

KEOR T EVO 10-15-20-30 kVA

311020 - 311021 - 311022 - 311023 - 311024 - 311025 -
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1. GENERAL SPECIFICATIONS

Legrand UPS model KEOR T EVO is an uninterruptible power supply:

- Double Conversion Online Transformer Free;
- Power Factor 1
- Passing Solid Neutral;
- 3Level IGBT switching high frequency PWM technology,
- N+X Parallel redundancy up to total 6 units,

Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged, inside the UPS in dedicated Drawers or external battery cabinet

KEOR T has the UE/CE Mark accordingly with the EU Directives 73/23, 93/68, 89/336, 92/31, 93/68 and it complies with following standards:

- EN62040-1 "General rules for electric safety"
- EN62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN62040-3 "Performances and testing rules"

1. Architecture

Legrand UPS KEOR T EVO has standalone architecture composed by

- IGBT Rectifier/PFC
- Inverter 3Level IGBT
- Logic Control Unit
- 3.5" TFT Touch Panel
- Dedicated Input for Bypass
- Embedded Static and Manual Bypass
- Standard Internal Back Feed Protection
- Internal Battery Drawer Shelves.

2. Control and monitoring

A multicolor LED bar shows the status of the UPS:

- GREEN: Normal or ECO Mode Operation
- ORANGE: Bypass or Battery Operation
- RED: Critical alarm

A touch screen graphic TFT display provides information, measurements, statuses and alarms in different languages.
The information available are:

RECTIFIER (INPUT) Voltage (Vac), per phase Current (Aac), per phase DC BUS Voltage (\pm Vdc)	INVERTER (OUTPUT) Voltage (Vac), per phase Current (Aac), per phase Power (kVA), per phase Active Power (kW), per phase Power Factor (load), per phase Bypass Voltage, per phase Load (%), per phase
FREQUENCY Input Frequency (Hz) Output Frequency (Hz)	BATTERY Voltage (\pm Vdc) Current (\pm Adc) Temperature Autonomy (minute)

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

OUTPUT Voltage (380/400/415) Frequency (50Hz/60Hz)	BATTERY Battery String Battery Capacity
PARALLEL MODE Parallel Mode (Enable/Disable(Single))	UPS ID Redundancy (+1, +2, ..., +5) Power Increase
History Event Log to 500 last events. Events are stored in EEPROM using FIFO method.	

KEOR T EVO is equipped also with communication ports and interfaces for remote monitoring and control:

- RS232 Serial Communication Port
- Emergency Power Off (UPS OFF)
- Generator Contact (GEN ON)
- Two contact relays for Bypass and Battery
- ModBus (over RS485, with 2400 Baud Rate)
- Four programmable Dry Contacts

KEOR T EVO 10-15-20-30 kVA

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2. TECHNICAL SPECIFICATIONS

1. General specifications

Model	10	15	20	30
UPS Topology	On line double conversion VFI SS 111			
Architecture of the UPS	Stand alone, transformerless, OnSite Paralleling			
In/Out phase Configuration	Three phaseThree phase			
Neutral	Neutral Passing through			
Switching Technology	3Level IGBT			
Backfeed Protection	Internal, standard			
Output wave form on mains operation	Sinusoidal			
Output wave form on battery operation	Sinusoidal			
Standards	EN 620401, EN 620402, EN 620403			

2. Input

Nominal Voltage	400V 3ph+N+PE
Voltage Range	312 - 467 Ph-Ph full load 208 - 467 Ph-Ph half load"
Frequency	45 65Hz
THDin	< 5% at full load
Power Factor	> 0.99

3. Bypass

Nominal Voltage	400V 3ph+N+PE
Voltage Range	380/400/415 -18% +15% (adjustable)
Frequency	47-53Hz or 57-63Hz (adjustable)
Bypass Type	Static and Electromechanic
Transfer Time	Zero
Manual Bypass	Built in

4. Output with mains (AC-AC)

Nominal Voltage	380/400/415V 3ph+N+PE			
Nominal Power (KVA)	10	15	20	30
Active Power (KW)	10	15	20	30
Voltage variation (static)	± 1%			
THDv on nominal power (linear load)	< 2%			
THDv on nominal power (nonlinear load)	< 4%			
Frequency	50 Hz or 60 Hz (selectable)			
Frequency tolerance	± 0,1% Synchronized with input frequency			
Current Crest Factor	up to 3:1			
Overload capability:				
10 min	125% load with no bypass			
60 sec	150% load with no bypass			

5. Output on battery (DC-AC)

Model	10	15	20	30
Nominal Voltage	380/400/415V 3ph+N+PE			
Nominal Power (KVA)	10	15	20	30
Active Power (KW)	10	15	20	30
Voltage variation (static)	± 1%			
THDv on nominal power (linear load)	< 2%			
THDv on nominal power (nonlinear load)	< 4%			
Frequency	50 Hz or 60 Hz (selectable)			
Frequency tolerance	± 0,01% free run			
Current Crest Factor	up to 3:1			
Overload capability:				
10 min	125% load with no Bypass			
60 sec	150% load with no Bypass			

6. Battery

Type	Lead Acid, sealed, free maintenance VRLA			
Nominal UPS Battery Voltage	±360 Volt DC			
No. of Batteries in Series	30+30			
Charging Method	boost - advanced management temperature control			
Max Charging Current without derating	1.2A	1.2A	2A	3A
Max Charging Current at <75%load	4.4A	6A	8A	12.5A

7. Environmental specs

Noise level @ 1m (50% load)	< 58dBA
Operating temperature range	from 0°C to +40°C
Stock temperature range	from 20°C to +50°C
Humidity range	20-95% not condensing
Protection degree	IP20

8. Mechanical and miscellaneous

Net Weight without batteries	121Kg	132Kg	144Kg	148Kg
Dimensions (HxW xD)	1345/1650 x 400 x 800mm			
Colour	Enclosure: RAL 7016 Front Door Metal: RAL 9005			
Communication Interface	1 serial port RS232, 1 RS485, 1 smart port for internal SNMP, 4 Dry Contacts, 1 EPO, 1 GENSET			
Input/Output connections	3Ph + N + PE			
Miscellaneous	Wheels and adjustable feet			

KEOR T EVO 40-60 kVA

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1. GENERAL SPECIFICATIONS 1
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1. GENERAL SPECIFICATIONS

Legrand UPS model KEOR T EVO is an uninterruptible power supply:

- Double Conversion Online Transformer Free;
- Power Factor 1
- Passing Solid Neutral;
- 3Level IGBT switching high frequency PWM technology,
- N+X Parallel redundancy up to total 6 units,

Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged, inside the UPS in dedicated Drawers or external battery cabinet

KEOR T has the UE/CE Mark accordingly with the EU Directives 73/23, 93/68, 89/336, 92/31, 93/68 and it complies with following standards:

- EN62040-1 "General rules for electric safety"
- EN62040-2 "Electromagnetic compatibility and immunity (EMC)"
- EN62040-3 "Performances and testing rules"

1. Architecture

Legrand UPS KEOR T EVO has standalone architecture composed by

- IGBT Rectifier/PFC
- Inverter 3Level IGBT
- Logic Control Unit
- 3.5" TFT Touch Panel
- Dedicated Input for Bypass
- Embedded Static and Manual Bypass
- Standard Internal Back Feed Protection
- Internal Battery Drawer Shelves.

2. Control and monitoring

A multicolor LED bar shows the status of the UPS:

- GREEN: Normal or ECO Mode Operation
- ORANGE: Bypass or Battery Operation
- RED: Critical alarm

A touch screen graphic TFT display provides information, measurements, statuses and alarms in different languages. The information available are:

RECTIFIER (INPUT) Voltage (Vac), per phase Current (Aac), per phase DC BUS Voltage ($\pm V_{dc}$)	INVERTER (OUTPUT) Voltage (Vac), per phase Current (Aac), per phase Power (kVA), per phase Active Power (kW), per phase Power Factor (load), per phase Bypass Voltage, per phase Load (%), per phase
FREQUENCY Input Frequency (Hz) Output Frequency (Hz)	BATTERY Voltage ($\pm V_{dc}$) Current ($\pm A_{dc}$) Temperature Autonomy (minute)

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

OUTPUT Voltage (380/400/415) Frequency (50Hz/60Hz)	BATTERY Battery String Battery Capacity
PARALLEL MODE Parallel Mode (Enable/Disable(Single))	UPS ID Redundancy (+1, +2, ..., +5) Power Increase
History Event Log to 500 last events. Events are stored in EEPROM using FIFO method.	

KEOR T EVO is equipped also with communication ports and interfaces for remote monitoring and control:

- RS232 Serial Communication Port
- Emergency Power Off (UPS OFF)
- Generator Contact (GEN ON)
- Two contact relays for Bypass and Battery
- ModBus (over RS485, with 2400 Baud Rate)
- Four programmable Dry Contacts

KEOR T EVO 40-60 kVA

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2. TECHNICAL SPECIFICATIONS

1. General specifications

Model	40	60
UPS Topology	On line double conversion VFI SS 111	
Architecture of the UPS	Stand alone, transformerless, OnSite Paralleling	
In/Out phase Configuration	Three phaseThree phase	
Neutral	Neutral Passing through	
Switching Technology	3Level IGBT	
Backfeed Protection	Internal, standard	
Output wave form on mains operation	Sinusoidal	
Output wave form on battery operation	Sinusoidal	
Standards	EN 620401, EN 620402, EN 620403	

2. Input

Nominal Voltage	400V 3ph+N+PE
Voltage Range	312 - 467 Ph-Ph full load 208 - 467 Ph-Ph half load"
Frequency	45 65Hz
THDin	< 5% at full load
Power Factor	> 0.99

3. Bypass

Nominal Voltage	400V 3ph+N+PE
Voltage Range	380/400/415 -18% +15% (adjustable)
Frequency	47-53Hz or 57-63Hz (adjustable)
Bypass Type	Static and Electromechanic
Transfer Time	Zero
Manual Bypass	Built in

4. Output with mains (AC-AC)

4. Output with mains (AC-AC)		
Nominal Voltage	380/400/415V 3ph+N+PE	
Nominal Power (KVA)	40	60
Active Power (KW)	40	60
Voltage variation (static)	± 1%	
THDv on nominal power (linear load)	< 2%	
THDv on nominal power (nonlinear load)	< 4%	
Frequency	50 Hz or 60 Hz (selectable)	
Frequency tolerance	± 0,1% Synchronized with input frequency	
Current Crest Factor	up to 3:1	
Overload capability:		
10 min	125% load with no bypass	
60 sec	150% load with no bypass	

5. Output on battery (DC-AC)

Model	40	60
Nominal Voltage	380/400/415V 3ph+N+PE	
Nominal Power (KVA)	40	60
Active Power (KW)	40	60
Voltage variation (static)	± 1%	
THDv on nominal power (linear load)	< 2%	
THDv on nominal power (nonlinear load)	< 4%	
Frequency	50 Hz or 60 Hz (selectable)	
Frequency tolerance	± 0,01% free run	
Current Crest Factor	up to 3:1	
Overload capability:		
10 min	125% load with no Bypass	
60 sec	150% load with no Bypass	

6. Battery

Type	Lead Acid, sealed, free maintenance VRLA	
Nominal UPS Battery Voltage	±360 Volt DC	
No. of Batteries in Series	30+30	
Charging Method	boost - advanced management temperature control	
Max Charging Current without derating	4A	5A
Max Charging Current at <75%load	16A	24A

7. Environmental specs

Noise level @ 1m (50% load)	< 60dBA
Operating temperature range	from 0°C to +40°C
Stock temperature range	from 20°C to +50°C
Humidity range	20-95% not condensing
Protection degree	IP20

8. Mechanical and miscellaneous

Net Weight without batteries	277 kg
Dimensions (HxW xD)	1650 x 600 x 900mm
Colour	Enclosure: RAL 7016 Front Door Metal: RAL 9005
Communication Interface	1 serial port RS232, 1 RS485, 1 smart port for internal SNMP, 4 Dry Contacts, 1 EPO, 1 GENSET
Input/Output connections	3Ph + N + PE
Miscellaneous	Wheels and adjustable feet

KEOR T EVO 10 kVA

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1. GENERAL SPECIFICATIONS

Legrand UPS model KEOR T EVO 10 is an uninterruptible power source with 3-Level IGBT switching technology, high frequency PWM technology, Double Conversion On-line, passing through neutral, with the possibility to have N+X on site parallel redundancy up to total 4 units. Rated Power 10 kVA–10 kW (output PF=1).

Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged inside the UPS in dedicated Drawers. The architecture of this UPS is a Tower type. The cabinet has a compact corresponding to a foot print of 0.21m² with possibility to install from 24 up to 36 internal battery blocks. The UPS is also equipped with moving wheels for easier installation and positioning, and floor fixing kit to increase the stability of the cabinet.

1. Architecture

Legrand UPS model KEOR T EVO 10 has stand-alone architecture. UPS is composed by following parts:

- IGBT Rectifier/PFC
- 3-Level IGBT Switching Technology
- Digital Signal Processor (DSP)
- 3.5" TFT Touch Panel
- Automatic Bypass
- Dual Input Bypass
- Internal Manual Bypass
- Standard Internal Backfeed Protection
- Internal Battery Drawer Shelves

The UPS can be easily configured on site, by the authorized personnel, to operate in parallel. Also it is possible to arrange the dedicated bypass input by removing bridge connection on each input phase. Legrand KEOR T EVO 10 has 3-Level IGBT

switching technology and there is no transformer in the unit. These provide high efficiency for the unit.

Backfeed protection provides additional protection at the input in the event of static bypass is short circuited.

By using internal backfeed contactor in bypass line provides safety when fault situation occurs in static bypass line and prevents upstream energy to the input. The internal backfeed protection provides an easy on site installation without any additive cabling or special MCCB type in the upstream distribution panel.

2. Redundancy

The Redundancy of the UPS allows N+X redundant configurations. Up to 4 units of same size UPS can be connected in parallel.

3. Bypass

KEOR T EVO has internal both static bypass and mechanical (maintenance) bypass as standard. Addition to this input and bypass inputs can easily be separated to obtain dual input by removing the bridge on the connector.

4. Control and monitoring

KEOR T EVO is equipped with a touch screen graphic TFT display that provides mimic UPS diagram with relevant information, measurements, statuses and alarms of the UPS in different languages. Below this display, there is a multicolor LED bar showing status of UPS.

- GREEN: Normal or ECO Mode Operation
- ORANGE: Bypass or Battery Operation
- RED: Load not Supplied

KEOR T EVO 10 kVA

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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 KEOR T EVO (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown.

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

Also, standard interface board comes with:

- RS232 Serial Communication Port
- Emergency Power Off (UPS OFF)
- Generator Contact (GEN ON)
- 4pcs programmable Dry Contact Information
- 2 contactor relays for Bypass and Battery
- ModBus (over RS485, with 2400 Baud Rate)

Standard Dry Contact Alarms are General Alarm, Bypass Active, Input Failure and Synchronization OK.

Addition to these: High Temperature, Battery Test Failure, Output Failure alarms can be assigned to the contacts. Each alarm can be assigned to separate contacts but also one alarm may be assigned to all contacts. KEOR T EVO front panel is controlled by DSP microprocessor which works together with DSP microprocessors in rectifier and inverter; 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:

RECTIFIER (Input)

Voltage (Vac), per phase
Current (Aac), per phase
DC BUS Voltage (\pm Vdc)

FREQUENCY

Input Frequency (Hz)
Output Frequency (Hz)

BATTERY

Voltage (\pm Vdc)
Current (\pm Adc)
Temperature
Autonomy (minute)

INVERTER (Output)

Voltage (Vac), per phase
Current (Aac), per phase
Apparent Power (kVA), per phase
Active Power (kW), per phase
Power Factor (load), per phase
Bypass Voltage, per phase
Load (%), per phase

The UPS allows also the following settings by display

OUTPUT

Voltage (380/400/415)
Frequency (50Hz/60Hz)

BATTERY

Battery String
Battery Capacity

COMMAND MENU

Priority (Online (Inverter) /Green (Bypass))
Battery Test (KEOR T EVO tests the battery automatically once each 90 days)

Maintenance (Rectifier, Inverter, Bypass, Load Supply – YES/NO)

RELAY FUNCTIONS

Relay 1 (General Alarm as standard)
Relay 2 (Input Failure as standard)

Each relay can be adjusted from 7 different alarms

PARALLEL MODE

Parallel Mode
(Enable/Disable(Single))
UPS ID
Redundancy (+1, +2, +3)
Operation Mode (Redundancy
Power Increase)

OPTIONS

Alarm Voice (Enable/Disable)
Key Voice (Enable/Disable)
Warning Window (Enable/Disable)

OTHER

Display Brightness (0 to 100)
Emergency Power Off (NC/NO)
Generator Mode (NC/NO)
ModBus ID
Time (hh:mm. Required for Event Log stamp)
Date (dd:mm:yyyy. Required for Event Log stamp)
Language (English, Italian, French, German, Spanish, Portuguese, Turkish, Russian, Dutch, Polish)

Legrand KEOR T EVO displays up to 500 last events. Events are stored in EEPROM using FIFO method. Order number of last occurred event is 001 and the last event in the list is erased when there are 500 events. The UPS KEOR T EVO has the CE Mark accordingly with the EU Directives 2014/35/EU, 2014/30/EU of 26 February 2014 and it complies 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"

KEOR T EVO 10 kVA

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2. TECHNICAL SPECIFICATIONS

1. General specifications

UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Stand alone, transformerless, On-Site Paralleling
In/Out phase Configuration	Three phase-Three phase
Neutral	Neutral Passing through
Switching Technology	3-Level IGBT
Backfeed Protection	Internal, standard
Output wave form on mains operation	Sinusoidal
Output wave form on battery operation	Sinusoidal
Standards	EN 62040-1, EN 62040-2, EN 62040-3

2. Input

Nominal Voltage	400 3ph+N+PE
Voltage Range	358 - 459 Ph-Ph full load 208 - 459 Ph-Ph half load"
Frequency	45 - 65Hz
THDin	< 5% at full load
Power Factor	> 0.99

3. Bypass

Nominal Voltage	400 3ph+N+PE
Voltage Range	380/400/415V -18% +15% (adjustable)
Frequency	47-53Hz or 57-63Hz (adjustable)
Bypass Type	Static and Electro-mechanic
Transfer Time	Zero
Manual Bypass	Built-in

4. Output with mains (AC-AC)

Nominal Voltage	380, 400, 415 3ph+N+PE
Nominal Power	10.000 VA
Active Power	10.000 W
Voltage variation (static)	± 1%
THDv on nominal power (linear load)	< 2%
THDv on nominal power (non-linear load)	< 4%
Frequency	50 Hz or 60 Hz (selectable)
Frequency tolerance	± 0,1% Synchronized with input frequency
Current Crest Factor	2.5:1 accordingly to IEC 62040-3
Overload capability:	
10 min	125% load with no bypass
60 sec	150% load with no bypass

5. Output on battery (DC-AC)

Nominal Voltage	380, 400, 415 3ph+N+PE
Nominal Power	10.000 VA
Active Power	10.000 W
Voltage variation (static)	± 1%
THDv on nominal power (linear load)	< 2%
THDv on nominal power (non-linear load)	< 4%
Frequency	50 Hz or 60 Hz (selectable)
Frequency tolerance	± 0,01% free run
Current Crest Factor	2.5:1 accordingly to IEC 62040-3
Overload capability:	
10 min	125%
60 sec	150%

6. Battery

Type	Lead Acid, sealed, free maintenance VRLA
Unit Capacity	7 or 9 Ah (12V)
Nominal UPS Battery Voltage	±144 Vdc (max ±192 Vdc)
Nominal n. of possible internal battery	24pcs (12x2)
Max. n. of possible internal battery	32pcs (16x2)
Battery charger type	IGBT Rectifier also charges batteries
Charging Cycle	Intelligent with boost charge and advanced management"
Max Charging Current without derating	2 A

7. Environmental specs

Noise level @ 1m (50% load)	< 51dBA
Operating temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C
Humidity range	20-95% not condensing
Protection degree	IP20

8. Mechanical and miscellaneous

Net Weight without batteries ¹	78 kg
Dimensions (HxD)	102 0x 265 x 800 mm
Colour	Enclosure: RAL 7016Front Door Metal: RAL 9005
Communication Interface	1 serial port RS232, 1 RS485, 1 smart port for internal SNMP, 4 Dry Contacts, 1 EPO, 1 GENSET
Input/Output connections	3Ph + N + PE

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

KEOR T EVO 15 kVA

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1. GENERAL SPECIFICATIONS

Legrand UPS model KEOR T EVO 15 is an uninterruptible power source with 3-Level IGBT switching technology, high frequency PWM technology, Double Conversion On-line, passing through neutral, with the possibility to have N+X on site parallel redundancy up to total 4 units. Rated Power 15 kVA–15 kW (output PF=1).

Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged inside the UPS in dedicated Drawers. The architecture of this UPS is a Tower type. The cabinet has a compact corresponding to a foot print of 0.21m² with possibility to install from 30 up to 36 internal battery blocks. The UPS is also equipped with moving wheels for easier installation and positioning, and floor fixing kit to increase the stability of the cabinet.

1. Architecture

Legrand UPS model KEOR T EVO 15 has stand-alone architecture. UPS is composed by following parts:

- IGBT Rectifier/PFC
- 3-Level IGBT Switching Technology
- Digital Signal Processor (DSP)
- 3.5" TFT Touch Panel
- Automatic Bypass
- Dual Input Bypass
- Internal Manual Bypass
- Standard Internal Backfeed Protection
- Internal Battery Drawer Shelves

The UPS can be easily configured on site, by the authorized personnel, to operate in parallel. Also it is possible to arrange the dedicated bypass input by removing bridge connection on each input phase. Legrand KEOR T EVO 15 has 3-Level IGBT

switching technology and there is no transformer in the unit. These provide high efficiency for the unit.

Backfeed protection provides additional protection at the input in the event of static bypass is short circuited.

By using internal backfeed contactor in bypass line provides safety when fault situation occurs in static bypass line and prevents upstream energy to the input. The internal backfeed protection provides an easy on site installation without any additive cabling or special MCCB type in the upstream distribution panel.

2. Redundancy

The Redundancy of the UPS allows N+X redundant configurations. Up to 4 units of same size UPS can be connected in parallel.

3. Bypass

KEOR T EVO has internal both static bypass and mechanical (maintenance) bypass as standard. Addition to this input and bypass inputs can easily be separated to obtain dual input by removing the bridge on the connector.

4. Control and monitoring

KEOR T EVO is equipped with a touch screen graphic TFT display that provides mimic UPS diagram with relevant information, measurements, statuses and alarms of the UPS in different languages. Below this display, there is a multicolor LED bar showing status of UPS.

- GREEN: Normal or ECO Mode Operation
- ORANGE: Bypass or Battery Operation
- RED: Load not Supplied

KEOR T EVO 15 kVA

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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 KEOR T EVO (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown.

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

Also, standard interface board comes with:

- RS232 Serial Communication Port
- Emergency Power Off (UPS OFF)
- Generator Contact (GEN ON)
- 4pcs programmable Dry Contact Information
- 2 contactor relays for Bypass and Battery
- ModBus (over RS485, with 2400 Baud Rate)

Standard Dry Contact Alarms are General Alarm, Bypass Active, Input Failure and Synchronization OK.

Addition to these: High Temperature, Battery Test Failure, Output Failure alarms can be assigned to the contacts. Each alarm can be assigned to separate contacts but also one alarm may be assigned to all contacts. KEOR T EVO front panel is controlled by DSP microprocessor which works together with DSP microprocessors in rectifier and inverter; 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:

RECTIFIER (Input)

Voltage (Vac), per phase
Current (Aac), per phase
DC BUS Voltage (\pm Vdc)

FREQUENCY

Input Frequency (Hz)
Output Frequency (Hz)

BATTERY

Voltage (\pm Vdc)
Current (\pm Adc)
Temperature
Autonomy (minute)

INVERTER (Output)

Voltage (Vac), per phase
Current (Aac), per phase
Apparent Power (kVA), per phase
Active Power (kW), per phase
Power Factor (load), per phase
Bypass Voltage, per phase
Load (%), per phase

The UPS allows also the following settings by display

OUTPUT

Voltage (380/400/415)
Frequency (50Hz/60Hz)

BATTERY

Battery String
Battery Capacity

COMMAND MENU

Priority (Online (Inverter) /Green (Bypass))
Battery Test (KEOR T EVO tests the battery automatically once each 90 days)

Maintenance (Rectifier, Inverter, Bypass, Load Supply – YES/NO)

RELAY FUNCTIONS

Relay 1 (General Alarm as standard)
Relay 2 (Input Failure as standard)

Each relay can be adjusted from 7 different alarms

PARALLEL MODE

Parallel Mode
(Enable/Disable(Single))
UPS ID
Redundancy (+1, +2, +3)
Operation Mode (Redundancy
Power Increase)

OPTIONS

Alarm Voice (Enable/Disable)
Key Voice (Enable/Disable)
Warning Window (Enable/Disable)

OTHER

Display Brightness (0 to 100)
Emergency Power Off (NC/NO)
Generator Mode (NC/NO)
ModBus ID
Time (hh:mm. Required for Event Log stamp)
Date (dd:mm:yyyy. Required for Event Log stamp)
Language (English, Italian, French, German, Spanish, Portuguese, Turkish, Russian, Dutch, Polish)

Legrand KEOR T EVO displays up to 500 last events. Events are stored in EEPROM using FIFO method. Order number of last occurred event is 001 and the last event in the list is erased when there are 500 events. The UPS KEOR T EVO has the CE Mark accordingly with the EU Directives 2014/35/EU, 2014/30/EU of 26 February 2014 and it complies 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"

KEOR T EVO 15 kVA

3 102 73 - 3 102 74 - 3 102 75

2. TECHNICAL SPECIFICATIONS

1. General specifications

UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Stand alone, transformerless, On-Site Paralleling
In/Out phase Configuration	Three phase-Three phase
Neutral	Neutral Passing through
Switching Technology	3-Level IGBT
Backfeed Protection	Internal, standard
Output wave form on mains operation	Sinusoidal
Output wave form on battery operation	Sinusoidal
Standards	EN 62040-1, EN 62040-2, EN 62040-3

2. Input

Nominal Voltage	400 3ph+N+PE
Voltage Range	358 - 459 Ph-Ph full load 208 - 459 Ph-Ph half load"
Fréquence	45 - 65Hz
THDin	< 5% at full load
Power Factor	> 0.99

3. Bypass

Nominal Voltage	400 3ph+N+PE
Voltage Range	380/400/415V -18% +15% (adjustable)
Frequency	47-53Hz or 57-63Hz (adjustable)
Bypass Type	Static and Electro-mechanic
TransferTime	Zero
Manual Bypass	Built-in

4. Output with mains (AC-AC)

Nominal Voltage	380, 400, 415 3ph+N+PE
Nominal Power	15.000 VA
Active Power	15.000 W
Voltage variation (static)	± 1%
THDv on nominal power (linear load)	< 2%
THDv on nominal power (non-linear load)	< 4%
Frequency	50 Hz or 60 Hz (selectable)
Frequency tolerance	± 0,1% Synchronized with input frequency
Current Crest Factor	2.5:1 accordingly to IEC 62040-3
Overload capability:	
10 min	125% load with no bypass
60 sec	150% load with no bypass

5. Output on battery (DC-AC)

Nominal Voltage	380, 400, 415 3ph+N+PE
Nominal Power	15.000 VA
Active Power	15.000 W
Voltage variation (static)	± 1%
THDv on nominal power (linear load)	< 2%
THDv on nominal power (non-linear load)	< 4%
Frequency	50 Hz or 60 Hz (selectable)
Frequency tolerance	± 0,01% free run
Current Crest Factor	2.5:1 accordingly to IEC 62040-3
Overload capability:	
10 min	125%
60 sec	150%

6. Battery

Type	Lead Acid, sealed, free maintenance VRLA
Unit Capacity	7 or 9 Ah (12V)
Nominal UPS Battery Voltage	±180 Vdc (max ±216 Vdc)
Nominal n. of possible internal battery	30pcs (15x2)
Max. n. of possible internal battery	36pcs (18x2)
Battery charger type	IGBT Rectifier also charges batteries
Charging Cycle	Intelligent with boost charge and advanced management"
Max Charging Current without derating	2 A

7. Environmental specs

Noise level @ 1m (50% load)	< 51dBA
Operating temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C
Humidity range	20-95% not condensing
Protection degree	IP20

8. Mechanical and miscellaneous

Net Weight without batteries ¹	79 kg
Dimensions (HxW xD)	1020 x 265 x 800 mm
Colour	Enclosure: RAL 7016Front Door Metal: RAL 9005
Communication Interface	1 serial port RS232, 1 RS485, 1 smart port for internal SNMP, 4 Dry Contacts, 1 EPO, 1 GENSET
Input/Output connections	3Ph + N + PE

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

KEOR T EVO 20 kVA

3 102 76 - 3 102 77



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1. GENERAL SPECIFICATIONS

Legrand UPS model KEOR T EVO 20 is an uninterruptible power source with 3-Level IGBT switching technology, high frequency PWM technology, Double Conversion On-line, passing through neutral, with the possibility to have N+X on site parallel redundancy up to total 4 units. Rated Power 20 kVA–20 kW (output PF=1).

Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged inside the UPS in dedicated Drawers. The architecture of this UPS is a Tower type. The cabinet has a compact corresponding to a foot print of 0.21m² with possibility to install 36 internal battery blocks. The UPS is also equipped with moving wheels for easier installation and positioning, and floor fixing kit to increase the stability of the cabinet.

1. Architecture

Legrand UPS model KEOR T EVO 20 has stand-alone architecture. UPS is composed by following parts:

- IGBT Rectifier/PFC
- 3-Level IGBT Switching Technology
- Digital Signal Processor (DSP)
- 3.5" TFT Touch Panel
- Automatic Bypass
- Dual Input Bypass
- Internal Manual Bypass
- Standard Internal Backfeed Protection
- Internal Battery Drawer Shelves

The UPS can be easily configured on site, by the authorized personnel, to operate in parallel. Also it is possible to arrange the dedicated bypass input by removing bridge connection on each input phase. Legrand KEOR T EVO 20 has 3-Level IGBT

switching technology and there is no transformer in the unit. These provide high efficiency for the unit.

Backfeed protection provides additional protection at the input in the event of static bypass is short circuited.

By using internal backfeed contactor in bypass line provides safety when fault situation occurs in static bypass line and prevents upstream energy to the input. The internal backfeed protection provides an easy on site installation without any additive cabling or special MCCB type in the upstream distribution panel.

2. Redundancy

The Redundancy of the UPS allows N+X redundant configurations. Up to 4 units of same size UPS can be connected in parallel.

3. Bypass

KEOR T EVO has internal both static bypass and mechanical (maintenance) bypass as standard. Addition to this input and bypass inputs can easily be separated to obtain dual input by removing the bridge on the connector.

4. Control and monitoring

KEOR T EVO is equipped with a touch screen graphic TFT display that provides mimic UPS diagram with relevant information, measurements, statuses and alarms of the UPS in different languages. Below this display, there is a multicolor LED bar showing status of UPS.

- GREEN: Normal or ECO Mode Operation
- ORANGE: Bypass or Battery Operation
- RED: Load not Supplied

KEOR T EVO 20 kVA

3 102 76 - 3 102 77

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 KEOR T EVO (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown.

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

Also, standard interface board comes with:

- RS232 Serial Communication Port
- Emergency Power Off (UPS OFF)
- Generator Contact (GEN ON)
- 4pcs programmable Dry Contact Information
- 2 contactor relays for Bypass and Battery
- ModBus (over RS485, with 2400 Baud Rate)

Standard Dry Contact Alarms are General Alarm, Bypass Active, Input Failure and Synchronization OK.

Addition to these: High Temperature, Battery Test Failure, Output Failure alarms can be assigned to the contacts. Each alarm can be assigned to separate contacts but also one alarm may be assigned to all contacts. KEOR T EVO front panel is controlled by DSP microprocessor which works together with DSP microprocessors in rectifier and inverter; 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:

RECTIFIER (Input)

Voltage (Vac), per phase
Current (Aac), per phase
DC BUS Voltage (\pm Vdc)

FREQUENCY

Input Frequency (Hz)
Output Frequency (Hz)

BATTERY

Voltage (\pm Vdc)
Current (\pm Adc)
Temperature
Autonomy (minute)

INVERTER (Output)

Voltage (Vac), per phase
Current (Aac), per phase
Apparent Power (kVA), per phase
Active Power (kW), per phase
Power Factor (load), per phase
Bypass Voltage, per phase
Load (%), per phase

The UPS allows also the following settings by display

OUTPUT

Voltage (380/400/415)
Frequency (50Hz/60Hz)

BATTERY

Battery String
Battery Capacity

COMMAND MENU

Priority (Online (Inverter) /Green (Bypass))
Battery Test (KEOR T EVO tests the battery automatically once each 90 days)

Maintenance (Rectifier, Inverter, Bypass, Load Supply – YES/NO)

RELAY FUNCTIONS

Relay 1 (General Alarm as standard)
Relay 2 (Input Failure as standard)

Each relay can be adjusted from 7 different alarms

PARALLEL MODE

Parallel Mode
(Enable/Disable(Single))
UPS ID
Redundancy (+1, +2, +3)
Operation Mode (Redundancy
Power Increase)

OPTIONS

Alarm Voice (Enable/Disable)
Key Voice (Enable/Disable)
Warning Window (Enable/Disable)

OTHER

Display Brightness (0 to 100)
Emergency Power Off (NC/NO)
Generator Mode (NC/NO)
ModBus ID
Time (hh:mm. Required for Event Log stamp)
Date (dd:mm:yyyy. Required for Event Log stamp)
Language (English, Italian, French, German, Spanish, Portuguese, Turkish, Russian, Dutch, Polish)

Legrand KEOR T EVO displays up to 500 last events. Events are stored in EEPROM using FIFO method. Order number of last occurred event is 001 and the last event in the list is erased when there are 500 events. The UPS KEOR T EVO has the CE Mark accordingly with the EU Directives 2014/35/EU, 2014/30/EU of 26 February 2014 and it complies 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"

KEOR T EVO 20 kVA

3 102 76 - 3 102 77

2. TECHNICAL SPECIFICATIONS

1. General specifications

UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Stand alone, transformerless, On-Site Paralleling
In/Out phase Configuration	Three phase-Three phase
Neutral	Neutral Passing through
Switching Technology	3-Level IGBT
Backfeed Protection	Internal, standard
Output wave form on mains operation	Sinusoidal
Output wave form on battery operation	Sinusoidal
Standards	EN 62040-1, EN 62040-2, EN 62040-3

2. Input

Nominal Voltage	400 3ph+N+PE
Voltage Range	358 - 459 Ph-Ph full load 208 - 459 Ph-Ph half load"
Frequency	45 - 65Hz
THDin	< 5% at full load
Power Factor	> 0.99

3. Bypass

Nominal Voltage	400 3ph+N+PE
Voltage Range	380/400/415V -18% +15% (adjustable)
Frequency	47-53Hz or 57-63Hz (adjustable)
Bypass Type	Static and Electro-mechanic
Transfer Time	Zero
Manual Bypass	Built-in

4. Output with mains (AC-AC)

Nominal Voltage	380, 400, 415 3ph+N+PE
Nominal Power	20.000 VA
Active Power	20.000 W
Voltage variation (static)	± 1%
THDv on nominal power (linear load)	< 2%
THDv on nominal power (non-linear load)	< 4%
Frequency	50 Hz or 60 Hz (selectable)
Frequency tolerance	± 0,1% Synchronized with input frequency
Current Crest Factor	2.5:1 accordingly to IEC 62040-3
Overload capability:	
10 min	125% load with no bypass
60 sec	150% load with no bypass

5. Output on battery (DC-AC)

Nominal Voltage	380, 400, 415 3ph+N+PE
Nominal Power	20.000 VA
Active Power	20.000 W
Voltage variation (static)	± 1%
THDv on nominal power (linear load)	< 2%
THDv on nominal power (non-linear load)	< 4%
Frequency	50 Hz or 60 Hz (selectable)
Frequency tolerance	± 0,01% free run
Current Crest Factor	2.5:1 accordingly to IEC 62040-3
Overload capability:	
10 min	125%
60 sec	150%

6. Battery

Type	Lead Acid, sealed, free maintenance VRLA
Unit Capacity	7 or 9 Ah (12V)
Nominal UPS Battery Voltage	±216 Vdc (max ±216 Vdc)
Nominal n. of possible internal battery	36pcs (18x2)
Max. n. of possible internal battery	36pcs (18x2)
Battery charger type	IGBT Rectifier also charges batteries
Charging Cycle	Intelligent with boost charge and advanced management"
Max Charging Current without derating	2 A

7. Environmental specs

Noise level @ 1m (50% load)	< 51dBA
Operating temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C
Humidity range	20-95% not condensing
Protection degree	IP20

8. Mechanical and miscellaneous

Net Weight without batteries ¹	84 kg
Dimensions (HxW xD)	1020 x 265 x 800 mm
Colour	Enclosure: RAL 7016Front Door Metal: RAL 9005
Communication Interface	1 serial port RS232, 1 RS485, 1 smart port for internal SNMP, 4 Dry Contacts, 1 EPO, 1 GENSET
Input/Output connections	3Ph + N + PE

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

KEOR T 208V 5 - 7,5 - 10 - 15 kVA

3 101 32 – 3 101 33 – 3 101 34 – 3 102 78



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6. BATTERY	3
7. ENVIRONMENTAL SPECS	3
8. MECHANICAL AND MISCELLANEOUS.....	3

1. GENERAL SPECIFICATIONS

Legrand UPS model KEOR T 208V is an uninterruptible power source with 3-Level IGBT switching technology, high frequency PWM technology, Double Conversion On-line, solid neutral, with the possibility to have N+X on site modular redundancy up to total 6 units, Rated Power from 5 to 15 kVA/kW. Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged, inside the UPS in dedicated Drawers or external battery cabinet. The architecture of this UPS is a Tower type.

1. Architecture

Legrand UPS model KEOR T 208V has stand-alone architecture. UPS is composed by following parts; - IGBT Rectifier/PFC - 3-Level IGBT Switching Technology - Digital Signal Processor (DSP) - 3.5" TFT Touch Panel - Automatic Bypass - Dual Input Bypass - Internal Manual Bypass - Standard Internal Backfeed Protection - Internal Battery Drawer Shelves. The UPS can be easily configured on site, by the authorized personnel, to operate in parallel. Also it is possible to arrange the dual bypass by removing bridge connection on each input phase. Legrand KEOR T 208V has 3-Level IGBT switching technology and there is no transformer in the unit. These provide high efficiency for the unit. Backfeed protection provides additional protection at the input in the event of bypass thyristors are short circuited. By using internal backfeed contactor in bypass line provides safety when fault situation occurs in static bypass line and prevents upstream energy to the input. The internal backfeed protection provides an easy on site installation without any additive cabling or special MCCB type in the upstream distribution panel.

2. Redundancy

The Redundancy of the UPS allows N+X redundant configurations. Up to 8 units of same size UPS can be connected in parallel.

3. Bypass

KEOR T 208V has internal both static bypass and mechanical (maintenance) bypass as standard. Addition to this input and bypass inputs can easily be separated to obtain dual input by removing the bridge on the connector.

4. Control and monitoring

KEOR T 208V is equipped with a touch screen graphic TFT display that provides information, measurements, statuses and alarms of the UPS in different languages. Below this display, there is a multicolor LED bar showing status of UPS.

- GREEN: Normal or ECO Mode Operation
- ORANGE: Bypass or Battery Operation
- RED: Load not Supplied

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 KEOR T 208V (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown. Optional software (UPSMAN) or Net Interface card (CS141 SK) allow the multi server shutdown and UPS remote control on the LAN. Also, standard interface board comes with;

- RS232 Serial Communication Port
- Emergency Power Off (UPS OFF)
- Generator Contact (GEN ON)
- 4pcs programmable Dry Contact Information
- 2 contactor relays for Bypass and Battery
- ModBus (over RS485, with 2400 Baud Rate)

Standard Dry Contact Alarms are General Alarm, Bypass Active, Input Failure and Synchronization OK. Addition to these: High Temperature, Battery Test Failure, Output Failure alarms can be assigned to the contacts. Each alarm can be assigned to separate contact but also one alarm may be assigned to all contacts. KEOR T 208 front panel is controlled by DSP

KEOR T 208V 5 - 7,5 - 10 - 15 kVA**3 101 32 – 3 101 33 – 3 101 34 – 3 102 78**

microprocessor which works together with DSP microprocessors in rectifier and inverter; 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:

RECTIFIER (INPUT)

Voltage (Vac), per phase
Current (Aac), per phase
DC BUS Voltage ($\pm V_{dc}$)

FREQUENCY

Input Frequency (Hz)
Output Frequency (Hz)

BATTERY

Voltage ($\pm V_{dc}$)
Current ($\pm A_{dc}$)
Temperature
Autonomy (minute)

INVERTER (OUTPUT)

Voltage (Vac), per phase
Current (Aac), per phase
Apparent Power (kVA), per phase
Active Power (kW), per phase
Power Factor (load), per phase
Bypass Voltage, per phase
Load (%), per phase

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

OUTPUT

Voltage (200/208/220)
Frequency (50Hz/60Hz)

BATTERY

Battery String
Battery Capacity

PARALLEL MODE

Parallel Mode
(Enable/Disable(Single))

UPS ID

Redundancy (+1, +2, ..., +5)
Operation Mode (Redundancy
Power Increase)

COMMAND MENU

Priority (Online (Inverter) /Green (Bypass))
Battery Test (KEOR T 208 tests the battery automatically once each 90 days)
Maintenance (Rectifier, Inverter, Bypass, Load Supply – YES/NO)

RELAY FUNCTIONS

Relay 1 (General Alarm as standard. Can be adjusted from 7 different alarms)

Relay 2 (Input Failure as standard. Can be adjusted from 7 different alarms)

Relay 3 (Battery Failure as standard. Can be adjusted from 7 different alarms)

Relay 4 (Output Failure as standard. Can be adjusted from 7 different alarms)

OPTIONS

Alarm Voice (Enable/Disable)
Key Voice (Enable/Disable)
Warning Window (Enable/Disable)

OTHER

Display Brightness (0 to 100)
Emergency Power Off (NC/NO)
Generator Mode (NC/NO)
ModBus ID
Time (hh:mm. Required for Event Log stamp)
Date (dd:mm:yyyy. Required for Event Log stamp)
Language (English)

Legrand KEOR T 208 displays up to 500 last events. Events are stored in EEPROM using FIFO method. Order number of last occurred event is 001 and the last event in the list is erased when there are 500 events.

The UPS KEOR T 208 has the CE Mark accordingly with the EU Directives 73/23, 93/68, 89/336, 92/31, 93/68 and it complies 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"

KEOR T 208V 5 - 7,5 - 10 - 15 kVA

3 101 32 – 3 101 33 – 3 101 34 – 3 102 78

2. TECHNICAL SPECIFICATIONS

1. General specifications

Model	5	7,5	10	15
UPS Topology	On line double conversion VFI SS 111			
Architecture of the UPS	Stand alone, transformerless, On-Site Paralleling			
In/Out phase Configuration	Three phase-Three phase			
Neutral	Neutral Passing through			
Switching Technology	3-Level IGBT			
Backfeed Protection	Internal, standard			
Output wave form on mains operation	Sinusoidal			
Output wave form on battery operation	Sinusoidal			
Standards	EN 62040-1, EN 62040-2, EN 62040-3			

2. Input

Nominal Voltage	208V 3ph+N+PE
Voltage Range	176 – 239V Ph-Ph full load 108 - 239 V Ph-Ph half load
Frequency	45 - 65Hz
THDin	< 5% at full load
Power Factor	> 0.99

3. Bypass

Nominal Voltage	208V 3ph+N+PE
Voltage Range	200/208/220V -18% +15% (adjustable)
Frequency	47-53Hz or 57-63Hz (adjustable)
Bypass Type	Static and Electro-mechanic
Transfer Time	Zero
Manual Bypass	Built-in

4. Output with mains (AC-AC)

Nominal Voltage	200, 208, 220V 3ph+N+PE			
Nominal Power (KVA)	5	7,5	10	15
Active Power (KW)	4,5	6,75	9	13,5
Voltage variation (static)	± 1%			
THDv on nominal power (linear load)	< 2%			
THDv on nominal power (non-linear load)	< 4%			
Frequency	50 Hz or 60 Hz (selectable)			
Frequency tolerance	± 0,1% Synchronized with input frequency			
Current Crest Factor	2.5:1 accordingly to IEC 62040-3			
Overload capability:				
10 min	125% load with no bypass			
60 sec	150% load with no bypass			

5. Output on battery (DC-AC)

Model	5	7,5	10	15
Nominal Voltage	200, 208, 220 3ph+N+PE			
Nominal Power (KVA)	5	7,5	10	15
Active Power (KW)	4,5	6,75	9	13,5
Voltage variation (static)	± 1%			
THDv on nominal power (linear load)	< 2%			
THDv on nominal power (non-linear load)	< 4%			
Frequency	50 Hz or 60 Hz (selectable)			
Frequency tolerance	± 0,01% free run			
Current Crest Factor	2.5:1 accordingly to IEC 62040-3			
Overload capability:				
10 min	125% load with no Bypass			
60 sec	150% load with no Bypass			

6. Battery

Type	Lead Acid, sealed, free maintenance VRLA			
Unit Capacity	7 or 9 Ah (12V)			
Nominal UPS Battery Voltage	±204 Vdc (max ±216 Vdc)			
Nominal n. of possible internal battery	34pcs (17x2)			
Battery charger type	IGBT Rectifier also charges batteries			
Charging Cycle	Intelligent with boost charge and advanced management"			
Max Charging Current without derating	1,2A	1,2A	2A	3A

7. Environmental specs

Noise level @ 1m (50% load)	< 58dBA
Operating temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C
Humidity range	20-95% not condensing
Protection degree	IP20

8. Mechanical and miscellaneous

Net Weight without batteries ¹	121Kg	132Kg	144Kg	148Kg
Dimensions (HxW xD)	1345*400*800mm			
Colour	Enclosure: RAL 7016 Front Door Metal: RAL 9005			
Communication Interface	1 serial port RS232, 1 RS485, 1 smart port for internal SNMP, 4 Dry Contacts, 1 EPO, 1 GENSET			
Input/Output connections	3Ph + N + PE			

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

KEOR T 208V 20 – 30 kVA

3 102 79 – 3 102 96



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5. OUTPUT ON BATTERY (DC-AC)	3
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8. MECHANICAL AND MISCELLANEOUS.....	3

1. GENERAL SPECIFICATIONS

Legrand UPS model KEOR T 208V is an uninterruptible power source with 3-Level IGBT switching technology, high frequency PWM technology, Double Conversion On-line, solid neutral, with the possibility to have N+X on site modular redundancy up to total 6 units, Rated Power 20/30 kVA. Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged, inside the UPS in dedicated Drawers or external battery cabinet. The architecture of this UPS is a Tower type.

1. Architecture

Legrand UPS model KEOR T 208V has stand-alone architecture. UPS is composed by following parts; - IGBT Rectifier/PFC - 3-Level IGBT Switching Technology - Digital Signal Processor (DSP) - 3.5" TFT Touch Panel - Automatic Bypass - Dual Input Bypass - Internal Manual Bypass - Standard Internal Backfeed Protection - Internal Battery Drawer Shelves. The UPS can be easily configured on site, by the authorized personnel, to operate in parallel. Also it is possible to arrange the dual bypass by removing bridge connection on each input phase. Legrand KEOR T 208V has 3-Level IGBT switching technology and there is no transformer in the unit. These provide high efficiency for the unit. Backfeed protection provides additional protection at the input in the event of bypass thyristors are short circuited. By using internal backfeed contactor in bypass line provides safety when fault situation occurs in static bypass line and prevents upstream energy to the input. The internal backfeed protection provides an easy on site installation without any additive cabling or special MCCB type in the upstream distribution panel.

2. Redundancy

The Redundancy of the UPS allows N+X redundant configurations. Up to 8 units of same size UPS can be connected in parallel.

3. Bypass

KEOR T 208V has internal both static bypass and mechanical (maintenance) bypass as standard. Addition to this input and bypass inputs can easily be separated to obtain dual input by removing the bridge on the connector.

4. Control and monitoring

KEOR T 208V is equipped with a touch screen graphic TFT display that provides information, measurements, statuses and alarms of the UPS in different languages. Below this display, there is a multicolor LED bar showing status of UPS.

- GREEN: Normal or ECO Mode Operation
- ORANGE: Bypass or Battery Operation
- RED: Load not Supplied

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 KEOR T 208V (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown. Optional software (UPSMAN) or Net Interface card (CS141 SK) allow the multi server shutdown and UPS remote control on the LAN. Also, standard interface board comes with;

- RS232 Serial Communication Port
- Emergency Power Off (UPS OFF)
- Generator Contact (GEN ON)
- 4pcs programmable Dry Contact Information
- 2 contactor relays for Bypass and Battery
- ModBus (over RS485, with 2400 Baud Rate)

Standard Dry Contact Alarms are General Alarm, Bypass Active, Input Failure and Synchronization OK. Addition to these: High Temperature, Battery Test Failure, Output Failure alarms can be assigned to the contacts. Each alarm can be assigned to separate contact but also one alarm may be assigned to all contacts. KEOR T 208 front panel is controlled by DSP

KEOR T 208V 20 – 30 kVA**3 102 79 – 3 102 96**

microprocessor which works together with DSP microprocessors in rectifier and inverter; 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:

RECTIFIER (INPUT)

Voltage (Vac), per phase
Current (Aac), per phase
DC BUS Voltage ($\pm V_{dc}$)

FREQUENCY

Input Frequency (Hz)
Output Frequency (Hz)

BATTERY

Voltage ($\pm V_{dc}$)
Current ($\pm A_{dc}$)
Temperature
Autonomy (minute)

INVERTER (OUTPUT)

Voltage (Vac), per phase
Current (Aac), per phase
Apparent Power (kVA), per phase
Active Power (kW), per phase
Power Factor (load), per phase
Bypass Voltage, per phase
Load (%), per phase

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

OUTPUT

Voltage (200/208/220)
Frequency (50Hz/60Hz)

BATTERY

Battery String
Battery Capacity

PARALLEL MODE

Parallel Mode
(Enable/Disable(Single))

UPS ID

Redundancy (+1, +2, ..., +5)
Operation Mode (Redundancy
Power Increase)

COMMAND MENU

Priority (Online (Inverter) /Green (Bypass))
Battery Test (KEOR T 208 tests the battery automatically once each 90 days)
Maintenance (Rectifier, Inverter, Bypass, Load Supply – YES/NO)

RELAY FUNCTIONS

Relay 1 (General Alarm as standard. Can be adjusted from 7 different alarms)

Relay 2 (Input Failure as standard. Can be adjusted from 7 different alarms)

Relay 3 (Battery Failure as standard. Can be adjusted from 7 different alarms)

Relay 4 (Output Failure as standard. Can be adjusted from 7 different alarms)

OPTIONS

Alarm Voice (Enable/Disable)
Key Voice (Enable/Disable)
Warning Window (Enable/Disable)

OTHER

Display Brightness (0 to 100)
Emergency Power Off (NC/NO)
Generator Mode (NC/NO)
ModBus ID
Time (hh:mm. Required for Event Log stamp)
Date (dd:mm:yyyy. Required for Event Log stamp)
Language (English)

Legrand KEOR T 208 displays up to 500 last events. Events are stored in EEPROM using FIFO method. Order number of last occurred event is 001 and the last event in the list is erased when there are 500 events.

The UPS KEOR T 208 has the CE Mark accordingly with the EU Directives 73/23, 93/68, 89/336, 92/31, 93/68 and it complies 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"

KEOR T 208V 20 – 30 kVA

3 102 79 – 3 102 96

2. TECHNICAL SPECIFICATIONS

1. General specifications

Model	20	30
UPS Topology	On line double conversion VFI SS 111	
Architecture of the UPS	Stand alone, transformerless, On-Site Paralleling	
In/Out phase Configuration	Three phase-Three phase	
Neutral	Neutral Passing through	
Switching Technology	3-Level IGBT	
Backfeed Protection	Internal, standard	
Output wave form on mains operation	Sinusoidal	
Output wave form on battery operation	Sinusoidal	
Standards	EN 62040-1, EN 62040-2, EN 62040-3	

2. Input

Nominal Voltage	208V 3ph+N+PE
Voltage Range	176 – 239V Ph-Ph full load 108 - 239 V Ph-Ph half load
Frequency	45 - 65Hz
THDin	< 5% at full load
Power Factor	> 0.99

3. Bypass

Nominal Voltage	208V 3ph+N+PE
Voltage Range	200/208/220V -18% +15% (adjustable)
Frequency	47-53Hz or 57-63Hz (adjustable)
Bypass Type	Static and Electro-mechanic
Transfer Time	Zero
Manual Bypass	Built-in

4. Output with mains (AC-AC)

4. Output with mains (AC-AC)		
Nominal Voltage	200, 208, 220V 3ph+N+PE	
Nominal Power (KVA)	20	30
Active Power (KW)	18	27
Voltage variation (static)	± 1%	
THDv on nominal power (linear load)	< 2%	
THDv on nominal power (non-linear load)	< 4%	
Frequency	50 Hz or 60 Hz (selectable)	
Frequency tolerance	± 0,1% Synchronized with input frequency	
Current Crest Factor	2.5:1 accordingly to IEC 62040-3	
Overload capability:		
10 min	125% load with no bypass	
60 sec	150% load with no bypass	

5. Output on battery (DC-AC)

Model	20	30
Nominal Voltage	200, 208, 220 3ph+N+PE	
Nominal Power (KVA)	20	30
Active Power (KW)	18	27
Voltage variation (static)	± 1%	
THDv on nominal power (linear load)	< 2%	
THDv on nominal power (non-linear load)	< 4%	
Frequency	50 Hz or 60 Hz (selectable)	
Frequency tolerance	± 0,01% free run	
Current Crest Factor	2.5:1 accordingly to IEC 62040-3	
Overload capability:		
10 min	125% load with no Bypass	
60 sec	150% load with no Bypass	

6. Battery

6. Battery		
Type	Lead Acid, sealed, free maintenance VRLA	
Unit Capacity	7 or 9 Ah (12V)	
Nominal UPS Battery Voltage	±204 Vdc (max ±216 Vdc)	
Nominal n. of possible internal battery	34pcs (17x2)	
Battery charger type	IGBT Rectifier also charges batteries	
Charging Cycle	Intelligent with boost charge and advanced management"	
Max Charging Current without derating	4A	5A

7. Environmental specs

Noise level @ 1m (50% load)	< 58dBA
Operating temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C
Humidity range	20-95% not condensing
Protection degree	IP20

8. Mechanical and miscellaneous

Net Weight without batteries ¹	241Kg	276Kg
Dimensions (HxW xD)	1650*600*900mm	
Colour	Enclosure: RAL 7016 Front Door Metal: RAL 9005	
Communication Interface	1 serial port RS232, 1 RS485, 1 smart port for internal SNMP, 4 Dry Contacts, 1 EPO, 1 GENSET	
Input/Output connections	3Ph + N + PE	

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

KEOR T 208V 40 – 50 - 60 kVA

3 102 97 – 3 102 98 – 3 102 99



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1. GENERAL SPECIFICATIONS

Legrand UPS model KEOR T 208V is an uninterruptible power source with 3-Level IGBT switching technology, high frequency PWM technology, Double Conversion On-line, solid neutral, with the possibility to have N+X on site modular redundancy up to total 6 units, Rated Power 40/50/60 kVA. Batteries are lead acid, sealed, free maintenance, valve regulated, and arranged, inside the UPS in dedicated Drawers or external battery cabinet. The architecture of this UPS is a Tower type.

1. Architecture

Legrand UPS model KEOR T 208V has stand-alone architecture. UPS is composed by following parts; - IGBT Rectifier/PFC - 3-Level IGBT Switching Technology - Digital Signal Processor (DSP) - 3.5" TFT Touch Panel - Automatic Bypass - Dual Input Bypass - Internal Manual Bypass - Standard Internal Backfeed Protection - Internal Battery Drawer Shelves. The UPS can be easily configured on site, by the authorized personnel, to operate in parallel. Also it is possible to arrange the dual bypass by removing bridge connection on each input phase. Legrand KEOR T 208V has 3-Level IGBT switching technology and there is no transformer in the unit. These provide high efficiency for the unit. Backfeed protection provides additional protection at the input in the event of bypass thyristors are short circuited. By using internal backfeed contactor in bypass line provides safety when fault situation occurs in static bypass line and prevents upstream energy to the input. The internal backfeed protection provides an easy on site installation without any additive cabling or special MCCB type in the upstream distribution panel.

2. Redundancy

The Redundancy of the UPS allows N+X redundant configurations. Up to 8 units of same size UPS can be connected in parallel.

3. Bypass

KEOR T 208V has internal both static bypass and mechanical (maintenance) bypass as standard. Addition to this input and bypass inputs can easily be separated to obtain dual input by removing the bridge on the connector.

4. Control and monitoring

KEOR T 208V is equipped with a touch screen graphic TFT display that provides information, measurements, statuses and alarms of the UPS in different languages. Below this display, there is a multicolor LED bar showing status of UPS.

- GREEN: Normal or ECO Mode Operation
- ORANGE: Bypass or Battery Operation
- RED: Load not Supplied

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 KEOR T 208V (the same functions available on the UPS control panel) and, furthermore, to schedule and program computer remote shutdown. Optional software (UPSMAN) or Net Interface card (CS141 SK) allow the multi server shutdown and UPS remote control on the LAN. Also, standard interface board comes with;

- RS232 Serial Communication Port
- Emergency Power Off (UPS OFF)
- Generator Contact (GEN ON)
- 4pcs programmable Dry Contact Information
- 2 contactor relays for Bypass and Battery
- ModBus (over RS485, with 2400 Baud Rate)

Standard Dry Contact Alarms are General Alarm, Bypass Active, Input Failure and Synchronization OK. Addition to these: High Temperature, Battery Test Failure, Output Failure alarms can be assigned to the contacts. Each alarm can be assigned to separate contact but also one alarm may be assigned to all contacts. KEOR T 208 front panel is controlled by DSP

KEOR T 208V 40 – 50 - 60 kVA

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microprocessor which works together with DSP microprocessors in rectifier and inverter; 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:

RECTIFIER (INPUT)

Voltage (Vac), per phase
Current (Aac), per phase
DC BUS Voltage ($\pm V_{dc}$)

FREQUENCY

Input Frequency (Hz)
Output Frequency (Hz)

BATTERY

Voltage ($\pm V_{dc}$)
Current ($\pm A_{dc}$)
Temperature
Autonomy (minute)

INVERTER (OUTPUT)

Voltage (Vac), per phase
Current (Aac), per phase
Apparent Power (kVA), per phase
Active Power (kW), per phase
Power Factor (load), per phase
Bypass Voltage, per phase
Load (%), per phase

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

OUTPUT

Voltage (200/208/220)
Frequency (50Hz/60Hz)

BATTERY

Battery String
Battery Capacity

PARALLEL MODE

Parallel Mode
(Enable/Disable(Single))

UPS ID

Redundancy (+1, +2, ..., +5)
Operation Mode (Redundancy
Power Increase)

COMMAND MENU

Priority (Online (Inverter) /Green (Bypass))
Battery Test (KEOR T 208 tests the battery automatically once each 90 days)
Maintenance (Rectifier, Inverter, Bypass, Load Supply – YES/NO)

RELAY FUNCTIONS

Relay 1 (General Alarm as standard. Can be adjusted from 7 different alarms)

Relay 2 (Input Failure as standard. Can be adjusted from 7 different alarms)

Relay 3 (Battery Failure as standard. Can be adjusted from 7 different alarms)

Relay 4 (Output Failure as standard. Can be adjusted from 7 different alarms)

OPTIONS

Alarm Voice (Enable/Disable)
Key Voice (Enable/Disable)
Warning Window (Enable/Disable)

OTHER

Display Brightness (0 to 100)
Emergency Power Off (NC/NO)
Generator Mode (NC/NO)
ModBus ID
Time (hh:mm. Required for Event Log stamp)
Date (dd:mm:yyyy. Required for Event Log stamp)
Language (English)

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KEOR T 208V 40 – 50 - 60 kVA

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2. TECHNICAL SPECIFICATIONS

1. General specifications

Model	40	50	60
UPS Topology	On line double conversion VFI SS 111		
Architecture of the UPS	Stand alone, transformerless, On-Site Paralleling		
In/Out phase Configuration	Three phase-Three phase		
Neutral	Neutral Passing through		
Switching Technology	3-Level IGBT		
Backfeed Protection	Internal, standard		
Output wave form on mains operation	Sinusoidal		
Output wave form on battery operation	Sinusoidal		
Standards	EN 62040-1, EN 62040-2, EN 62040-3		

2. Input

Nominal Voltage	208V 3ph+N+PE
Voltage Range	176 – 239V Ph-Ph full load 108 - 239 V Ph-Ph half load
Frequency	45 - 65Hz
THDin	< 5% at full load
Power Factor	> 0.99

3. Bypass

Nominal Voltage	208V 3ph+N+PE
Voltage Range	200/208/220V -18% +15% (adjustable)
Frequency	47-53Hz or 57-63Hz (adjustable)
Bypass Type	Static and Electro-mechanic
Transfer Time	Zero
Manual Bypass	Built-in

4. Output with mains (AC-AC)

4. Output with mains (AC-AC)			
Nominal Voltage	200, 208, 220V 3ph+N+PE		
Nominal Power (KVA)	40	50	60
Active Power (KW)	36	45	54
Voltage variation (static)	± 1%		
THDv on nominal power (linear load)	< 2%		
THDv on nominal power (non-linear load)	< 4%		
Frequency	50 Hz or 60 Hz (selectable)		
Frequency tolerance	± 0,1% Synchronized with input frequency		
Current Crest Factor	2.5:1 accordingly to IEC 62040-3		
Overload capability:			
10 min	125% load with no bypass		
60 sec	150% load with no bypass		

5. Output on battery (DC-AC)

Model	40	50	60
Nominal Voltage	200, 208, 220 3ph+N+PE		
Nominal Power (KVA)	40	50	60
Active Power (KW)	36	45	54
Voltage variation (static)	± 1%		
THDv on nominal power (linear load)	< 2%		
THDv on nominal power (non-linear load)	< 4%		
Frequency	50 Hz or 60 Hz (selectable)		
Frequency tolerance	± 0,01% free run		
Current Crest Factor	2.5:1 accordingly to IEC 62040-3		
Overload capability:			
10 min	125% load with no Bypass		
60 sec	150% load with no Bypass		

6. Battery

Type	Lead Acid, sealed, free maintenance VRLA		
Unit Capacity	7 or 9 Ah (12V)		
Nominal UPS Battery Voltage	±204 Vdc (max ±216 Vdc)		
Nominal n. of possible internal battery	0		
Battery charger type	IGBT Rectifier also charges batteries		
Charging Cycle	Intelligent with boost charge and advanced management"		
Max Charging Current without derating	6A	7A	8A

7. Environmental specs

Noise level @ 1m (50% load)	< 58dBA
Operating temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C
Humidity range	20-95% not condensing
Protection degree	IP20

8. Mechanical and miscellaneous

Net Weight without batteries ¹	317Kg	348Kg	365Kg
Dimensions (HxW xD)	1650*600*980mm		1650*793*800mm
Colour	Enclosure: RAL 7016 Front Door Metal: RAL 9005		
Communication Interface	1 serial port RS232, 1 RS485, 1 smart port for internal SNMP, 4 Dry Contacts, 1 EPO, 1 GENSET		
Input/Output connections	3Ph + N + PE		

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