	Programmable output *: [default: discharge pre-alarm]	
9	Programmable output *: [default: battery-powered functionality]	

COMMUNICATIONS SLOT

The UPS comes supplied with an expansion slot for optional communication cards (see the diagram on the right), which can allow the device to communicate using the most common communication standards.

Some examples include:

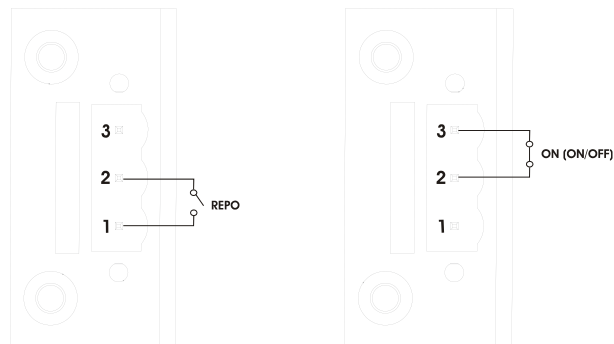
- Additional RS 232 and USB communication ports
- Serial duplicator
- Ethernet network card with TCP/IP, HTTP and SNMP protocols
- JBUS / MODBUS protocol converter card
- PROFIBUS protocol converter card
- Card with isolated relay contacts



Please consult the website **www.riello-ups.com** to check the availability of additional accessories

5.1 REPO port connection examples

Connections for REPO and remote ON/OFF functionality



5.2 Technical data for “pin 6” power through the RS 232 port

The voltage provided by the serial port's 6pin power depends on the absorbed current.

V_{CCmax} : 10.8Vdc without load

V_{CCmin} : 8Vdc @ 25mA

6 UPS OPERATING MODES and ENERGY SHARE

The area of the display shown in the figure displays the active operating mode and allows the user to choose other modes directly from the display panel.



POSSIBLE SETTINGS

The UPS is designed to be configured in various operating modes:

- **L.I.** normal operating mode
- **ECO** is the mode with which the UPS consumes the least amount of power, and is therefore the most efficient
- **MODE** using the **UPSTools** software it is possible to customise the UPS operational characteristics.
 - MODE 1: Wide range
 - MODE 2: Narrow range
 - MODE 3: AVR off
 - MODE 4: AVR off and wide range

The following table highlights the possible settings via UPSTools and the corresponding signal on the display. The different settings allow to have different range of power input and output.

Configuration from UPSTools	On display
L.I. - NORMAL RANGE	L.I.
L.I. - WIDE RANGE	L.I. Mode 1
L.I. - NARROW RANGE	L.I. Mode 2
ECO - NORMAL RANGE	ECO
ECO - WIDE RANGE	ECO Mode 1
ECO - AVR OFF - NORMAL RANGE	ECO Mode 3
ECO - AVR OFF - WIDE RANGE	ECO Mode 4

PROGRAMMABLE AUXILIARY SOCKET (EnergyShare)

The EnergyShare sockets are outlets that allow for the automatic disconnection of the load applied to them in certain operating conditions. The events that determine automatic disconnection of the EnergyShare sockets can be selected by the user through the **UPSTools** configuration software. For example, it is possible to select disconnection after a certain period of battery operation; or when the pre-alarm threshold for battery discharge has been reached, or when an overloading event occurs.

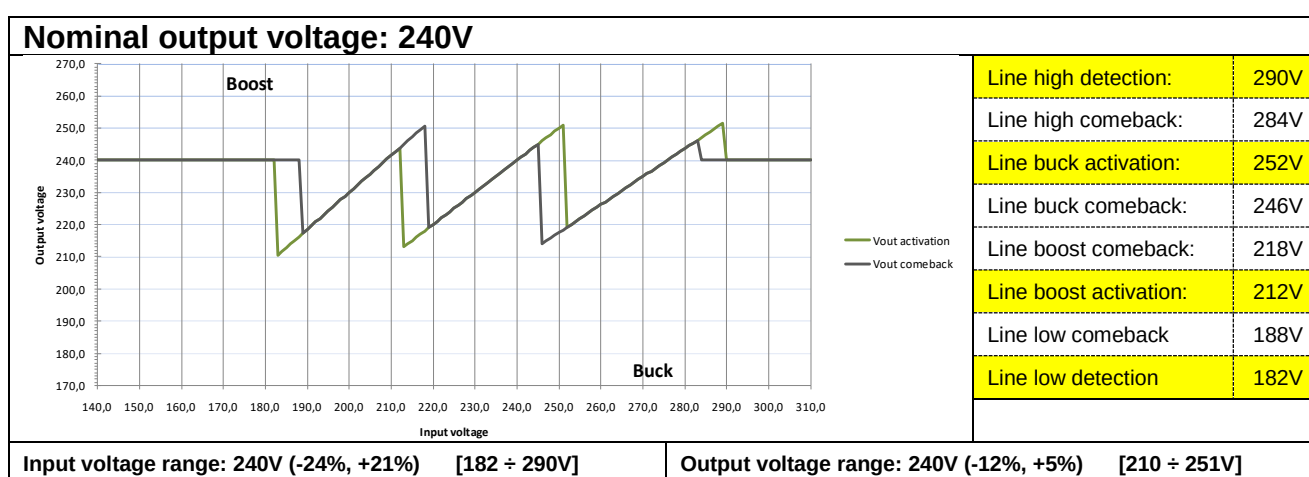
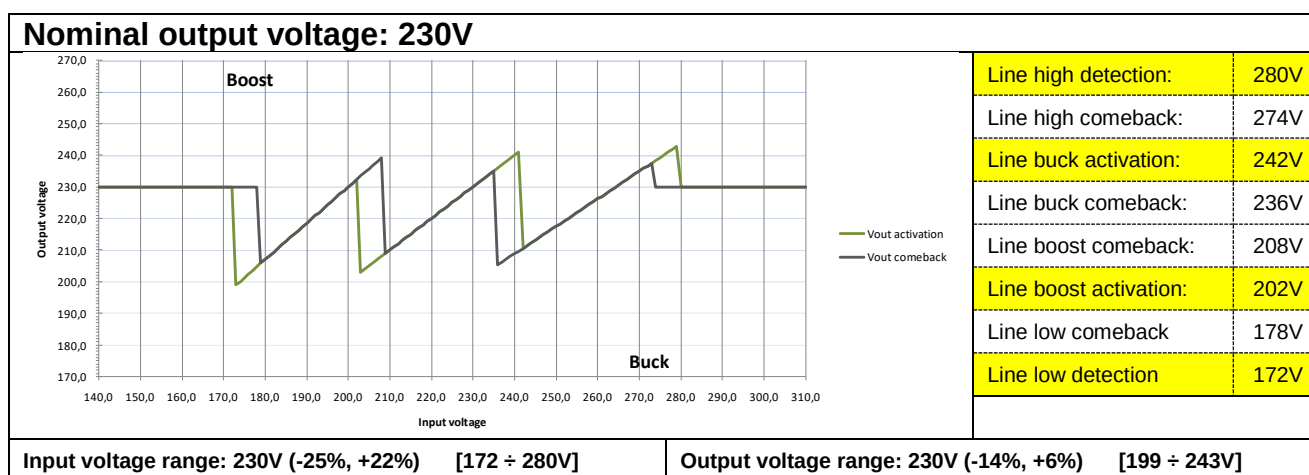
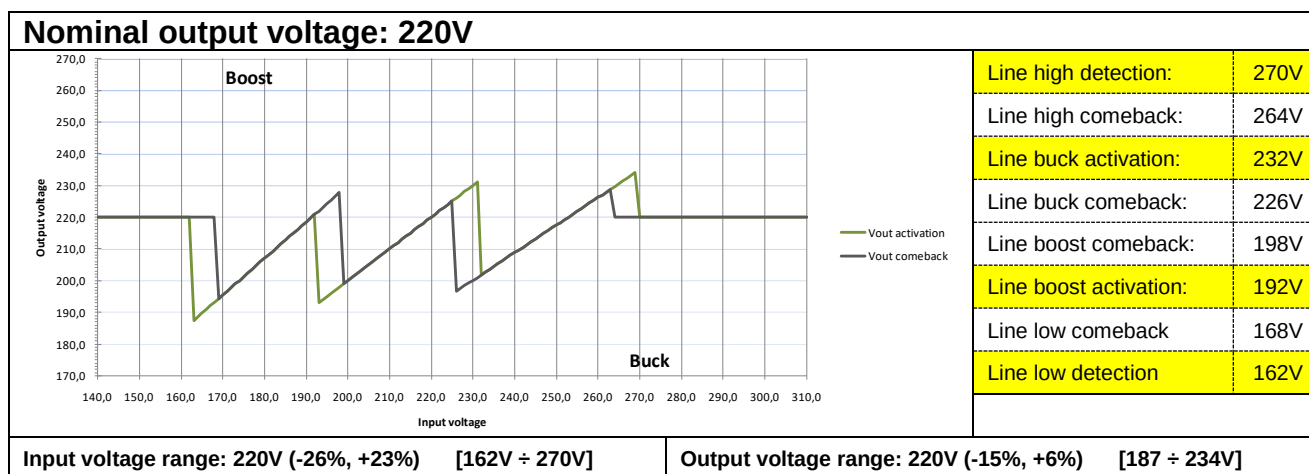
By default the Energyshare sockets are not configured and therefore function as other outlets.

The EnergyShare function is associated with an icon on the display whose meaning is explained in the paragraph entitled “**Display panel indications**”.

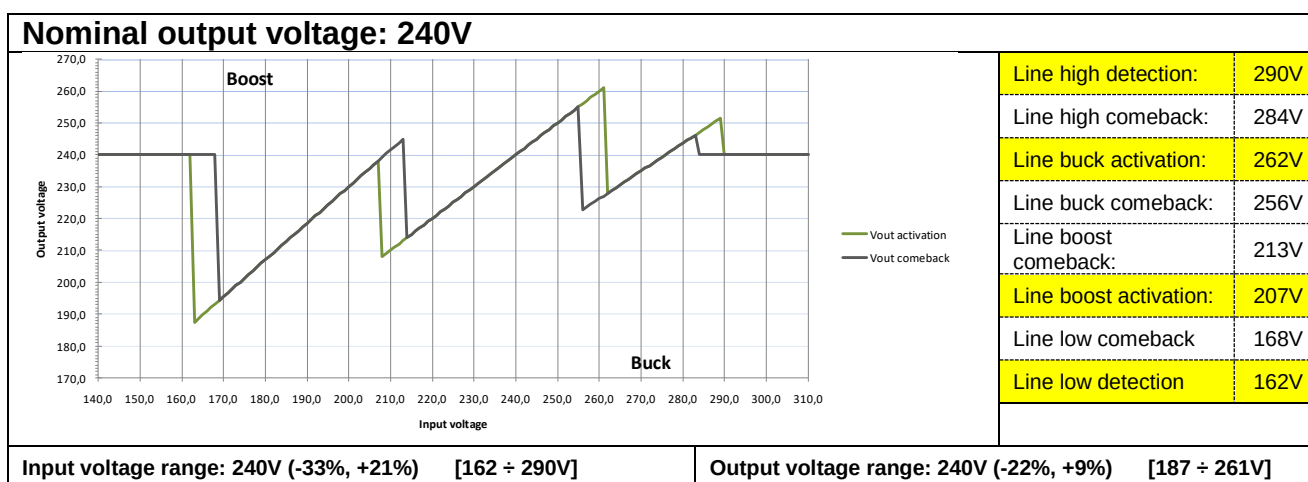
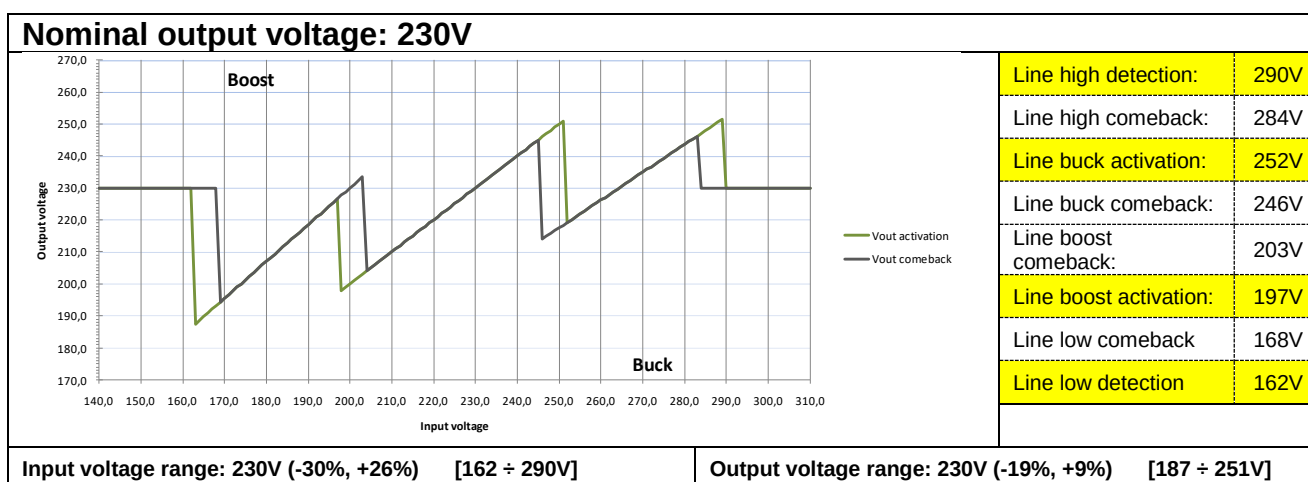
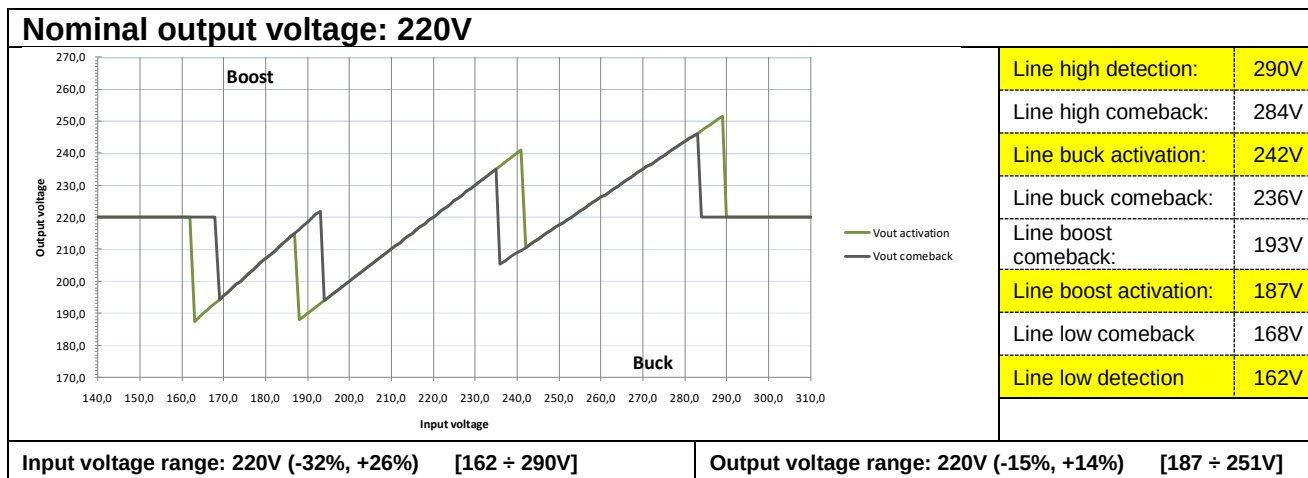
The presence and the number of these sockets depend on the UPS type, and they are distinguished by a different colour with respect to other sockets.

7 AVR THRESHOLD AND OUTPUT VOLTAGE LEVEL

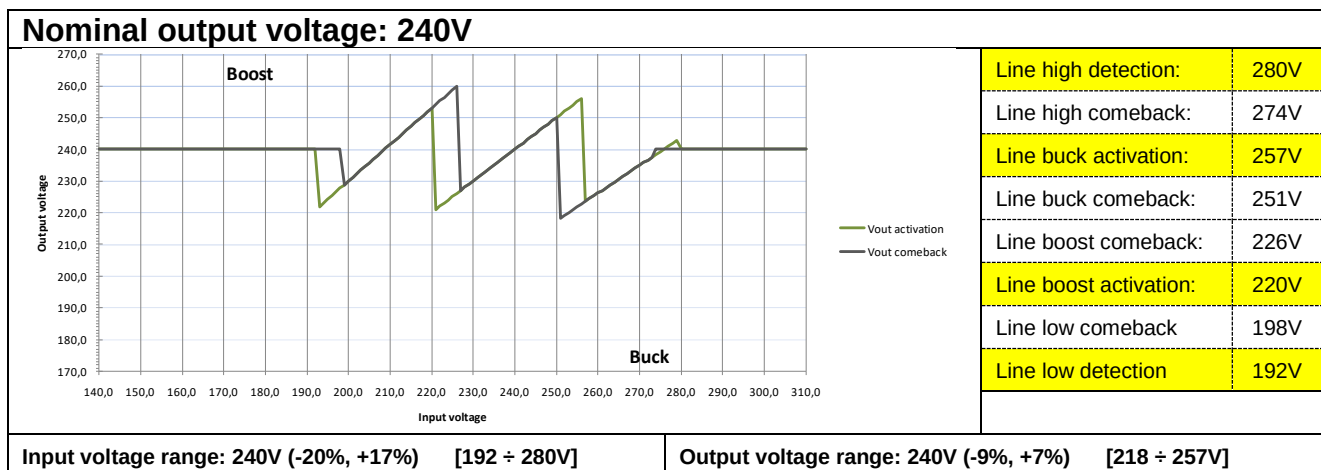
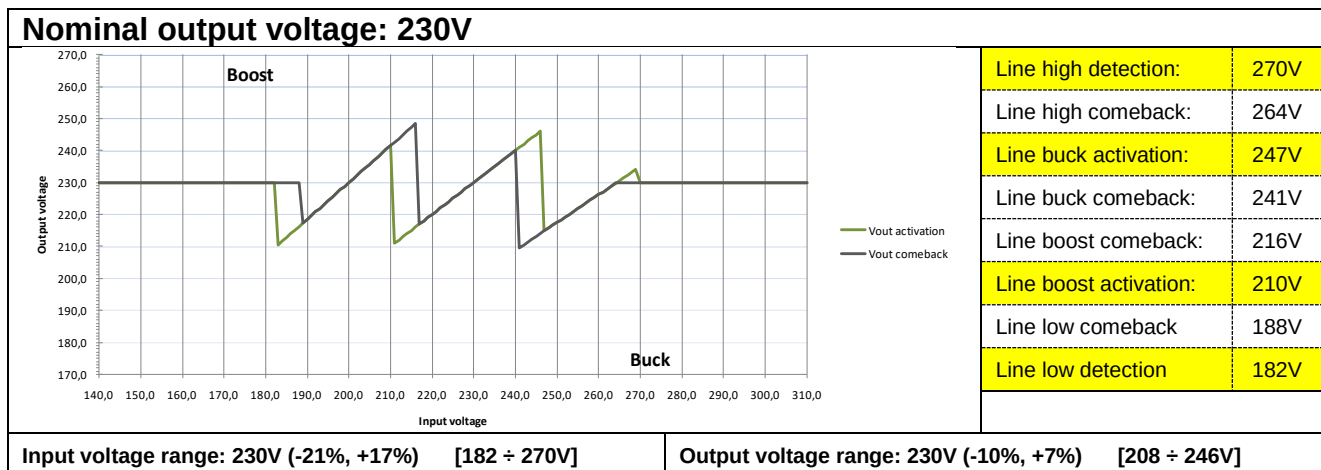
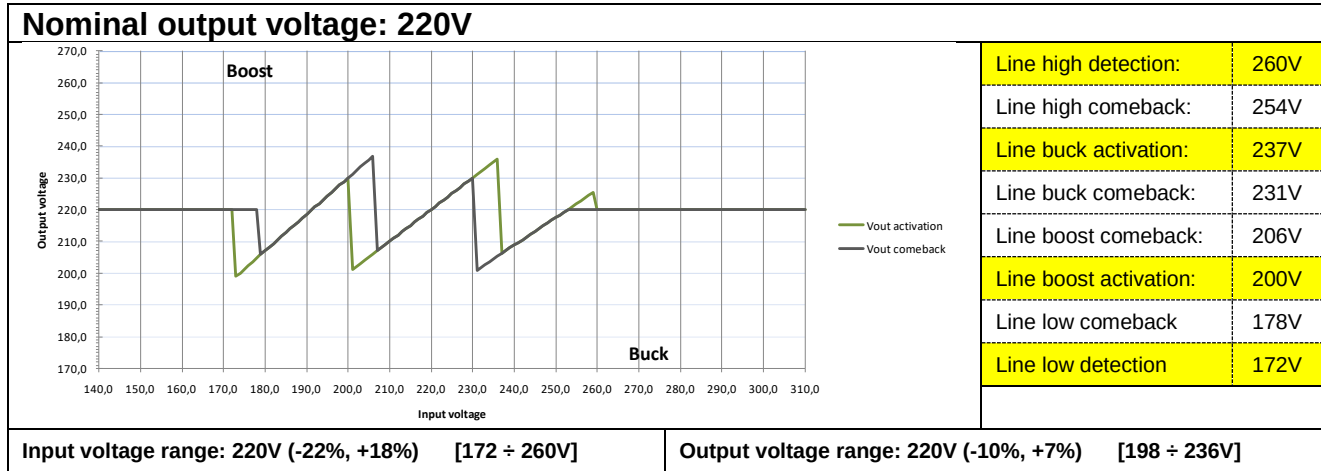
7.1 L.I. - NORMAL RANGE or ECO - NORMAL RANGE



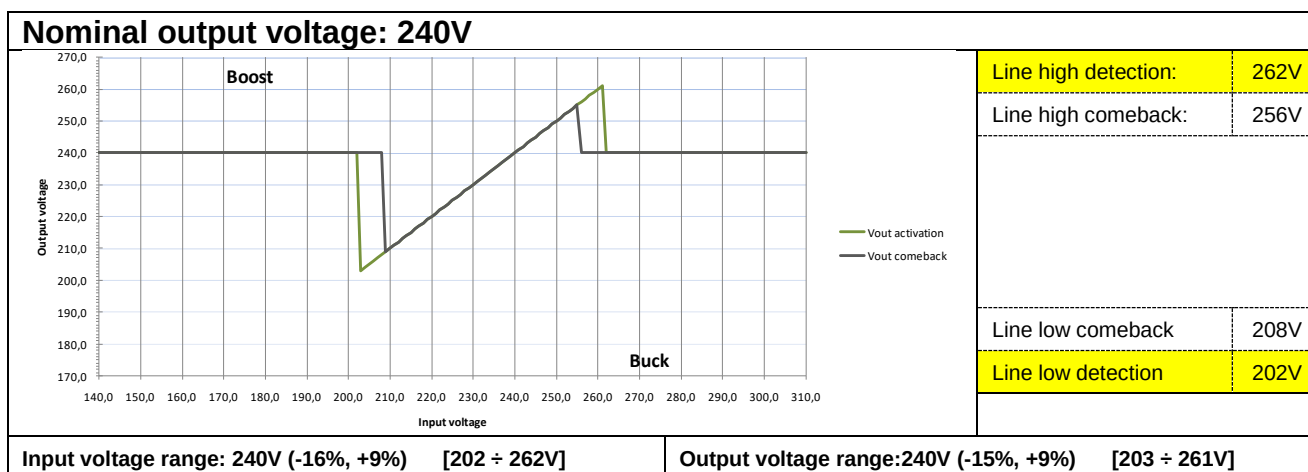
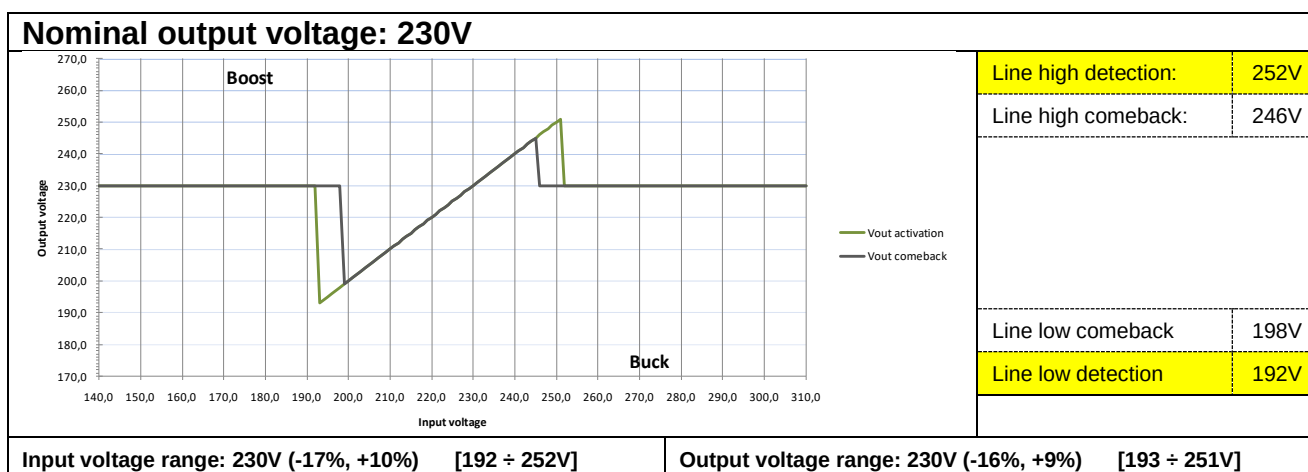
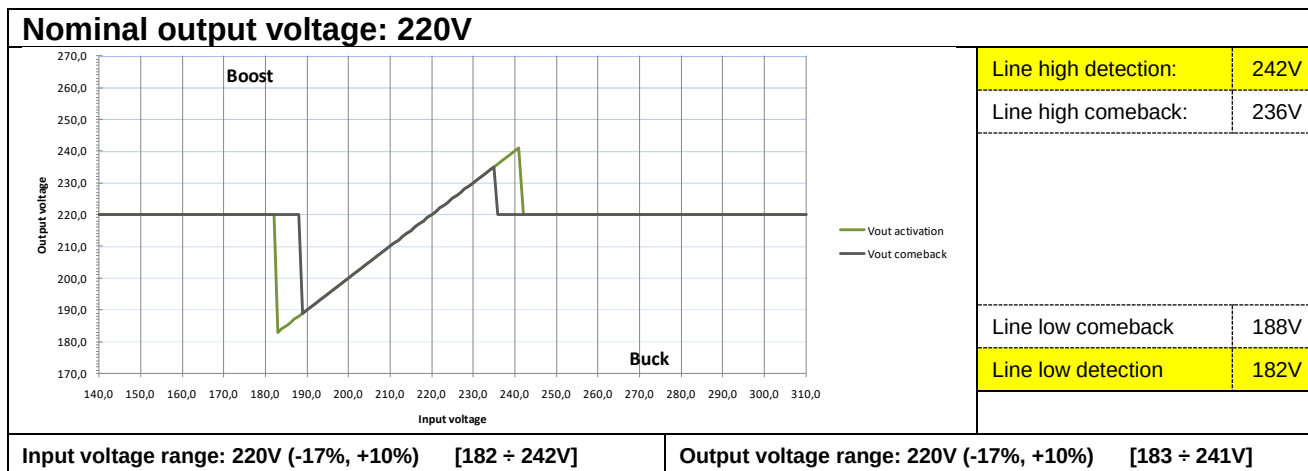
7.2 L.I. - WIDE RANGE or ECO - WIDE RANGE



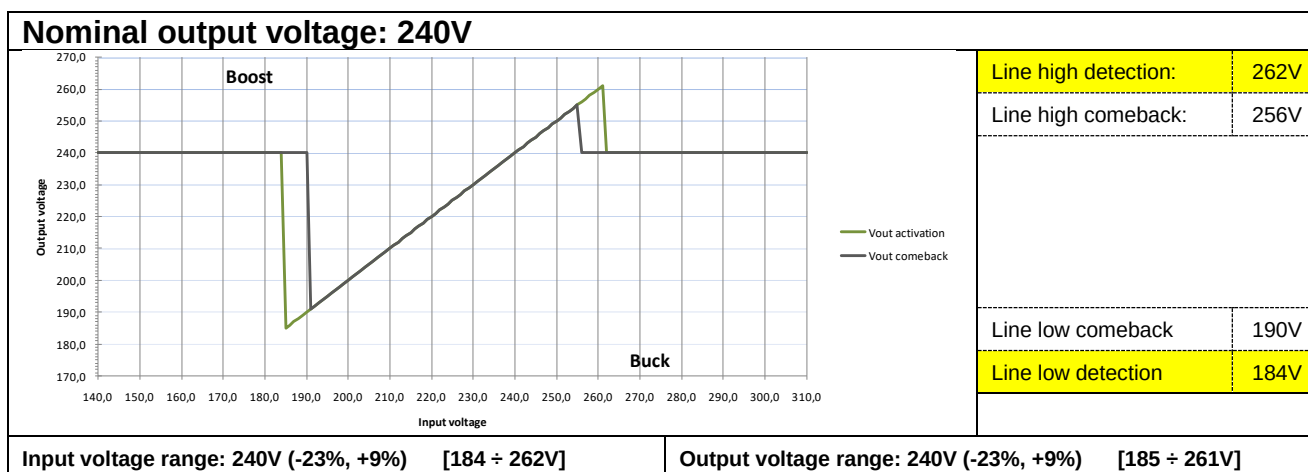
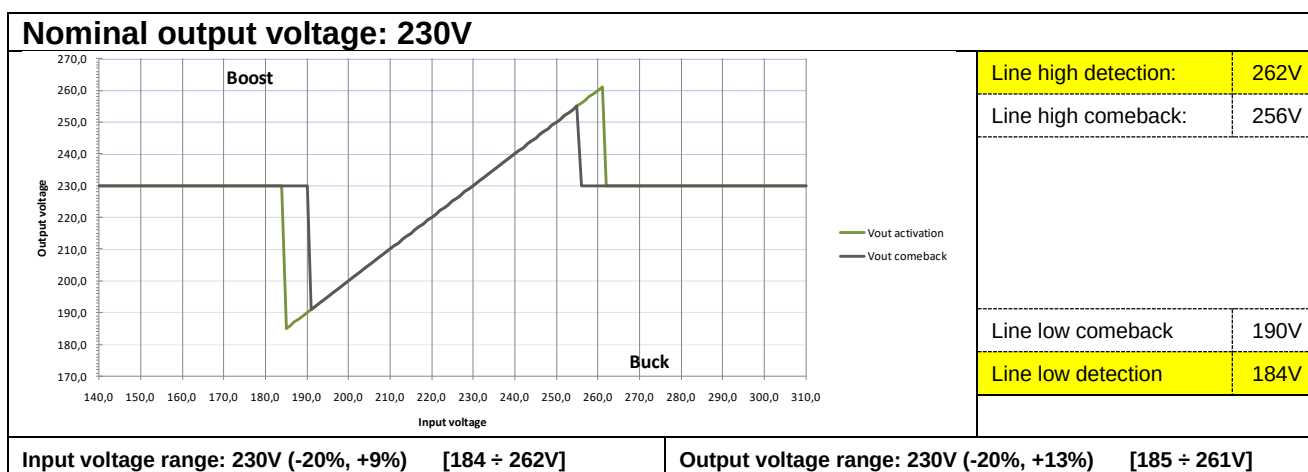
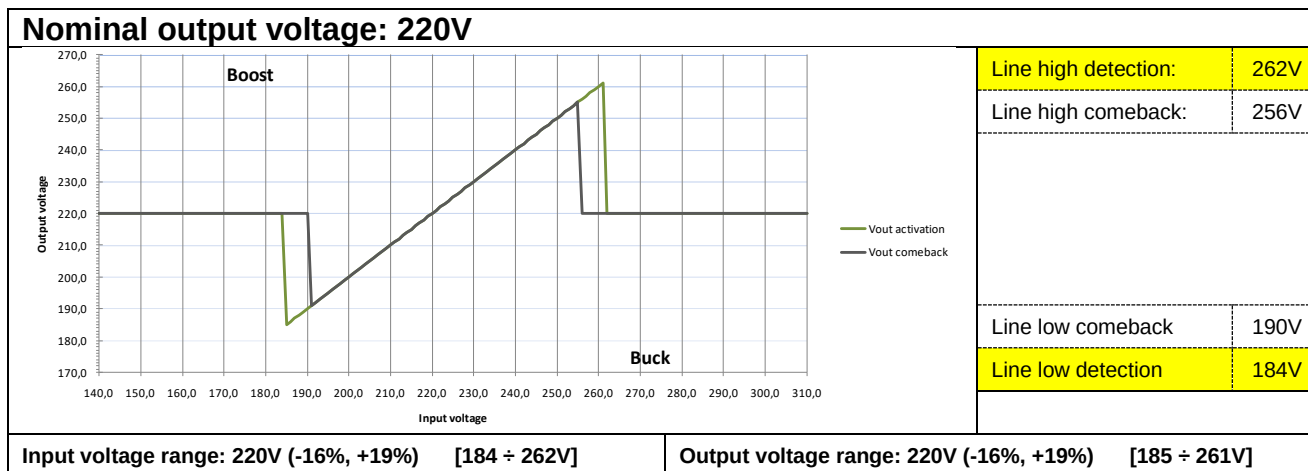
7.3 L.I. - NARROW RANGE



7.4 ECO - AVR OFF - NORMAL RANGE



7.5 ECO - AVR OFF - WIDE RANGE





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