

TRIMOD HE 10 kVA

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1. GENERAL SPECIFICATIONS

The Legrand **TRIMOD HE 10** is an UPS on line double conversion with PWM Hi-Frequency technology. It has passing trough neutral and Modular Architecture with the possibility to have N+X redundancy. The nominal power is 10 kVA – 10 kW.

Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged, inside the UPS or external battery cabinet, in dedicated Drawers, in order to guarantee compact dimensions reducing weights and DC voltage level.

1.1 Modularity

The UPS **TRIMOD HE 10** has modular architecture, it is composed by identical modules which work in parallel. Modules are:

- Power Modules 3,4 kVA;
- Battery Drawers of five batteries (7.2Ah or 9Ah).

These modules are installed inside the UPS and have identical functions.

Power Modules are composed by the following circuits:

- Rectifier/PFC
- Inverter
- Battery Charger
- Command Logic circuit
- Automatic By-pass

Battery drawers contain 5 batteries, and are easy to be move and replace.

1.2 Adaptability

The UPS can be easily configured on site, by the user, to work as three-phase or single phase either in input than output.

1.3 Scalability

The modularity of TRIMOD UPS allows to execute Power and Autonomy upgrade. Thanks to the intelligent Plug N' Play connection, no HW and SW settings are needed to increase or decrease the power or the autonomy.

1.4 Redundancy:

The modularity of the UPS allows the N+X redundant configurations. The Redundancy is achieved using more modules than needed, modules will run in "load sharing".

1.5 Architecture

The UPS **TRIMOD HE 10**, if configured as single-phase output has an architecture of distributed parallel type, all power modules share the load running in parallel. In this way no power module stays in stand-by but all of them run in load sharing, giving the continuous protection of the load (the configuration must be previously dimensioned in the appropriate way).

If the UPS is configured as three-phase output, the distributed parallel architecture is in each phase (if there are more modules in the same phase).

In case of redundant configuration, whenever one module fails, the other modules in the same phase will guarantee the Energy supply and protection to the load. The available power in each phase will be always the sum of the power of the modules installed in that phase.

1.6 By-pass

In each Power Module there is a static By-pass system which, in case of overload or other anomaly, automatically transfer the load to the mains.

A dedicated software of remote monitoring and management, installed on a PC connected to the UPS, allows to check and set all working parameters of TRIMOD HE (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown.

Optional software (UPS SuperviSor) or Net Interface card (CS121 SK) allow the multi server shutdown and UPS remote control on the LAN.

TRIMOD HE is controlled by a main microprocessor which works together with microprocessors in each power modules; By display is possible to check all measurements, working parameters and status of the system.

Here follow the measurements and working parameters available on the **display**:

Input

- Current:
 - RMS value
 - Peak value
 - Crest Factor
- Voltage:
 - Ph-N RMS value
 - Ph-Ph RMS value
- Power:
 - Nominal (VA)
 - Active (W)
- Power Factor
- Frequency

Batteries

- Voltage
- Capacity
- Current
- History data
- Residual Capacity
- Charging status

Misc.

- Internal Temperature
- Fan Speed
- HV DC BUS Voltage

DATA LOG.

- By-pass intervention
- Overheats
- Overloads
- Battery interventions
- Total discharge
- Events (info, warning, critical)
- Alarms

Uscita

- Current:
 - RMS value
 - Peak value
 - Crest Factor
- Voltage:
 - Ph-N RMS value
 - Ph-Ph RMS value
- Power:
 - Nominal (VA)
 - Active (W)
- Power Factor
- Frequency

1. GENERAL SPECIFICATIONS *(continue)*

The UPS allows also the following settings by **display**:

Output

- Voltage
- Frequency
- Phases configuration

By-Pass

- Enabling
- Forced
- DIP Speed
- Off-line Mode
- EPS Mode

Input

- Enable freq. synchronizing (PLL)
- Extended synchronizing range (Extended PLL)

Batteries

- Start up on Battery
- Threshold value
- Auto restart
- Max Time on battery

The UPS **TRIMOD HE 10** has the CE Mark accordingly with the EU Directives 2006/95, 2004/108 and it comply with following standards:

- EN 62040-1 "General rules for electric safety"
- EN 62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN 62040-3 "Performances and testing rules"

2. TECHNICAL SPECIFICATIONS

General Specifications	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, scalable, redundant based on 3.4 kVA Power Modules
In/Out phase Configuration	Three phase-Three phase
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Automatic by-pass (static and electromechanic) & Manual maintenance by-pass
Transfer time	Zero

Input	
Nominal Voltage	380, 400, 415 3F+N+PE (220, 230, 240 1F)
Voltage range	400V -20% +15% 230V -20% +15%
Frequency	45-65Hz (43,0 ÷ 68,4 hz)
THDI _{in}	< 3%
Power Factor	1

Output with mains (AC-AC)	
Nominal voltage	380, 400, 415 3F+N+PE (220, 230, 240 1F)
Nominal power	10.000 VA
Active power	10.000 W
Efficiency (VFI)	up to 96%
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 1%
THDv on nominal power (not linear load)	< 1%
Frequency	50/60 Hz user adjustable +/- 2% (Standard), +/- 14% (Extended)
Frequency tolerance	Synchronized with input frequency or ± 1% free run
Current Crest Factor	3:1
Overload capability: • for 10 minutes • for 60 seconds	115% load rate with no bypass intervention 135% load rate with no bypass intervention

Output in battery Run (DC-AC)	
Nominal voltage	380, 400, 415 3F+N+PE (220, 230, 240 1F)
Nominal power	10.000 VA
Active power	10.000 W
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 1%
THDv on nominal power (not linear load)	< 1%
Frequency	50 Hz o 60 Hz (autosensing or selectable)
Frequency tolerance	± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62 040-3
Overload capability: • for 10 minutes • for 60 seconds	115% 135%

Battery	
Type	Lead Acid, sealed, free maintenance VRLA (on request longlife battery)
Unit Capacity	7,2 or 9 Ah (12V)
Nominal UPS Battery Voltage	240 Volt DC
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Smart Charger technology, advanced three charging steps
Max Charging Current	1,5 A each power module

Environmental specs	
Noise level @ 1m	46 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	0-95% not condensing
Protection degree	IP21

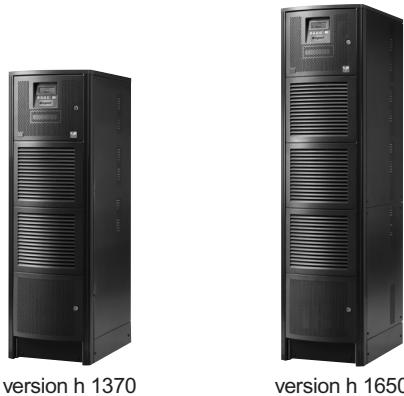
Mechanical an Miscellaneous	
Net Weight without batteries ¹	120/155 kg
Dimensions (WxHxD) ²	414 x 1370/1650 x 628 (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	MOSFET/IGBT
Communication Interface	2 serial port RS232, 1 logic level port, 5 outputs with dry contacts, 1 optional interface slot
Input/Output connections	3P + N + PE Connectors on omega bar
Number of Installed Power Modules	3 of 3400 VA
Standards	EN 62040-1, EN 62040-2, EN 62040-3

¹ The weigh depends by the number of the installed batteries accordingly with the required autonomy.

² The battery cabinet dimension can change depending battery set accordingly with the required autonomy.

TRIMOD HE 15 kVA

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1. GENERAL SPECIFICATIONS

The Legrand **TRIMOD HE 15** is an UPS on line double conversion with PWM Hi-Frequency technology. It has passing trough neutral and Modular Architecture with the possibility to have N+X redundancy. The nominal power is 15 kVA – 15 kW. Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged, inside the UPS or external battery cabinet, in dedicated Drawers, in order to guarantee compact dimensions reducing weights and DC voltage level.

1.1 Modularity

The UPS **TRIMOD HE 15** has modular architecture, it is composed by identical modules which work in parallel. Modules are:

- Power Modules 5 kVA;
- Battery Drawers of five batteries (7.2Ah or 9Ah).

These modules are installed inside the UPS and have identical functions.

Power Modules are composed by the following circuits:

- Rectifier/PFC
- Inverter
- Battery Charger
- Command Logic circuit
- Automatic By-pass

Battery drawers contain 5 batteries, and are easy to be move and replace.

1.2 Adaptability

The UPS can be easily configured on site, by the user, to work as three-phase or single phase either in input than output.

1.3 Scalability

The modularity of TRIMOD UPS allows to execute Power and Autonomy upgrade. Thanks to the intelligent Plug N' Play connection, no HW and SW settings are needed to increase or decrease the power or the autonomy.

1.4 Redundancy:

The modularity of the UPS allows the N+X redundant configurations. The Redundancy is achieved using more modules than needed, modules will run in "load sharing".

1.5 Architecture

The UPS **TRIMOD HE 15**, if configured as single-phase output has an architecture of distributed parallel type, all power modules share the load running in parallel. In this way no power module stays in stand-by but all of them run in load sharing, giving the continuous protection of the load (the configuration must be previously dimensioned in the appropriate way).
If the UPS is configured as three-phase output, the distributed parallel architecture is in each phase (if there are more modules in the same phase).

In case of redundant configuration, whenever one module fails, the other modules in the same phase will guarantee the Energy supply and protection to the load. The available power in each phase will be always the sum of the power of the modules installed in that phase.

1.6 By-pass

In each Power Module there is a static By-pass system which, in case of overload or other anomaly, automatically transfer the load to the mains.

A dedicated software of remote monitoring and management, installed on a PC connected to the UPS, allows to check and set all working parameters of TRIMOD HE (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown. Optional software (UPS SuperviSor) or Net Interface card (CS121 SK) allow the multi server shutdown and UPS remote control on the LAN.

TRIMOD HE is controlled by a main microprocessor which works together with microprocessors in each power modules; By display is possible to check all measurements, working parameters and status of the system.

Here follow the measurements and working parameters available on the **display**:

Input

- Current:
- RMS value
 - Peak value
 - Crest Factor
- Voltage:
- Ph-N RMS value
 - Ph-Ph RMS value
- Power:
- Nominal (VA)
 - Active (W)
- Power Factor
Frequency

Batteries

- Voltage
- Capacity
- Current
- History data
- Residual Capacity
- Charging status

Misc.

- Internal Temperature
- Fan Speed
- HV DC BUS Voltage

Data log.

- By-pass intervention
- Overheats
- Overloads
- Battery interventions
- Total discharge
- Events (info, warning, critical)
- Alarms

Output

- Current:
- RMS value
 - Peak value
 - Crest Factor
- Voltage:
- Ph-N RMS value
 - Ph-Ph RMS value
- Power:
- Nominal (VA)
 - Active (W)
- Power Factor
Frequency

1. GENERAL SPECIFICATIONS *(continue)*

The UPS allows also the following settings by **display**:

Output

- Voltage
- Frequency
- Phases configuration

By-Pass

- Enabling
- Forced
- DIP Speed
- Off-line Mode
- EPS Mode

Input

- Enable freq. synchronizing (PLL)
- Extended synchronizing range (Extended PLL)

Batteries

- Start up on Battery
- Threshold value
- Auto restart
- Max Time on battery

The UPS **TRIMOD HE 15** has the CE Mark accordingly with the EU Directives 2006/95, 2004/108 and it comply with following standards:

- EN 62040-1 "General rules for electric safety"
- EN 62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN 62040-3 "Performances and testing rules"

2. TECHNICAL SPECIFICATIONS

General Specifications	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, scalable, redundant based on 5 kVA Power Modules
In/Out phase Configuration	Three phase-Three phase
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Automatic by-pass (static and electromechanic) & Manual maintenance by-pass
Transfer time	Zero

Input	
Nominal Voltage	380, 400, 415 3F+N+PE (220, 230, 240 1F)
Voltage range	400V -20% +15% 230V -20% +15%
Frequency	45-65Hz (43,0 ÷ 68,4 hz)
THD _{I_n}	< 3%
Power Factor	1

Output with mains (AC-AC)	
Nominal voltage	380, 400, 415 3F+N+PE (220, 230, 240 1F)
Nominal power	15.000 VA
Active power	15.000 W
Efficiency (VFI)	up to 96%
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 1 %
THDv on nominal power (not linear load P.F.=0,7)	< 1 %
Frequency	50/60 Hz user adjustable +/- 2% (Standard), +/- 14% (Extended)
Frequency tolerance	Synchronized with input frequency or ± 1% free run
Current Crest Factor	3:1
Overload capability: • for 10 minutes • for 60 seconds	115% load rate with no bypass intervention 135% load rate with no bypass intervention

Output in battery Run (DC-AC)	
Nominal voltage	380, 400, 415 3F+N+PE (220, 230, 240 1F)
Nominal power	15.000 VA
Active power	15.000 W
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 1 %
THDv on nominal power (not linear load)	< 1 %
Frequency	50 Hz o 60 Hz (autosensing or selectable)
Frequency tolerance	± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62 040-3
Overload capability: • for 10 minutes • for 60 seconds	115% 135%

Battery	
Type	Lead Acid, sealed, free maintenance VRLA (on request longlife battery)
Unit Capacity	7,2 or 9 Ah (12V)
Nominal UPS Battery Voltage	240 Volt DC
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Smart Charger technology, advanced three charging steps
Max Charging Current	1,5 A each power module

Environmental specs	
Noise level @ 1m	46 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	0-95% not condensing
Protection degree	IP21

Mechanical an Miscellaneous	
Net Weight without batteries ¹	120/155 kg
Dimensions (WxHxD) ²	414 x 1370/1650 x 628 (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	MOSFET/IGBT
Communication Interface	2 serial port RS232, 1 logic level port, 5 outputs with dry contacts, 1 optional interface slot
Input/Output connections	3P + N + PE Connectors on omega bar
Number of Installed Power Modules	3 of 5000 VA
Standards	EN 62040-1, EN 62040-2, EN 62040-3

¹ The weigh depends by the number of the installed batteries accordingly with the required autonomy.

² The battery cabinet dimension can change depending battery set accordingly with the required autonomy.

TRIMOD HE 20 kVA

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1. GENERAL SPECIFICATIONS

The Legrand **TRIMOD HE 20** is an UPS on line double conversion with PWM Hi-Frequency technology. It has passing trough neutral and Modular Architecture with the possibility to have N+X redundancy. The nominal power is 20 kVA – 20 kW. Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged, inside the UPS or external battery cabinet, in dedicated Drawers, in order to guarantee compact dimensions reducing weights and DC voltage level.

1.1 Modularity

The UPS **TRIMOD HE 20** has modular architecture, it is composed by identical modules which work in parallel. Modules are:

- Power Modules 6,7 kVA;
- Battery Drawers of five batteries (7.2Ah or 9Ah).

These modules are installed inside the UPS and have identical functions.

Power Modules are composed by the following circuits:

- Rectifier/PFC
- Inverter
- Battery Charger
- Command Logic circuit
- Automatic By-pass

Battery drawers contain 5 batteries, and are easy to be move and replace.

1.2 Adaptability

The UPS can be easily configured on site, by the user, to work as three-phase or single phase either in input than output.

1.3 Scalability

The modularità of TRIMOD UPS allows to execute Power and Autonomy upgrade. Thanks to the intelligent Plug N' Play connection, no HW and SW settings are needed to increase or decrease the power or the autonomy.

1.4 Redundancy

The modularità of the UPS allows the N+X redundant configurations. The Redundancy is achieved using more modules than needed, modules will run in "load sharing".

1.5 Architecture

The UPS **TRIMOD HE 20**, if configured as single-phase output has an architecture of distributed parallel type, all power modules share the load running in parallel. In this way no power module stays in stand-by but all of them run in load sharing, giving the continuous protection of the load (the configuration must be previously dimensioned in the appropriate way).

If the UPS is configured as three-phase output, the distributed parallel architecture is in each phase (if there are more modules in the same phase phase).

In case of redundant configuration, whenever one module fails, the other modules in the same phase will guarantee the Energy supply and protection to the load. The available power in each phase will be always the sum of the power of the modules installed in that phase.

1.6 By-pass

In each Power Module there is a static By-pass system which, in case of overload or other anomaly, automatically transfer the load to the mains.

A dedicated software of remote monitoring and management, installed on a PC connected to the UPS, allows to check and set all working parameters of TRIMOD HE (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown. Optional software (UPS SuperviSor) or Net Interface card (CS121 SK) allow the multi server shutdown and UPS remote control on the LAN.

TRIMOD HE is controlled by a main microprocessor which works together with microprocessors in each power modules; By display is possible to check all measurements, working parameters and status of the system.

Here follow the measurements and working parameters available on the **display**:

Input

- Current:
 - RMS value
 - Peak value
 - Crest Factor
- Voltage:
 - Ph-N RMS value
 - Ph-Ph RMS value
- Power:
 - Nominal (VA)
 - Active (W)
- Power Factor
- Frequency

Batteries

- Voltage
- Capacity
- Current
- History data
- Residual Capacity
- Charging status

Misc.

- Internal Temperature
- Fan Speed
- HV DC BUS Voltage

Data log.

- By-pass intervention
- Overheats
- Overloads
- Battery interventions
- Total discharge
- Events (info, warning, critical)
- Alarms

Output

- Current:
 - RMS value
 - Peak value
 - Crest Factor
- Voltage:
 - Ph-N RMS value
 - Ph-Ph RMS value
- Power:
 - Nominal (VA)
 - Active (W)
- Power Factor
- Frequency

1. GENERAL SPECIFICATIONS *(continue)*

The UPS allows also the following settings by **display**:

Output

- Voltage
- Frequency
- Phases configuration

By-Pass

- Enabling
- Forced
- DIP Speed
- Off-line Mode
- EPS Mode

Input

- Enable freq. synchronizing (PLL)
- Extended synchronizing range (Extended PLL)

Batteries

- Start up on Battery
- Threshold value
- Auto restart
- Max Time on battery

The UPS **TRIMOD HE 20** has the CE Mark accordingly with the EU Directives 2006/95, 2004/108 and it comply with following standards:

- EN 62040-1 "General rules for electric safety"
- EN 62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN 62040-3 "Performances and testing rules"

General Specifications	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, scalable, redundant based on 6,7 kVA Power Modules
In/Out phase Configuration	Three phase-Three phase
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Automatic by-pass (static and electromechanic) & Manual maintenance by-pass
Transfer time	Zero

Input	
Nominal Voltage	380, 400, 415 3F+N+PE (220, 230, 240 1F)
Voltage range	400V -20% +15% 230V -20% +15%
Frequency	45-65Hz (43,0 ÷ 68,4 hz)
THDI _{in}	< 3%
Power Factor	1

Output with mains (AC-AC)	
Nominal voltage	380, 400, 415 3F+N+PE (220, 230, 240 1F)
Nominal power	20.000 VA
Active power	20.000 W
Efficiency (VFI)	up to 96%
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 1 %
THDv on nominal power (not linear load)	< 1 %
Frequency	50/60 Hz user adjustable +/- 2% (Standard), +/- 14% (Extended)
Frequency tolerance	Synchronized with input frequency or ± 1% free run
Current Crest Factor	3:1
Overload capability:	
• for 10 minutes	115% load rate with no bypass intervention
• for 60 seconds	135% load rate with no bypass intervention

Output in battery Run (DC-AC)	
Nominal voltage	380, 400, 415 3F+N+PE (220, 230, 240 1F)
Nominal power	20000 VA
Active power	20.000 W
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 1%
THDv on nominal power (not linear load)	< 1%
Frequency	50 Hz o 60 Hz (autosensing or selectable)
Frequency tolerance	± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62 040-3
Overload capability:	
• for 10 minutes	115%
• for 60 seconds	135%

Battery	
Type	Lead Acid, sealed, free maintenance VRLA (on request longlife battery)
Unit Capacity	7,2 or 9 Ah (12V)
Nominal UPS Battery Voltage	240 Volt DC
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Smart Charger technology, advanced three charging steps
Max Charging Current	1,5 A each power module

Environmental specs	
Noise level @ 1m	46 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	0-95% not condensing
Protection degree	IP21

Mechanical an Miscellaneous	
Net Weight without batteries ¹	120/155 kg
Dimensions (WxHxD) ²	414 x 1370/1650 x 628 (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	MOSFET/IGBT
Communication Interface	2 serial port RS232, 1 logic level port, 5 outputs with dry contacts, 1 optional interface slot
Input/Output connections	3P + N + PE Connectors on omega bar
Number of Installed Power Modules	3 of 6700 VA
Standards	EN 62040-1, EN 62040-2, EN 62040-3

¹ The weigh depends by the number of the installed batteries accordingly with the required autonomy.

² The battery cabinet dimension can change depending battery set accordingly with the required autonomy.

TRIMOD HE 30 kVA

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version h 1370



version h 1650

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1. GENERAL SPECIFICATIONS

The Legrand **TRIMOD HE 30** is an UPS on line double conversion with PWM Hi-Frequency technology. It has passing trough neutral and Modular Architecture with the possibility to have N+X redundancy. The nominal power is 30 kVA – 30 kW.

Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged, inside the UPS or external battery cabinet, in dedicated Drawers, in order to guarantee compact dimensions reducing weights and DC voltage level.

1.1 Modularity

The UPS **TRIMOD HE 30** has modular architecture, it is composed by identical modules which work in parallel. Modules are:

- Power Modules 5 kVA;
- Battery Drawers of five batteries (7.2Ah or 9Ah).

These modules are installed inside the UPS and have identical functions.

Power Modules are composed by the following circuits:

- Rectifier/PFC
- Inverter
- Battery Charger
- Command Logic circuit
- Automatic By-pass

Battery drawers contain 5 batteries, and are easy to be move and replace.

1.2 Adaptability

The UPS can be easily configured on site, by the user, to work as three-phase or single phase either in input than output.

1.3 Scalability

The modularity of TRIMOD UPS allows to execute Power and Autonomy upgrade. Thanks to the intelligent Plug N' Play connection, no HW and SW settings are needed to increase or decrease the power or the autonomy.

1.4 Redundancy

The modularity of the UPS allows the N+X redundant configurations. The Redundancy is achieved using more modules than needed, modules will run in "load sharing".

1.5 Architecture

The UPS **TRIMOD HE 30**, if configured as single-phase output has an architecture of distributed parallel type, all power modules share the load running in parallel. In this way no power module stays in stand-by but all of them run in load sharing, giving the continuous protection of the load (the configuration must be previously dimensioned in the appropriate way).

If the UPS is configured as three-phase output, the distributed parallel architecture is in each phase (if there are more modules in the same phase).

In case of redundant configuration, whenever one module fails, the other modules in the same phase will guarantee the Energy supply and protection to the load. The available power in each phase will be always the sum of the power of the modules installed in that phase.

1.6 By-pass

In each Power Module there is a static By-pass system which, in case of overload or other anomaly, automatically transfer the load to the mains.

A dedicated software of remote monitoring and management, installed on a PC connected to the UPS, allows to check and set all working parameters of TRIMOD HE (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown. Optional software (UPS SuperviSor) or Net Interface card (CS121 SK) allow the multi server shutdown and UPS remote control on the LAN.

TRIMOD HE is controlled by a main microprocessor which works together with microprocessors in each power modules; By display is possible to check all measurements, working parameters and status of the system.

Here follow the measurements and working parameters available on the **display**:

Input

- Current:
 - RMS value
 - Peak value
 - Crest Factor
- Voltage:
 - Ph-N RMS value
 - Ph-Ph RMS value
- Power:
 - Nominal (VA)
 - Active (W)
- Power Factor
- Frequency

Batteries

- Voltage
- Capacity
- Current
- History data
- Residual Capacity
- Charging status

Misc.

- Internal Temperature
- Fan Speed
- HV DC BUS Voltage

Data log.

- By-pass intervention
- Overheats
- Overloads
- Battery interventions
- Total discharge
- Events (info, warning, critical)
- Alarms

Output

- Current:
 - RMS value
 - Peak value
 - Crest Factor
- Voltage:
 - Ph-N RMS value
 - Ph-Ph RMS value
- Power:
 - Nominal (VA)
 - Active (W)
- Power Factor
- Frequency

1. GENERAL SPECIFICATIONS *(continue)*

The UPS allows also the following settings by **display**:

Output

- Voltage
- Frequency
- Phases configuration

By-Pass

- Enabling
- Forced
- DIP Speed
- Off-line Mode
- EPS Mode

Input

- Enable freq. synchronizing (PLL)
- Extended synchronizing range (Extended PLL)

Batteries

- Start up on Battery
- Threshold value
- Auto restart
- Max Time on battery

The UPS TRIMOD has the CE Mark accordingly with the EU Directives 2006/95, 2004/108 and it comply with following standards:

- EN 62040-1 "General rules for electric safety"
- EN 62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN 62040-3 "Performances and testing rules"

General Specifications	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, scalable, redundant based on 5 kVA Power Modules
In/Out phase Configuration	Three phase-Three phase
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Automatic by-pass (static and electromechanic) & Manual maintenance by-pass
Transfer time	Zero

Input	
Nominal Voltage	380, 400, 415 3F+N+PE (220, 230, 240 1F)
Voltage range	400V -20% +15% 230V -20% +15%
Frequency	45-65Hz (43,0 ÷ 68,4 hz)
THDI _{in}	< 3%
Power Factor	1

Output with mains (AC-AC)	
Nominal voltage	380, 400, 415 3F+N+PE (220, 230, 240 1F)
Nominal power	30.000 VA
Active power	30.000 W
Efficiency (VFI)	up to 96%
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 1 %
THDv on nominal power (not linear load)	< 1 %
Frequency	50/60 Hz user adjustable +/- 2% (Standard), +/- 14% (Extended)
Frequency tolerance	Synchronized with input frequency or ± 1% free run
Current Crest Factor	3:1
Overload capability:	
• for 10 minutes	115% load rate with no bypass intervention
• for 60 seconds	135% load rate with no bypass intervention

Output in battery Run (DC-AC)	
Nominal voltage	380, 400, 415 3F+N+PE (220, 230, 240 1F)
Nominal power	30.000 VA
Active power	30.000 W
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 1 %
THDv on nominal power (not linear load)	< 1 %
Frequency	50 Hz o 60 Hz (autosensing or selectable)
Frequency tolerance	± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62 040-3
Overload capability:	
• for 10 minutes	115%
• for 60 seconds	135%

Battery	
Type	Lead Acid, sealed, free maintenance VRLA (on request longlife battery)
Unit Capacity	7,2 or 9 Ah (12V)
Nominal UPS Battery Voltage	240 Volt DC
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Smart Charger technology, advanced three charging steps
Max Charging Current	1,5 A each power module

Environmental specs	
Noise level @ 1m	46 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	0-95% not condensing
Protection degree	IP21

Mechanical an Miscellaneous	
Net Weight without batteries ¹	146/181 kg
Dimensions (WxHxD) ²	414 x 1370/1650 x 628 (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	MOSFET/IGBT
Communication Interface	2 serial port RS232, 1 logic level port, 5 outputs with dry contacts, 1 optional interface slot
Input/Output connections	3P + N + PE Connectors on omega bar
Number of Installed Power Modules	6 of 5000 VA
Standards	EN 62040-1, EN 62040-2, EN 62040-3

¹ The weigh depends by the number of the installed batteries accordingly with the required autonomy.

² The battery cabinet dimension can change depending battery set accordingly with the required autonomy.

TRIMOD HE 40 kVA

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1. GENERAL SPECIFICATIONS

The Legrand **TRIMOD HE 40** is an UPS on line double conversion with PWM Hi-Frequency technology. It has passing trough neutral and Modular Architecture with the possibility to have N+X redundancy. The nominal power is 40 kVA – 40 kW. Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged, inside the UPS or external battery cabinet, in dedicated Drawers, in order to guarantee compact dimensions reducing weights and DC voltage level.

1.1 Modularity

The UPS **TRIMOD HE 40** has modular architecture, it is composed by identical modules which work in parallel. Modules are:

- Power Modules 6,7 kVA;
- Battery Drawers of five batteries (7.2Ah or 9Ah).

These modules are installed inside the UPS and have identical functions.

Power Modules are composed by the following circuits:

- Rectifier/PFC
- Inverter
- Battery Charger
- Command Logic circuit
- Automatic By-pass

Battery drawers contain 5 batteries, and are easy to be move and replace.

1.2 Adaptability

The UPS can be easily configured on site, by the user, to work as three-phase or single phase either in input than output.

1.3 Scalability

The modularity of TRIMOD UPS allows to execute Power and Autonomy upgrade. Thanks to the intelligent Plug N' Play connection, no HW and SW settings are needed to increase or decrease the power or the autonomy.

1.4 Redundancy

The modularity of the UPS allows the N+X redundant configurations. The Redundancy is achieved using more modules than needed, modules will run in "load sharing".

1.5 Architecture

The UPS **TRIMOD HE 40** is three-phase input and output, the architecture is distributed parallel architecture in each phase (there are more modules in the same phase).

In case of redundant configuration, whenever one module fails, the other modules in the same phase will guarantee the Energy supply and protection to the load. The available power in each phase will be always the sum of the power of the modules installed in that phase.

1.6 By-pass

In each Power Module there is a static By-pass system which, in case of overload or other anomaly, automatically transfer the load to the mains.

A dedicated software of remote monitoring and management, installed on a PC connected to the UPS, allows to check and set all working parameters of TRIMOD HE (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown.

Optional software (UPS SuperviSor) or Net Interface card (CS121 SK) allow the multi server shutdown and UPS remote control on the LAN.

TRIMOD HE is controlled by a main microprocessor which works together with microprocessors in each power modules; By display is possible to check all measurements, working parameters and status of the system.

Here follow the measurements and working parameters available on the **display**:

Input

- Current:
 - RMS value
 - Peak value
 - Crest Factor
- Voltage:
 - Ph-N RMS value
 - Ph-Ph RMS value

- Power:
 - Nominal (VA)
 - Active (W)
- Power Factor
- Frequency

Output

- Current:
 - RMS value
 - Peak value
 - Crest Factor
- Voltage:
 - Ph-N RMS value
 - Ph-Ph RMS value
- Power:
 - Nominal (VA)
 - Active (W)
- Power Factor
- Frequency

Batteries

- Voltage
- Capacity
- Current
- History data
- Residual Capacity
- Charging status

Misc.

- Internal Temperature
- Fan Speed
- HV DC BUS Voltage

DATA LOG.

- By-pass intervention
- Overheats
- Overloads
- Battery interventions
- Total discharge
- Events (info, warning, critical)
- Alarms

1. GENERAL SPECIFICATIONS *(continue)*

The UPS allows also the following settings by **display**:

Output

- Voltage
- Frequency
- Phases configuration

By-Pass

- Enabling
- Forced
- DIP Speed
- Off-line Mode
- EPS Mode

Input

- Enable freq. synchronizing (PLL)
- Extended synchronizing range (Extended PLL)

Batteries

- Start up on Battery
- Threshold value
- Auto restart
- Max Time on battery

The UPS TRIMOD has the CE Mark accordingly with the EU Directives 2006/95, 2004/108 and it comply with following standards:

- EN 62040-1 "General rules for electric safety"
- EN 62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN 62040-3 "Performances and testing rules"

2. TECHNICAL SPECIFICATIONS

General Specifications	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, scalable, redundant based on 6,7 kVA Power Modules
In/Out phase Configuration	Three phase-Three phase
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Automatic by-pass (static and electromechanic) & Manual maintenance by-pass
Transfer time	Zero

Input	
Nominal Voltage	380, 400, 415 3F+N+PE
Voltage range	400V -20% +15% 230V -20% +15%
Frequency	45-65Hz (43,0 ÷ 68,4 hz)
THDI _m	< 3%
Power Factor	1

Output with mains (AC-AC)	
Nominal voltage	380, 400, 415 3F+N+PE
Nominal power	40.000 VA
Active power	40.000 W
Efficiency (VFI)	up to 96%
Voltage variation (static)	± 1 %
Voltage variation (dynamic 0-100%; 100-0%)	± 1 %
THDv on nominal power (linear load)	< 1 %
THDv on nominal power (not linear load PF=0,7)	< 1 %
Frequency	50/60 Hz user adjustable +/- 2% (Standard), +/- 14% (Extended)
Frequency tolerance	Synchronized with input frequency or ± 1% free run
Current Crest Factor	3:1
Overload capability:	
• for 10 minutes	115% load rate with no bypass intervention
• for 60 seconds	135% load rate with no bypass intervention

Output in battery Run (DC-AC)	
Nominal voltage	380, 400, 415 3F+N+PE
Nominal power	40.000 VA
Active power	40.000 W
Voltage variation (static)	± 1 %
Voltage variation (dynamic 0-100%; 100-0%)	± 1 %
THDv on nominal power (linear load)	< 1 %
THDv on nominal power (not linear load PF=0,7)	< 1 %
Frequency	50 Hz o 60 Hz (autosensing or selectable)
Frequency tolerance	± 1 % free run
Current Crest Factor	3:1 accordingly with IEC 62 040-3
Overload capability:	
• for 10 minutes	115%
• for 60 seconds	135%

Battery	
Type	Lead Acid, sealed, free maintenance VRLA (on request longlife battery)
Unit Capacity	7,2 or 9 Ah (12V)
Nominal UPS Battery Voltage	240 Volt DC
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Smart Charger technology, advanced three charging steps
Max Charging Current	2,5 A each power module

Environmental specs	
Noise level @ 1m	46 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	0-95% not condensing
Protection degree	IP21

Mechanical an Miscellaneous	
Net Weight without batteries ¹	146 kg
Dimensions (WxHxD) ²	1 x (414 x 1370 x 628) (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	MOSFET/IGBT
Communication Interface	2 serial port RS232, 1 logic level port, 5 outputs with dry contacts, 1 optional interface slot
Input/Output connections	3P + N + PE Connectors on omega bar
Number of Installed Power Modules	6 of 6700 VA
Standards	EN 62040-1, EN 62040-2, EN 62040-3

¹ The weigh depends by the number of the installed batteries accordingly with the required autonomy.

² The battery cabinet dimension can change depending battery set accordingly with the required autonomy.

TRIMOD HE 60 kVA

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1. GENERAL SPECIFICATIONS

The Legrand **TRIMOD HE 60** is an UPS on line double conversion with PWM Hi-Frequency technology. It has passing trough neutral and Modular Architecture with the possibility to have N+X redundancy. The nominal power is 60 kVA – 60 kW. Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged, inside the UPS or external battery cabinet, in dedicated Drawers, in order to guarantee compact dimensions reducing weights and DC voltage level.

1.1 Modularity

The UPS **TRIMOD HE 60** has modular architecture, it is composed by identical modules which work in parallel. Modules are:

- Power Modules 6,7 kVA;
- Battery Drawers of five batteries (7.2Ah or 9Ah).

These modules are installed inside the UPS and have identical functions.

Power Modules are composed by the following circuits:

- Rectifier/PFC
- Inverter
- Battery Charger
- Command Logic circuit
- Automatic By-pass

Battery drawers contain 5 batteries, and are easy to be move and replace.

1.2 Adaptability

The UPS can be easily configured on site, by the user, to work as three-phase or single phase either in input than output.

1.3 Scalability

The modularity of TRIMOD UPS allows to execute Power and Autonomy upgrade. Thanks to the intelligent Plug N' Play connection, no HW and SW settings are needed to increase or decrease the power or the autonomy.

1.4 Redundancy

The modularity of the UPS allows the N+X redundant configurations. The Redundancy is achieved using more modules than needed, modules will run in "load sharing".

1.5 Architecture

The UPS **TRIMOD HE 60** is three-phase input and output, the architecture is distributed parallel architecture in each phase (there are more modules in the same phase).

In case of redundant configuration, whenever one module fails, the other modules in the same phase will guarantee the Energy supply and protection to the load.

The available power in each phase will be always the sum of the power of the modules installed in that phase.

1.6 By-pass

In each Power Module there is a static By-pass system which, in case of overload or other anomaly, automatically transfer the load to the mains.

A dedicated software of remote monitoring and management, installed on a PC connected to the UPS, allows to check and set all working parameters of TRIMOD HE (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown.

Optional software (UPS SuperviSor) or Net Interface card (CS121 SK) allow the multi server shutdown and UPS remote control on the LAN.

TRIMOD HE is controlled by a main microprocessor which works together with microprocessors in each power modules; By display is possible to check all measurements, working parameters and status of the system.

Here follow the measurements and working parameters available on the **display**:

Input

- Current:
 - RMS value
 - Peak value
 - Crest Factor
- Voltage:
 - Ph-N RMS value
 - Ph-Ph RMS value

- Power:
 - Nominal (VA)
 - Active (W)
- Power Factor
- Frequency

Output

- Current:
 - RMS value
 - Peak value
 - Crest Factor
- Voltage:
 - Ph-N RMS value
 - Ph-Ph RMS value
- Power:
 - Nominal (VA)
 - Active (W)
- Power Factor
- Frequency

Batteries

- Voltage
- Capacity
- Current
- History data
- Residual Capacity
- Charging status

Misc.

- Internal Temperature
- Fan Speed
- HV DC BUS Voltage

DATA LOG.

- By-pass intervention
- Overheats
- Overloads
- Battery interventions
- Total discharge
- Events (info, warning, critical)
- Alarms

1. GENERAL SPECIFICATIONS *(continue)*

The UPS allows also the following settings by **display**:

Output

- Voltage
- Frequency
- Phases configuration

By-Pass

- Enabling
- Forced
- DIP Speed
- Off-line Mode
- EPS Mode

Input

- Enable freq. synchronizing (PLL)
- Extended synchronizing range (Extended PLL)

Batteries

- Start up on Battery
- Threshold value
- Auto restart
- Max Time on battery

The UPS TRIMOD has the CE Mark accordingly with the EU Directives 2006/95, 2004/108 and it comply with following standards:

- EN 62040-1 "General rules for electric safety"
- EN 62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN 62040-3 "Performances and testing rules"

2. TECHNICAL SPECIFICATIONS

General Specifications	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, scalable, redundant based on 6,7 kVA Power Modules
In/Out phase Configuration	Three phase-Three phase
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Automatic by-pass (static and electromechanic) & Manual maintenance by-pass
Transfer time	Zero

Input	
Nominal Voltage	380, 400, 415 3F+N+PE
Voltage range	400V -20% +15% 230V -20% +15%
Frequency	45-65Hz (43,0 ÷ 68,4 hz)
THDI _m	< 3%
Power Factor	1

Output with mains (AC-AC)	
Nominal voltage	380, 400, 415 3F+N+PE
Nominal power	60.000 VA
Active power	60.000 W
Efficiency (VFI)	up to 96%
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 1%
THDv on nominal power (not linear load)	< 1%
Frequency	50/60 Hz user adjustable +/- 2% (Standard), +/- 14% (Extended)
Frequency tolerance	Synchronized with input frequency or ± 1% free run
Current Crest Factor	3:1
Overload capability:	
• for 10 minutes	115% load rate with no bypass intervention
• for 60 seconds	135% load rate with no bypass intervention

Output in battery Run (DC-AC)	
Nominal voltage	380, 400, 415 3F+N+PE
Nominal power	60.000 VA
Active power	60.000 W
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 1%
THDv on nominal power (not linear load)	< 1%
Frequency	50 Hz o 60 Hz (autosensing or selectable)
Frequency tolerance	± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62 040-3
Overload capability:	
• for 10 minutes	115%
• for 60 seconds	135%

Battery	
Type	Lead Acid, sealed, free maintenance VRLA (on request longlife battery)
Unit Capacity	7,2 or 9 Ah (12V)
Nominal UPS Battery Voltage	240 Volt DC
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Smart Charger technology, advanced three charging steps
Max Charging Current	2,5 A each power module

Environmental specs	
Noise level @ 1m	46 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	0-95% not condensing
Protection degree	IP21

Mechanical an Miscellaneous	
Net Weight without batteries ¹	165 + 75 kg
Dimensions (WxHxD) ²	1 x (414 x 1370 x 628) (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	MOSFET/IGBT
Communication Interface	2 serial port RS232, 1 logic level port, 5 outputs with dry contacts, 1 optional interface slot
Input/Output connections	3P + N + PE Connectors on omega bar
Number of Installed Power Modules	9 of 6700 VA
Standards	EN 62040-1, EN 62040-2, EN 62040-3

¹ The weigh depends by the number of the installed batteries accordingly with the required autonomy.

² The battery cabinet dimension can change depending battery set accordingly with the required autonomy.

TRIMOD HE 10kW (Dual input)

3 104 65 TRIMOD HE 10 empty cabinet 3 slot
3 108 69 Power module 3,4kW



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1. GENERAL SPECIFICATIONS

The Legrand **TRIMOD HE 10**, is an high efficiency UPS on line double conversion with PWM Hi-Frequency technology. It has passing trough neutral and Modular Architecture with the possibility to have N+X redundancy. The nominal power is 10kVA – 10kW.

1.1 Modularity

The TRIMOD HE 10 UPS has an innovative modular architecture, it means that it's composed by identical modules (3,4kW single phase power module) that, working in parallel, form the power section of the UPS. Each power module can be considered a complete single phase UPS who works in parallel with the others in order to supply the required power.

The power module can be divided in the following functional blocs:

- Rectifier/PFC
- Inverter
- Battery Charger
- Command Logic circuit
- Automatic By-pass

It's possible to reach different power and redundancy levels according to the number of installed power module.

1.2 Scalability

The cabinet is designed to accept different number of power modules, this allows to create a huge range of configurations. It's possible to increase power directly on site easily, without changing settings nor adjustments. This operation can be lead without using any kind special equipment.

1.3 Redundancy

You can easily set up the TRIMOD HE 10 as a N+X power redundant system. It will be enough defined how many 3,4kW power modules must be installed inside the cabinet.

We can reach redundancy thanks to the load sharing, the overall load is equally shared between the power modules and in case of failure the still-working modules will back up the faulty one.

1.4 Architecture

The TRIMOD HE 10 UPS has single/three phase input and output and it's possible manage the output phases in independent way thank to the parallel architecture. The nominal power available is determinate by the sum of the power module per phase. For this reason the UPS is able, if properly sized, to supply the load in case of failure or replacement of one or more power modules.

1.5 By-pass

Each power module has an independent automatic bypass system that switch the load on the input line in case of overload, over temperature, inverter failures, and any kind of anomalies.

The UPS is equipped as standard with the Manual Bypass, placed in the front side of the cabinet.

1.6 Dual input

On the front side of TRIMOD HE 10 there are 2 input lines, one for the main and one for the auxiliary line.

These two input line are bridged by default but the connection can be easily removed obtaining two independent input lines during installation or commissioning.

1.7 Batteries

Batteries are lead-acid, sealed, free maintenance, valve regulated and arranged, inside the UPS and the external battery cabinet; the battery strings are composed by 20 battery blocks. The UPS can manage four independent battery set in order to have full decentralised modularity also on batteries (only for UPS with more Control boards).

1.8 Communication and user interface

A dedicated software of remote monitoring and management, installed on a PC connected to the UPS, allows to check and set all working parameters of TRIMOD HE 10 (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown (compatible with Windows and Linux). Optional software (UPS Management Software) and Net Interface card (CS141 SK) allow the multi server shutdown and UPS remote control on the LAN.

Here below the measurements and working parameters available on the display:

Input

Current:

- RMS value
- Peak value
- Crest Factor

Voltage:

- Ph-N RMS value
- Ph-Ph RMS value
- Bypass Line Voltage

Power:

- Nominal (VA)
- Active (W)

Power Factor

Frequency

All the measurements and the working parameters are also available on 2 different Net Interface Cards (SNMP) board. On the front side of TRIMOD HE 10 are available also:

- 1 x 5 Dry contacts
- 1 x RS232 port for service
- 1x logic level port

TRIMOD HE 10kW (Dual input)

3 104 65 TRIMOD HE 10 empty cabinet 3 slot
3 108 69 Power module 3,4kW

1. GENERAL SPECIFICATIONS *(continue)*

Output

Current:

- RMS value
- Peak value
- Crest Factor

Voltage:

- Ph-N RMS value
- Ph-Ph RMS value

Power:

- Nominal (VA)
- Active (W)

Power Factor

Frequency

Batteries

- Voltage
- Capacity
- Current
- History data
- Residual Capacity
- Charging status

The UPS allows also the following settings by **display**:

Output

- Voltage
- Frequency
- Phases configuration

Input

- Enable freq. synchronizing (PLL)
- Extended synchronizing range (Extended PLL)

Misc.

- Internal Temperature
- Fan Speed
- HV DC BUS Voltage

DATA LOG.

- By-pass intervention
- Overheats
- Overloads
- Battery interventions
- Total discharge
- Events (info, warning, critical)
- Alarms

BY-PASS

- Enabling
- Forced
- DIP Speed
- ECO Mode

Batteries

- Start up on Battery
- Threshold value
- Auto restart
- Max Time on battery

The UPS TRIMOD HE 10 has the CE Mark accordingly with the EU Directives 2006/95, 2004/108 and it comply with following standards:

- EN 62040-1 "General rules for electric safety"
- EN 62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN 62040-3 "Performances and testing rules"

2. TECHNICAL SPECIFICATIONS

General Specifications	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, scalable, redundant based on single phase Power Modules
In/Out phase Configuration	1-1 / 3-3 / 3-1 / 1-3
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Static, electro-mechanic and maintenance bypass
Transfer time	Zero

Input	
Nominal Voltage	380, 400, 415 3ph+N+PE
Voltage range	-20% +15%
Frequency	45 Hz o 65Hz (autosensing)
THDI _{in}	< 3%
Power Factor	> 0.99

Output with mains (AC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	10kVA
Active power	10kW
Efficiency	up to 96%
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load P.F=1)	< 1 %
Frequency	50 Hz o 60Hz
Frequency tolerance	Synchronized with input frequency adjustable range from +/- 1% to +/- 14% or ± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62040-3
Overload capability:	
• 10 min	115% load rate with no bypass intervention
• 60 sec	135% load rate with no bypass intervention

Output in battery Run (DC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	10kVA
Active power	10kW
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load)	< 1 %
Frequency	50 Hz o 60Hz (autosensing)
Frequency tolerance	± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62 040-3
Overload capability:	
• 10 min	115%
• 60 sec	135%

Battery	
Type	Lead Acid, sealed, free maintenance VRLA
Unit Capacity	Depending on backup time
Nominal UPS Battery Voltage	240 Volt DC
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Smart Charge technology 3-step advanced cycle
Max Charging Current	2,5 A each power module

Environmental specs	
Noise level @ 1m	58-62 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	0-95% not condensing
Protection degree	IP21

Mechanical an Miscellaneous	
Net Weight without batteries	86 kg
Dimensions (WxHxD)	414 x 1370 x 628 (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	IGBT
Communication Interface	1 x RS232 port for service, 1x 5 Dry contacts 1x logic level port, N.2 SNMP slot
Input/Output connections	3Ph + N + PE
Number of Control boards	1
Number of installable Power Modules	up to 3 of 3,4 kW
Standards	EN 62040-1, EN 62040-2, EN 62040-3

TRIMOD HE 15/20kW (Dual input)

3 104 66 - 310467 TRIMOD HE 15/20 empty cabinet 3 slot
3 108 71 Power module 5kW
3 108 73 Power module 6,7kW



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1. GENERAL SPECIFICATIONS

The Legrand **TRIMOD HE 15/20**, is an high efficiency UPS on line double conversion with PWM Hi-Frequency technology. It has passing trough neutral and Modular Architecture with the possibility to have N+X redundancy. The nominal power is 15/20kVA – 15/20kW.

1.1 Modularity

The TRIMOD HE 15/20 UPS has an innovative modular architecture, it means that it's composed by identical modules (5kW or 6,7kW single phase power module) that, working in parallel, form the power section of the UPS. Each power module can be considered a complete single phase UPS who works in parallel with the others in order to supply the required power.

The power module can be divided in the following functional blocs:

- Rectifier/PFC
- Inverter
- Battery Charger
- Command Logic circuit
- Automatic By-pass

It's possible to reach different power and redundancy levels according to the number of installed power module.

1.2 Scalability

The cabinet is designed to accept different number of power modules, this allows to create a huge range of configurations. It's possible to increase power directly on site easily, without changing settings nor adjustments. This operation can be lead without using any kind special equipment.

1.3 Redundancy

You can easily set up the TRIMOD HE 15/20 as a N+X power redundant system. It will be enough defined how many 5kW or 6,7kW power modules must be installed inside the cabinet.

We can reach redundancy thanks to the load sharing, the overall load is equally shared between the power modules and in case of failure the still-working modules will back up the faulty one.

1.4 Architecture

The TRIMOD HE 15/20 UPS has single/three phase input and output and it's possible manage the output phases in independent way thank to the parallel architecture. The nominal power available is determinate by the sum of the power module per phase. For this reason the UPS is able, if properly sized, to supply the load in case of failure or replacement of one or more power modules.

1.5 By-pass

Each power module has an independent automatic bypass system that switch the load on the input line in case of overload, over temperature, inverter failures, and any kind of anomalies. The UPS is equipped as standard with the Manual Bypass, placed in the front side of the cabinet.

1.6 Dual input

On the front side of TRIMOD HE 15/20 there are 2 input lines, one for the main and one for the auxiliary line.

These two input line are bridged by default but the connection can be easily removed obtaining two independent input lines during installation or commissioning.

1.7 Batteries

Batteries are lead-acid, sealed, free maintenance, valve regulated and arranged, inside the UPS and the external battery cabinet; the battery strings are composed by 20 battery blocks. The UPS can manage four independent battery set in order to have full decentralised modularity also on batteries (only for UPS with more Control boards).

1.8 Communication and user interface

A dedicated software of remote monitoring and management, installed on a PC connected to the UPS, allows to check and set all working parameters of TRIMOD HE 15/20 (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown (compatible with Windows and Linux).

Optional software (UPS Management Software) and Net Interface card (CS141 SK) allow the multi server shutdown and UPS remote control on the LAN.

Here below the measurements and working parameters available on the display:

Input

Current:

- RMS value
- Peak value
- Crest Factor

Voltage:

- Ph-N RMS value
- Ph-Ph RMS value
- Bypass Line Voltage

Power:

- Nominal (VA)
- Active (W)
- Power Factor
- Frequency

All the measurements and the working parameters are also available on 2 different Net Interface Cards (SNMP) board. On the front side of TRIMOD HE 15/20 are available also:

- 1 x 5 Dry contacts
- 1 x RS232 port for service
- 1x logic level port

TRIMOD HE 15/20kW (Dual input)

3 104 66 - 310467 TRIMOD HE 15/20 empty cabinet 3 slot
 3 108 71 Power module 5kW
 3 108 73 Power module 6,7kW

1. GENERAL SPECIFICATIONS *(continue)*

Output

Current:

- RMS value
- Peak value
- Crest Factor

Voltage:

- Ph-N RMS value
- Ph-Ph RMS value

Power:

- Nominal (VA)
- Active (W)

Power Factor

Frequency

Misc.

- Internal Temperature
- Fan Speed
- HV DC BUS Voltage

DATA LOG.

- By-pass intervention
- Overheats
- Overloads
- Battery interventions
- Total discharge
- Events (info, warning, critical)
- Alarms

Batteries

- Voltage
- Capacity
- Current
- History data
- Residual Capacity
- Charging status

The UPS allows also the following settings by **display**:

Output

- Voltage
- Frequency
- Phases configuration

BY-PASS

- Enabling
- Forced
- DIP Speed
- ECO Mode

Input

- Enable freq. synchronizing (PLL)
- Extended synchronizing range (Extended PLL)

Batteries

- Start up on Battery
- Threshold value
- Auto restart
- Max Time on battery

The UPS TRIMOD HE 15/20 has the CE Mark accordingly with the EU Directives 2006/95, 2004/108 and it comply with following standards:

- EN 62040-1 "General rules for electric safety"
- EN 62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN 62040-3 "Performances and testing rules"

2. TECHNICAL SPECIFICATIONS

General Specifications	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, scalable, redundant based on single phase Power Modules
In/Out phase Configuration	1-1 / 3-3 / 3-1 / 1-3
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Static, electro-mechanic and maintenance bypass
Transfer time	Zero

Input	
Nominal Voltage	380, 400, 415 3ph+N+PE
Voltage range	-20% +15%
Frequency	45 Hz o 65Hz (autosensing)
THDI _{in}	< 3%
Power Factor	> 0.99

Output with mains (AC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	15/20kVA
Active power	15/20kW
Efficiency	up to 96%
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load P.F.=1)	< 1 %
Frequency	50 Hz o 60Hz
Frequency tolerance	Synchronized with input frequency adjustable range from +/- 1% to +/- 14% or ± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62040-3
Overload capability:	
• 10 min	115% load rate with no bypass intervention
• 60 sec	135% load rate with no bypass intervention

Output in battery Run (DC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	15/20kVA
Active power	15/20kW
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load)	< 1 %
Frequency	50 Hz o 60Hz (autosensing)
Frequency tolerance	± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62 040-3
Overload capability:	
• 10 min	115%
• 60 sec	135%

Battery	
Type	Lead Acid, sealed, free maintenance VRLA
Unit Capacity	Depending on backup time
Nominal UPS Battery Voltage	240 Volt DC
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Smart Charge technology 3-step advanced cycle
Max Charging Current	2,5 A each power module

Environmental specs	
Noise level @ 1m	58-62 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	0-95% not condensing
Protection degree	IP21

Mechanical an Miscellaneous	
Net Weight without batteries	89 kg(3 104 66)103 kg(3 104 67)
Dimensions (WxHxD)	414 x 628 (mm) 1370 (mm) 1650 (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	IGBT
Communication Interface	1 x RS232 port for service, 1x 5 Dry contacts 1x logic level port, N.2 SNMP slot
Input/Output connections	3Ph + N + PE
Number of Control boards	1
Number of installable Power Modules	up to 3 of 5kW or 6,7kW
Standards	EN 62040-1, EN 62040-2, EN 62040-3

TRIMOD HE 20/30kW (Dual input)

3 104 68 TRIMOD HE 20/30 empty cabinet 6 slot
3 108 69 Power module 3,4kW
3 108 71 Power module 5kW



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1. GENERAL SPECIFICATIONS

The Legrand **TRIMOD HE 20/30**, is an high efficiency UPS on line double conversion with PWM Hi-Frequency technology. It has passing trough neutral and Modular Architecture with the possibility to have N+X redundancy. The nominal power is 20/30kVA – 20/30kW.

1.1 Modularity

The TRIMOD HE 20/30 UPS has an innovative modular architecture, it means that it's composed by identical modules (3,4kW or 5kW single phase power module) that, working in parallel, form the power section of the UPS. Each power module can be considered a complete single phase UPS who works in parallel with the others in order to supply the required power.

The power module can be divided in the following functional blocs:

- Rectifier/PFC
- Inverter
- Battery Charger
- Command Logic circuit
- Automatic By-pass

It's possible to reach different power and redundancy levels according to the number of installed power module.

1.2 Scalability

The cabinet is designed to accept different number of power modules, this allows to create a huge range of configurations. It's possible to increase power directly on site easily, without changing settings nor adjustments. This operation can be lead without using any kind special equipment.

1.3 Redundancy

You can easily set up the TRIMOD HE 20/30 as a N+X power redundant system. It will be enough defined how many 3,4kW or 5kW power modules must be installed inside the cabinet.

We can reach redundancy thanks to the load sharing, the overall load is equally shared between the power modules and in case of failure the still-working modules will back up the faulty one.

1.4 Architecture

The TRIMOD HE 20/30 UPS has single/three phase input and output and it's possible manage the output phases in independent way thank to the parallel architecture. The nominal power available is determinate by the sum of the power module per phase. For this reason the UPS is able, if properly sized, to supply the load in case of failure or replacement of one or more power modules.

1.5 Hot-Swap

The power modules of the TRIMOD HE 20/30 are supervised and managed by 2 independent control board which operate in parallel. Each control board is able to manage up to 3 power modules. This architecture allows to enable a single control board and consequently only the power modules managed for the replacement without switch off the others. In case of redundant or upgradable configuration

the service technician can operate on the UPS which continues to guarantee high quality energy and protection to the load.

1.6 By-pass

Each power module has an independent automatic bypass system that switch the load on the input line in case of overload, over temperature, inverter failures, and any kind of anomalies. The UPS is equipped as standard with the Manual Bypass, placed in the front side of the cabinet.

1.7 Dual input

On the front side of TRIMOD HE 20/30 there are 2 input lines, one for the main and one for the auxiliary line.

These two input line are bridged by default but the connection can be easily removed obtaining two independent input lines during installation or commissioning.

1.8 Batteries

Batteries are lead-acid, sealed, free maintenance, valve regulated and arranged, inside the UPS and the external battery cabinet; the battery strings are composed by 20 battery blocks. The UPS can manage four independent battery set in order to have full decentralised modularity also on batteries (only for UPS with more Control boards).

1.9 Communication and user interface

A dedicated software of remote monitoring and management, installed on a PC connected to the UPS, allows to check and set all working parameters of TRIMOD HE 20/30 (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown (compatible with Windows and Linux).

Optional software (UPS Management Software) and Net Interface card (CS141 SK) allow the multi server shutdown and UPS remote control on the LAN.

Here below the measurements and working parameters available on the display:

Input

Current:

- RMS value
- Peak value
- Crest Factor

Voltage:

- Ph-N RMS value
- Ph-Ph RMS value
- Bypass Line Voltage

Power:

- Nominal (VA)
- Active (W)

Power Factor

Frequency

All the measurements and the working parameters are also available on 2 different Net Interface Cards (SNMP) board. On the front side of TRIMOD HE 20/30 are available also:

- 1 x 5 Dry contacts
- 1 x RS232 port for service
- 1x logic level port

TRIMOD HE 20/30kW (Dual input)

3 104 68 TRIMOD HE 20/30 empty cabinet 6 slot
 3 108 69 Power module 3,4kW
 3 108 71 Power module 5kW

1. GENERAL SPECIFICATIONS *(continue)*

Output

Current:

- RMS value
- Peak value
- Crest Factor

Voltage:

- Ph-N RMS value
- Ph-Ph RMS value

Power:

- Nominal (VA)
- Active (W)

Power Factor

Frequency

Batteries

- Voltage
- Capacity
- Current
- History data
- Residual Capacity
- Charging status

The UPS allows also the following settings by **display**:

Output

- Voltage
- Frequency
- Phases configuration

Input

- Enable freq. synchronizing (PLL)
- Extended synchronizing range (Extended PLL)

Misc.

- Internal Temperature
- Fan Speed
- HV DC BUS Voltage

DATA LOG.

- By-pass intervention
- Overheats
- Overloads
- Battery interventions
- Total discharge
- Events (info, warning, critical)
- Alarms

BY-PASS

- Enabling
- Forced
- DIP Speed
- ECO Mode

Batteries

- Start up on Battery
- Threshold value
- Auto restart
- Max Time on battery

The UPS TRIMOD HE 20/30 has the CE Mark accordingly with the EU Directives 2006/95, 2004/108 and it comply with following standards:

- EN 62040-1 "General rules for electric safety"
- EN 62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN 62040-3 "Performances and testing rules"

2. TECHNICAL SPECIFICATIONS

General Specifications	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, scalable, redundant based on single phase Power Modules
In/Out phase Configuration	1-1 / 3-3 / 3-1 / 1-3
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Static, electro-mechanic and maintenance bypass
Transfer time	Zero

Input	
Nominal Voltage	380, 400, 415 3ph+N+PE
Voltage range	-20% +15%
Frequency	45 Hz o 65Hz (autosensing)
THDI _m	< 3%
Power Factor	> 0.99

Output with mains (AC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	20/30kVA
Active power	20/30kW
Efficiency	up to 96%
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load P.F.=1)	< 1 %
Frequency	50 Hz o 60Hz
Frequency tolerance	Synchronized with input frequency adjustable range from +/- 1% to +/- 14% or ± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62040-3
Overload capability:	
• 10 min	115% load rate with no bypass intervention
• 60 sec	135% load rate with no bypass intervention

Output in battery Run (DC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	20/30kVA
Active power	20/30kW
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load)	< 1 %
Frequency	50 Hz o 60Hz (autosensing)
Frequency tolerance	± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62 040-3
Overload capability:	
• 10 min	115%
• 60 sec	135%

Battery	
Type	Lead Acid, sealed, free maintenance VRLA
Unit Capacity	Depending on backup time
Nominal UPS Battery Voltage	240 Volt DC
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Smart Charge technology 3-step advanced cycle
Max Charging Current	2,5 A each power module

Environmental specs	
Noise level @ 1m	58-62 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	0-95% not condensing
Protection degree	IP21

Mechanical an Miscellaneous	
Net Weight without batteries	85 kg
Dimensions (WxHxD)	414 x 1370 x 628 (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	IGBT
Communication Interface	1 x RS232 port for service, 1x 5 Dry contacts 1x logic level port, N.2 SNMP slot
Input/Output connections	3Ph + N + PE
Number of Control boards	2
Number of installable Power Modules	up to 6 of 3,4kW or 5kW
Standards	EN 62040-1, EN 62040-2, EN 62040-3

TRIMOD HE 30kW (Dual input)

3 104 69 TRIMOD HE 30 empty cabinet 6 slot
3 108 71 Power module 5kW



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1. GENERAL SPECIFICATIONS

The Legrand **TRIMOD HE 30**, is an high efficiency UPS on line double conversion with PWM Hi-Frequency technology. It has passing trough neutral and Modular Architecture with the possibility to have N+X redundancy. The nominal power is 30kVA – 30kW.

1.1 Modularity

The TRIMOD HE 30 UPS has an innovative modular architecture, it means that it's composed by identical modules (5kW single phase power module) that, working in parallel, form the power section of the UPS. Each power module can be considered a complete single phase UPS who works in parallel with the others in order to supply the required power.

The power module can be divided in the following functional blocs:

- Rectifier/PFC
- Inverter
- Battery Charger
- Command Logic circuit
- Automatic By-pass

It's possible to reach different power and redundancy levels according to the number of installed power module.

1.2 Scalability

The cabinet is designed to accept different number of power modules, this allows to create a huge range of configurations. It's possible to increase power directly on site easily, without changing settings nor adjustments. This operation can be lead without using any kind special equipment.

1.3 Redundancy

You can easily set up the TRIMOD HE 30 as a N+X power redundant system. It will be enough defined how many 5kW power modules must be installed inside the cabinet.

We can reach redundancy thanks to the load sharing, the overall load is equally shared between the power modules and in case of failure the still-working modules will back up the faulty one.

1.4 Architecture

The TRIMOD HE 30 UPS has single/three phase input and output and it's possible manage the output phases in independent way thank to the parallel architecture. The nominal power available is determinate by the sum of the power module per phase. For this reason the UPS is able, if properly sized, to supply the load in case of failure or replacement of one or more power modules.

1.5 Hot-Swap

The power modules of the TRIMOD HE 30 are supervised and managed by 2 independent control board which operate in parallel. Each control board is able to manage up to 3 power modules. This architecture allows to enable a single control board and consequently only the power modules managed for the replacement without switch off the others. In case of redundant or upgradable configuration

the service technician can operate on the UPS which continues to guarantee high quality energy and protection to the load.

1.6 By-pass

Each power module has an independent automatic bypass system that switch the load on the input line in case of overload, over temperature, inverter failures, and any kind of anomalies.

The UPS is equipped as standard with the Manual Bypass, placed in the front side of the cabinet.

1.7 Dual input

On the front side of TRIMOD HE 30 there are 2 input lines, one for the main and one for the auxiliary line.

These two input line are bridged by default but the connection can be easily removed obtaining two independent input lines during installation or commissioning.

1.8 Batteries

Batteries are lead-acid, sealed, free maintenance, valve regulated and arranged, inside the UPS and the external battery cabinet; the battery strings are composed by 20 battery blocks. The UPS can manage four independent battery set in order to have full decentralised modularity also on batteries (only for UPS with more Control boards).

1.9 Communication and user interface

A dedicated software of remote monitoring and management, installed on a PC connected to the UPS, allows to check and set all working parameters of TRIMOD HE 30 (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown (compatible with Windows and Linux). Optional software (UPS Management Software) and Net Interface card (CS141 SK) allow the multi server shutdown and UPS remote control on the LAN.

Here below the measurements and working parameters available on the display:

Input

- Current:
 - RMS value
 - Peak value
 - Crest Factor

Voltage:

- Ph-N RMS value
- Ph-Ph RMS value
- Bypass Line Voltage

Power:

- Nominal (VA)
 - Active (W)
- Power Factor
Frequency

All the measurements and the working parameters are also available on 2 different Net Interface Cards (SNMP) board. On the front side of TRIMOD HE 30 are available also:

- 1 x 5 Dry contacts
- 1 x RS232 port for service
- 1x logic level port

TRIMOD HE 30kW (Dual input)

3 104 69 TRIMOD HE 30 empty cabinet 6 slot
3 108 71 Power module 5kW

1. GENERAL SPECIFICATIONS *(continue)*

Output

Current:

- RMS value
- Peak value
- Crest Factor

Voltage:

- Ph-N RMS value
- Ph-Ph RMS value

Power:

- Nominal (VA)
- Active (W)

Power Factor

Frequency

Misc.

- Internal Temperature
- Fan Speed
- HV DC BUS Voltage

DATA LOG.

- By-pass intervention
- Overheats
- Overloads
- Battery interventions
- Total discharge
- Events (info, warning, critical)
- Alarms

Batteries

- Voltage
- Capacity
- Current
- History data
- Residual Capacity
- Charging status

The UPS allows also the following settings by **display**:

Output

- Voltage
- Frequency
- Phases configuration

BY-PASS

- Enabling
- Forced
- DIP Speed
- ECO Mode

Input

- Enable freq. synchronizing (PLL)
- Extended synchronizing range (Extended PLL)

Batteries

- Start up on Battery
- Threshold value
- Auto restart
- Max Time on battery

The UPS TRIMOD HE 30 has the CE Mark accordingly with the EU Directives 2006/95, 2004/108 and it comply with following standards:

- EN 62040-1 "General rules for electric safety"
- EN 62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN 62040-3 "Performances and testing rules"

2. TECHNICAL SPECIFICATIONS

General Specifications	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, scalable, redundant based on single phase Power Modules
In/Out phase Configuration	3-3
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Static, electro-mechanic and maintenance bypass
Transfer time	Zero

Input	
Nominal Voltage	380, 400, 415 3ph+N+PE
Voltage range	-20% +15%
Frequency	45 Hz o 65Hz (autosensing)
THDI _{in}	< 3%
Power Factor	> 0.99

Output with mains (AC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	30kVA
Active power	30kW
Efficiency	up to 96%
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load P.F.=1)	< 1 %
Frequency	50 Hz o 60Hz
Frequency tolerance	Synchronized with input frequency adjustable range from +/- 1% to +/- 14% or ± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62040-3
Overload capability:	
• 10 min	115% load rate with no bypass intervention
• 60 sec	135% load rate with no bypass intervention

Output in battery Run (DC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	30kVA
Active power	30kW
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load)	< 1 %
Frequency	50 Hz o 60Hz (autosensing)
Frequency tolerance	± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62 040-3
Overload capability:	
• 10 min	115%
• 60 sec	135%

Battery	
Type	Lead Acid, sealed, free maintenance VRLA
Unit Capacity	Depending on backup time
Nominal UPS Battery Voltage	240 Volt DC
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Smart Charge technology 3-step advanced cycle
Max Charging Current	2,5 A each power module

Environmental specs	
Noise level @ 1m	58-62 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	0-95% not condensing
Protection degree	IP21

Mechanical an Miscellaneous	
Net Weight without batteries	106 kg
Dimensions (WxHxD)	414 x 1650 x 628 (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	IGBT
Communication Interface	1 x RS232 port for service, 1x 5 Dry contacts 1x logic level port, N.2 SNMP slot
Input/Output connections	3Ph + N + PE
Number of Control boards	2
Number of installable Power Modules	up to 6 of 5kW
Standards	EN 62040-1, EN 62040-2, EN 62040-3

TRIMOD HE 40kW (Dual input)

3 104 71 TRIMOD HE 40 empty cabinet 6 slot
3 108 73 power module 6,7kW



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1. GENERAL SPECIFICATIONS

The Legrand **TRIMOD HE 40**, is an high efficiency UPS on line double conversion with PWM Hi-Frequency technology. It has passing trough neutral and Modular Architecture with the possibility to have N+X redundancy. The nominal power is 40kVA – 40kW.

1.1 Modularity

The TRIMOD HE 40 UPS has an innovative modular architecture, it means that it's composed by identical modules (6,7kW single phase power module) that, working in parallel, form the power section of the UPS. Each power module can be considered a complete single phase UPS who works in parallel with the others in order to supply the required power.

The power module can be divided in the following functional blocs:

- Rectifier/PFC
- Inverter
- Battery Charger
- Command Logic circuit
- Automatic By-pass

It's possible to reach different power and redundancy levels according to the number of installed power module.

1.2 Scalability

The cabinet is designed to accept different number of power modules, this allows to create a huge range of configurations. It's possible to increase power directly on site easily, without changing settings nor adjustments. This operation can be lead without using any kind special equipment.

1.3 Redundancy

You can easily set up the TRIMOD HE 40 as a N+X power redundant system. It will be enough defined how many 6,7kW power modules must be installed inside the cabinet.

We can reach redundancy thanks to the load sharing, the overall load is equally shared between the power modules and in case of failure the still-working modules will back up the faulty one.

1.4 Architecture

The TRIMOD HE 40 UPS has single/three phase input and output and it's possible manage the output phases in independent way thank to the parallel architecture. The nominal power available is determinate by the sum of the power module per phase. For this reason the UPS is able, if properly sized, to supply the load in case of failure or replacement of one or more power modules.

1.5 Hot-Swap

The power modules of the TRIMOD HE 40 are supervised and managed by 2 independent control board which operate in parallel. Each control board is able to manage up to 3 power modules. This architecture allows to enable a single control board and consequently only the power modules managed for the replacement without switch off the others. In case of redundant or upgradable configuration

the service technician can operate on the UPS which continues to guarantee high quality energy and protection to the load.

1.6 By-pass

Each power module has an independent automatic bypass system that switch the load on the input line in case of overload, over temperature, inverter failures, and any kind of anomalies.

The UPS is equipped as standard with the Manual Bypass, placed in the front side of the cabinet.

1.7 Dual input

On the front side of TRIMOD HE 40 there are 2 input lines, one for the main and one for the auxiliary line.

These two input line are bridged by default but the connection can be easily removed obtaining two independent input lines during installation or commissioning.

1.8 Batteries

Batteries are lead-acid, sealed, free maintenance, valve regulated and arranged, inside the UPS and the external battery cabinet; the battery strings are composed by 20 battery blocks. The UPS can manage four independent battery set in order to have full decentralised modularity also on batteries (only for UPS with more Control boards).

1.9 Communication and user interface

A dedicated software of remote monitoring and management, installed on a PC connected to the UPS, allows to check and set all working parameters of TRIMOD HE 40 (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown (compatible with Windows and Linux). Optional software (UPS Management Software) and Net Interface card (CS141 SK) allow the multi server shutdown and UPS remote control on the LAN.

Here below the measurements and working parameters available on the display:

Input

- | | |
|-----------------------|----------------|
| Current: | Power: |
| • RMS value | • Nominal (VA) |
| • Peak value | • Active (W) |
| • Crest Factor | Power Factor |
| Voltage: | Frequency |
| • Ph-N RMS value | |
| • Ph-Ph RMS value | |
| • Bypass Line Voltage | |

All the measurements and the working parameters are also available on 2 different Net Interface Cards (SNMP) board. On the front side of TRIMOD HE 40 are available also:

- 1 x 5 Dry contacts
- 1 x RS232 port for service
- 1x logic level port

TRIMOD HE 40kW (Dual input)

3 104 71 TRIMOD HE 40 empty cabinet 6 slot
3 108 73 power module 6,7kW

1. GENERAL SPECIFICATIONS *(continue)*

Output

Current:

- RMS value
- Peak value
- Crest Factor

Voltage:

- Ph-N RMS value
- Ph-Ph RMS value

Power:

- Nominal (VA)
- Active (W)

Power Factor

Frequency

Batteries

- Voltage
- Capacity
- Current
- History data
- Residual Capacity
- Charging status

The UPS allows also the following settings by **display**:

Output

- Voltage
- Frequency
- Phases configuration

Input

- Enable freq. synchronizing (PLL)
- Extended synchronizing range (Extended PLL)

Misc.

- Internal Temperature
- Fan Speed
- HV DC BUS Voltage

DATA LOG.

- By-pass intervention
- Overheats
- Overloads
- Battery interventions
- Total discharge
- Events (info, warning, critical)
- Alarms

BY-PASS

- Enabling
- Forced
- DIP Speed
- ECO Mode

Batteries

- Start up on Battery
- Threshold value
- Auto restart
- Max Time on battery

The UPS TRIMOD HE 40 has the CE Mark accordingly with the EU Directives 2006/95, 2004/108 and it comply with following standards:

- EN 62040-1 "General rules for electric safety"
- EN 62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN 62040-3 "Performances and testing rules"

2. TECHNICAL SPECIFICATIONS

General Specifications	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, scalable, redundant based on single phase Power Modules
In/Out phase Configuration	3-3
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Static, electro-mechanic and maintenance bypass
Transfer time	Zero

Input	
Nominal Voltage	380, 400, 415 3ph+N+PE
Voltage range	-20% +15%
Frequency	45 Hz o 65Hz (autosensing)
THDI _{in}	< 3%
Power Factor	> 0.99

Output with mains (AC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	40kVA
Active power	40kW
Efficiency	up to 96%
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load P.F.=1)	< 1 %
Frequency	50 Hz o 60Hz
Frequency tolerance	Synchronized with input frequency adjustable range from +/- 1% to +/- 14% or ± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62040-3
Overload capability:	
• 10 min	115% load rate with no bypass intervention
• 60 sec	135% load rate with no bypass intervention

Output in battery Run (DC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	40kVA
Active power	30kW
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load)	< 1 %
Frequency	50 Hz o 60Hz (autosensing)
Frequency tolerance	± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62 040-3
Overload capability:	
• 10 min	115%
• 60 sec	135%

Battery	
Type	Lead Acid, sealed, free maintenance VRLA
Unit Capacity	Depending on backup time
Nominal UPS Battery Voltage	240 Volt DC
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Smart Charge technology 3-step advanced cycle
Max Charging Current	2,5 A each power module

Environmental specs	
Noise level @ 1m	58-62 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	0-95% not condensing
Protection degree	IP21

Mechanical an Miscellaneous	
Net Weight without batteries	82 kg
Dimensions (WxHxD)	414 x 1370 x 628 (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	IGBT
Communication Interface	1 x RS232 port for service, 1x 5 Dry contacts 1x logic level port, N.2 SNMP slot
Input/Output connections	3Ph + N + PE
Number of Control boards	2
Number of installable Power Modules	up to 6 of 6,7kW
Standards	EN 62040-1, EN 62040-2, EN 62040-3

TRIMOD HE 60kW (Dual input)

3 104 72 TRIMOD HE 60 empty cabinet 9 slot
3 108 73 power module 6,7kW



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- 1. General specifications 1
- 2. Technical specifications 2

1. GENERAL SPECIFICATIONS

The Legrand **TRIMOD HE 60**, is an high efficiency UPS on line double conversion with PWM Hi-Frequency technology. It has passing trough neutral and Modular Architecture with the possibility to have N+X redundancy. The nominal power is 60kVA – 60kW.

1.1 Modularity

The TRIMOD HE 60 UPS has an innovative modular architecture, it means that it's composed by identical modules (6,7kW single phase power module) that, working in parallel, form the power section of the UPS. Each power module can be considered a complete single phase UPS who works in parallel with the others in order to supply the required power.

The power module can be divided in the following functional blocs:

- Rectifier/PFC
- Inverter
- Battery Charger
- Command Logic circuit
- Automatic By-pass

It's possible to reach different power and redundancy levels according to the number of installed power module.

1.2 Scalability

The cabinet is designed to accept different number of power modules, this allows to create a huge range of configurations. It's possible to increase power directly on site easily, without changing settings nor adjustments. This operation can be lead without using any kind special equipment.

1.3 Redundancy

You can easily set up the TRIMOD HE 60 as a N+X power redundant system. It will be enough defined how many 6,7kW power modules must be installed inside the cabinet.

We can reach redundancy thanks to the load sharing, the overall load is equally shared between the power modules and in case of failure the still-working modules will back up the faulty one.

1.4 Architecture

The TRIMOD HE 60 UPS has single/three phase input and output and it's possible manage the output phases in independent way thank to the parallel architecture. The nominal power available is determinate by the sum of the power module per phase. For this reason the UPS is able, if properly sized, to supply the load in case of failure or replacement of one or more power modules.

1.5 Hot-Swap

The power modules of the TRIMOD HE 60 are supervised and managed by 3 independent control board which operate in parallel. Each control board is able to manage up to 3 power modules. This architecture allows to enable a single control board and consequently only the power modules managed for the replacement without switch off the others. In case of redundant or upgradable configuration

the service technician can operate on the UPS which continues to guarantee high quality energy and protection to the load.

1.6 By-pass

Each power module has an independent automatic bypass system that switch the load on the input line in case of overload, over temperature, inverter failures, and any kind of anomalies.

The UPS is equipped as standard with the Manual Bypass, placed in the front side of the cabinet.

1.7 Dual input

On the front side of TRIMOD HE 60 there are 2 input lines, one for the main and one for the auxiliary line.

These two input line are bridged by default but the connection can be easily removed obtaining two independent input lines during installation or commissioning.

1.8 Batteries

Batteries are lead-acid, sealed, free maintenance, valve regulated and arranged, inside the UPS and the external battery cabinet; the battery strings are composed by 20 battery blocks. The UPS can manage four independent battery set in order to have full decentralised modularity also on batteries (only for UPS with more Control boards).

1.9 Communication and user interface

A dedicated software of remote monitoring and management, installed on a PC connected to the UPS, allows to check and set all working parameters of TRIMOD HE 60 (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown (compatible with Windows and Linux). Optional software (UPS Management Software) and Net Interface card (CS141 SK) allow the multi server shutdown and UPS remote control on the LAN.

Here below the measurements and working parameters available on the display:

Input

- | | |
|-----------------------|----------------|
| Current: | Power: |
| • RMS value | • Nominal (VA) |
| • Peak value | • Active (W) |
| • Crest Factor | Power Factor |
| Voltage: | Frequency |
| • Ph-N RMS value | |
| • Ph-Ph RMS value | |
| • Bypass Line Voltage | |

All the measurements and the working parameters are also available on 2 different Net Interface Cards (SNMP) board. On the front side of TRIMOD HE 60 are available also:

- 1 x 5 Dry contacts
- 1 x RS232 port for service
- 1x logic level port

TRIMOD HE 60kW (Dual input)

3 104 72 TRIMOD HE 60 empty cabinet 9 slot
3 108 73 power module 6,7kW

1. GENERAL SPECIFICATIONS *(continue)*

Output

Current:

- RMS value
- Peak value
- Crest Factor

Voltage:

- Ph-N RMS value
- Ph-Ph RMS value

Power:

- Nominal (VA)
- Active (W)

Power Factor

Frequency

Misc.

- Internal Temperature
- Fan Speed
- HV DC BUS Voltage

DATA LOG.

- By-pass intervention
- Overheats
- Overloads
- Battery interventions
- Total discharge
- Events (info, warning, critical)
- Alarms

Batteries

- Voltage
- Capacity
- Current
- History data
- Residual Capacity
- Charging status

The UPS allows also the following settings by **display**:

Output

- Voltage
- Frequency
- Phases configuration

BY-PASS

- Enabling
- Forced
- DIP Speed
- ECO Mode

Input

- Enable freq. synchronizing (PLL)
- Extended synchronizing range (Extended PLL)

Batteries

- Start up on Battery
- Threshold value
- Auto restart
- Max Time on battery

The UPS TRIMOD HE 60 has the CE Mark accordingly with the EU Directives 2006/95, 2004/108 and it comply with following standards:

- EN 62040-1 "General rules for electric safety"
- EN 62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN 62040-3 "Performances and testing rules"

2. TECHNICAL SPECIFICATIONS

General Specifications	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, scalable, redundant based on single phase Power Modules
In/Out phase Configuration	3-3
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Static, electro-mechanic and maintenance bypass
Transfer time	Zero

Input	
Nominal Voltage	380, 400, 415 3ph+N+PE
Voltage range	-20% +15%
Frequency	45 Hz o 65Hz (autosensing)
THDI _m	< 3%
Power Factor	> 0.99

Output with mains (AC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	60kVA
Active power	60kW
Efficiency	up to 96%
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load P.F.=1)	< 1 %
Frequency	50 Hz o 60Hz
Frequency tolerance	Synchronized with input frequency adjustable range from +/- 1% to +/- 14% or ± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62040-3
Overload capability:	
• 10 min	115% load rate with no bypass intervention
• 60 sec	135% load rate with no bypass intervention

Output in battery Run (DC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	60kVA
Active power	60kW
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load)	< 1 %
Frequency	50 Hz o 60Hz (autosensing)
Frequency tolerance	± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62 040-3
Overload capability:	
• 10 min	115%
• 60 sec	135%

Battery	
Type	Lead Acid, sealed, free maintenance VRLA
Unit Capacity	Depending on backup time
Nominal UPS Battery Voltage	240 Volt DC
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Smart Charge technology 3-step advanced cycle
Max Charging Current	2,5 A each power module

Environmental specs	
Noise level @ 1m	58-62 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	0-95% not condensing
Protection degree	IP21

Mechanical an Miscellaneous	
Net Weight without batteries	91 kg
Dimensions (WxHxD)	414 x 1370 x 628 (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	IGBT
Communication Interface	1 x RS232 port for service, 1x 5 Dry contacts 1x logic level port, N.2 SNMP slot
Input/Output connections	3Ph + N + PE
Number of Control boards	3
Number of installable Power Modules	up to 9 of 6,7kW
Standards	EN 62040-1, EN 62040-2, EN 62040-3

TRIMOD HE 80kW (Dual input)

3 104 73 TRIMOD HE 80 empty cabinet 12 slot
3 108 73 power module 6,7kW



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1. GENERAL SPECIFICATIONS

The Legrand **TRIMOD HE 80**, is an high efficiency UPS on line double conversion with PWM Hi-Frequency technology. It has passing trough neutral and Modular Architecture with the possibility to have N+X redundancy. The nominal power is 80kVA – 80kW.

1.1 Modularity

The TRIMOD HE 80 UPS has an innovative modular architecture, it means that it's composed by identical modules (6,7kW single phase power module) that, working in parallel, form the power section of the UPS. Each power module can be considered a complete single phase UPS who works in parallel with the others in order to supply the required power.

The power module can be divided in the following functional blocs:

- Rectifier/PFC
- Inverter
- Battery Charger
- Command Logic circuit
- Automatic By-pass

It's possible to reach different power and redundancy levels according to the number of installed power module.

1.2 Scalability

The cabinet is designed to accept different number of power modules, this allows to create a huge range of configurations. It's possible to increase power directly on site easily, without changing settings nor adjustments. This operation can be lead without using any kind special equipment.

1.3 Redundancy

You can easily set up the TRIMOD HE 80 as a N+X power redundant system. It will be enough defined how many 6,7kW power modules must be installed inside the cabinet.

We can reach redundancy thanks to the load sharing, the overall load is equally shared between the power modules and in case of failure the still-working modules will back up the faulty one.

1.4 Architecture

The TRIMOD HE 80 UPS has single/three phase input and output and it's possible manage the output phases in independent way thank to the parallel architecture. The nominal power available is determinate by the sum of the power module per phase. For this reason the UPS is able, if properly sized, to supply the load in case of failure or replacement of one or more power modules.

1.5 Hot-Swap

The power modules of the TRIMOD HE 80 are supervised and managed by 4 independent control board which operate in parallel. Each control board is able to manage up to 3 power modules. This architecture allows to enable a single control board and consequently only the power modules managed for the replacement without switch off the others. In case of redundant or upgradable configuration

the service technician can operate on the UPS which continues to guarantee high quality energy and protection to the load.

1.6 By-pass

Each power module has an independent automatic bypass system that switch the load on the input line in case of overload, over temperature, inverter failures, and any kind of anomalies.

The UPS is equipped as standard with the Manual Bypass, placed in the front side of the cabinet.

1.7 Dual input

On the front side of TRIMOD HE 80 there are 2 input lines, one for the main and one for the auxiliary line.

These two input line are bridged by default but the connection can be easily removed obtaining two independent input lines during installation or commissioning.

1.8 Batteries

Batteries are lead-acid, sealed, free maintenance, valve regulated and arranged, inside the UPS and the external battery cabinet; the battery strings are composed by 20 battery blocks. The UPS can manage four independent battery set in order to have full decentralised modularity also on batteries (only for UPS with more Control boards).

1.9 Communication and user interface

A dedicated software of remote monitoring and management, installed on a PC connected to the UPS, allows to check and set all working parameters of TRIMOD HE 80 (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown (compatible with Windows and Linux). Optional software (UPS Management Software) and Net Interface card (CS141 SK) allow the multi server shutdown and UPS remote control on the LAN.

Here below the measurements and working parameters available on the display:

Input

- | | |
|-----------------------|----------------|
| Current: | Power: |
| • RMS value | • Nominal (VA) |
| • Peak value | • Active (W) |
| • Crest Factor | Power Factor |
| Voltage: | Frequency |
| • Ph-N RMS value | |
| • Ph-Ph RMS value | |
| • Bypass Line Voltage | |

All the measurements and the working parameters are also available on 2 different Net Interface Cards (SNMP) board. On the front side of TRIMOD HE 80 are available also:

- 1 x 5 Dry contacts
- 1 x RS232 port for service
- 1x logic level port

TRIMOD HE 80kW (Dual input)

3 104 73 TRIMOD HE 80 empty cabinet 12 slot
3 108 73 power module 6,7kW

1. GENERAL SPECIFICATIONS *(continue)*

Output

Current:

- RMS value
- Peak value
- Crest Factor

Voltage:

- Ph-N RMS value
- Ph-Ph RMS value

Power:

- Nominal (VA)
- Active (W)

Power Factor

Frequency

Misc.

- Internal Temperature
- Fan Speed
- HV DC BUS Voltage

DATA LOG.

- By-pass intervention
- Overheats
- Overloads
- Battery interventions
- Total discharge
- Events (info, warning, critical)
- Alarms

Batteries

- Voltage
- Capacity
- Current
- History data
- Residual Capacity
- Charging status

The UPS allows also the following settings by **display**:

Output

- Voltage
- Frequency
- Phases configuration

BY-PASS

- Enabling
- Forced
- DIP Speed
- ECO Mode

Input

- Enable freq. synchronizing (PLL)
- Extended synchronizing range (Extended PLL)

Batteries

- Start up on Battery
- Threshold value
- Auto restart
- Max Time on battery

The UPS TRIMOD HE 80 has the CE Mark accordingly with the EU Directives 2006/95, 2004/108 and it comply with following standards:

- EN 62040-1 "General rules for electric safety"
- EN 62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN 62040-3 "Performances and testing rules"

2. TECHNICAL SPECIFICATIONS

General Specifications	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, scalable, redundant based on single phase Power Modules
In/Out phase Configuration	3-3
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Static, electro-mechanic and maintenance bypass
Transfer time	Zero

Input	
Nominal Voltage	380, 400, 415 3ph+N+PE
Voltage range	-20% +15%
Frequency	45 Hz o 65Hz (autosensing)
THDI _{in}	< 3%
Power Factor	> 0.99

Output with mains (AC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	80kVA
Active power	80kW
Efficiency	up to 96%
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load P.F.=1)	< 1 %
Frequency	50 Hz o 60Hz
Frequency tolerance	Synchronized with input frequency adjustable range from +/- 1% to +/- 14% or ± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62040-3
Overload capability:	
• 10 min	115% load rate with no bypass intervention
• 60 sec	135% load rate with no bypass intervention

Output in battery Run (DC-AC)	
Nominal voltage	380, 400, 415 3ph+N+PE
Nominal power	80kVA
Active power	80kW
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load)	< 1 %
Frequency	50 Hz o 60Hz (autosensing)
Frequency tolerance	± 1% free run
Current Crest Factor	3:1 accordingly with IEC 62 040-3
Overload capability:	
• 10 min	115%
• 60 sec	135%

Battery	
Type	Lead Acid, sealed, free maintenance VRLA
Unit Capacity	Depending on backup time
Nominal UPS Battery Voltage	240 Volt DC
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Smart Charge technology 3-step advanced cycle
Max Charging Current	2,5 A each power module

Environmental specs	
Noise level @ 1m	58-62 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	0-95% not condensing
Protection degree	IP21

Mechanical an Miscellaneous	
Net Weight without batteries	100 kg
Dimensions (WxHxD)	414 x 1650 x 628 (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	IGBT
Communication Interface	1 x RS232 port for service, 1x 5 Dry contacts 1x logic level port, N.2 SNMP slot
Input/Output connections	3Ph + N + PE
Number of Control boards	4
Number of installable Power Modules	up to 12 of 6,7kW
Standards	EN 62040-1, EN 62040-2, EN 62040-3