



Generator engineered and designed to work in a wide variety of applications where temporary power supply is needed. Versatility, high efficiency, high structural resistance, high degree of protection and low noise emissions together with easy-to-use and easy access for maintenance make these generator sets the ideal solution for Rental companies.

## Power Rating

|                   |            |         |
|-------------------|------------|---------|
| Frequency         | Hz         | 50      |
| Voltage           | V          | 400/231 |
| Phases            | Nº         | 3       |
| Power factor      | cos $\phi$ | 0.8     |
| Standby power LTP | kVA        | 66.00   |
| Standby power LTP | kW         | 52.80   |
| MAX current       | A          | 95      |
| Prime power PRP   | kVA        | 60.00   |
| Prime power PRP   | kW         | 48.00   |
| NOMINAL current   | A          | 87      |



## Ratings definition (According to standard ISO8528 1:2005)

### PRP - Prime Power:

It is defined as being the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year under the agreed operating conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output over 24 h of operation shall not exceed 70 % of the prime power.

### LTP - Limited-Time running Power:

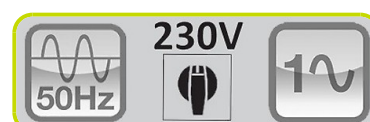
It is defined as the maximum power available, under the agreed operating conditions, for which the generating set is capable of delivering for up to 500 h of operation per year (whose no more than 300 for continuative use) with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. No overload capability is available.

**Power supply 50Hz 230V Three Phase (with supplement VSS)**

|                   |            |       |
|-------------------|------------|-------|
| Frequency         | Hz         | 50    |
| Voltage           | V          | 230   |
| Phases            | Nº         | 3     |
| Power factor      | cos $\phi$ | 0.8   |
| Standby power LTP | kVA        | 66.00 |
| Standby power LTP | kW         | 52.80 |
| MAX current       | A          | 166   |
| Prime power PRP   | kVA        | 60.00 |
| Prime power PRP   | kW         | 48.00 |
| NOMINAL current   | A          | 151   |

**Power supply 50Hz 230V Single Phase (with supplement VSS)**

|                   |            |       |
|-------------------|------------|-------|
| Frequency         | Hz         | 50    |
| Voltage           | V          | 230   |
| Phases            | Nº         | 1     |
| Power factor      | cos $\phi$ | 1     |
| Standby power LTP | kVA        | 40.00 |
| Standby power LTP | kW         | 40.00 |
| MAX current       | A          | 174   |
| Prime power PRP   | kVA        | 36.00 |
| Prime power PRP   | kW         | 36.00 |
| NOMINAL current   | A          | 157   |

**Power supply 60Hz 480V Three Phase (with supplement DFS)**

|                      |            |       |
|----------------------|------------|-------|
| Frequency            | Hz         | 60    |
| Voltage              | V          | 480   |
| Phase and connection | Nº         | 3     |
| Power factor         | cos $\phi$ | 0.8   |
| Standby power LTP    | kVA        | 75.30 |
| Standby power LTP    | kW         | 60.24 |
| MAX current          | A          | 91    |
| Prime power PRP      | kVA        | 67.45 |
| Prime power PRP      | kW         | 53.96 |
| NOMINAL current      | A          | 81    |

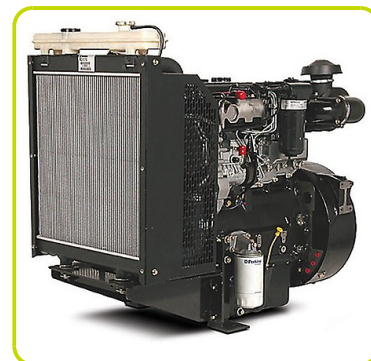
**Power supply 60Hz 208V Three Phase (with supplement VSS)**

|                      |            |       |
|----------------------|------------|-------|
| Frequency            | Hz         | 60    |
| Voltage              | V          | 208   |
| Phase and connection | Nº         | 3     |
| Power factor         | cos $\phi$ | 0.8   |
| Standby power LTP    | kVA        | 71.50 |
| Standby power LTP    | kW         | 57.20 |
| MAX current          | A          | 198   |
| Prime power PRP      | kVA        | 65.00 |
| Prime power PRP      | kW         | 52.00 |
| NOMINAL current      | A          | 180   |



## Engine specifications

|                                             |                 |      |
|---------------------------------------------|-----------------|------|
| Engine manufacturer                         | Perkins         |      |
| Model                                       | 1104D-44TG2     |      |
| Engine cooling system                       | Water           |      |
| Nr. of cylinder and disposition             | 4 in line       |      |
| Displacement                                | cm <sup>3</sup> | 4400 |
| Aspiration                                  | Turbocharged    |      |
| Speed governor                              | Electronic      |      |
| Oil capacity                                | l               | 8    |
| Lube oil consumption @ PRP (max)            | %               | 0.15 |
| Coolant capacity                            | l               | 16.5 |
| Electric circuit                            | V               | 12   |
| VERSION SWITCHABLE [50/60Hz]                | YES             |      |
| ENGINE DATA                                 | Hz              | 50   |
| [50Hz] Operating Speed-Nominal              | rpm             | 1500 |
| [50Hz] Exhaust emission level               | Stage IIIA      |      |
| [50Hz] Specific fuel consumption @ 75% PRP  | g/kWh           | 232  |
| [50Hz] Specific fuel consumption @ 100% PRP | g/kWh           | 235  |
| ENGINE DATA                                 | Hz              | 60   |
| [60Hz] Operating Speed-Nominal              | rpm             | 1800 |
| [60Hz] Specific fuel consumption @ 75% PRP  | g/kWh           | 246  |
| [60Hz] Specific fuel consumption @ 100% PRP | g/kWh           | 243  |



## Engine Equipment

### Standards

The above ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS 5514/1

### Fuel system

Rotary type pump

### Lube oil system

Wet steel sump with filler and dipstick

### Filter

- Fuel filter
- Air filter
- Oil filter

### Cooling system

- Mounted radiator
- Thermostatically-controlled system with belt driven coolant pump and pusher fan

## Alternator Specifications Switchable

|                           |                |          |
|---------------------------|----------------|----------|
| Brand                     | LEROY<br>SOMER |          |
| Model                     | LSA 42.3 L9    |          |
| Type                      | Brushless      |          |
| Class                     | H              |          |
| IP protection             | 23             |          |
| Winding insulation        | Protection     | System 2 |
| Poles                     | 4              |          |
| Winding leads             | 12             |          |
| Voltage regulation system | Electronic     |          |
| Standard AVR              | R 438          |          |
| Voltage tolerance         | %              | 0.5      |



### SPECIALLY ADAPTED TO APPLICATIONS

The LSA 42.3 alternator is designed to be suitable for typical generator applications, such as: backup, marine applications, rental, telecommunications, etc.

### TOP OF THE RANGE ELECTRICAL PERFORMANCE

- Class H insulation.
- Standard 12 wire re-connectable winding, 2/3 pitch, type no. 6.
- Voltage range:
  - 50 Hz: 220 V - 240 V and 380 V - 415 V
  - 60 Hz: 208 V - 240 V and 380 V - 480 V
- High efficiency and motor starting capacity.
- R 791 interference suppression conforming to standard EN 55011 group 1 class B standard for European zone (CE marking).

### EXCITATION AND REGULATION SYSTEM

- Excitation system: AREP
- Voltage A.V.R.: R 438

### REINFORCED MECHANICAL STRUCTURE

- Compact rigid assembly to better withstand generator vibrations.
- Steel frame.
- Aluminium flanges and shields.
- single-bearing designed to be suitable for heat engines.
- Half-key balancing bearing.
- Permanently greased bearing (20 000h).

### PROTECTION SYSTEM SUITED TO THE ENVIRONMENT

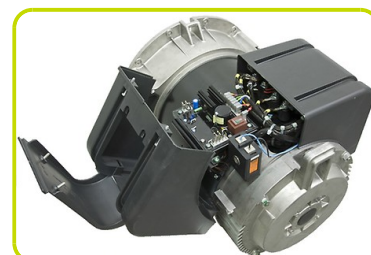
- The LSA 42.3 is IP 23.
- Winding Protection Standard: for clean environments with relative humidity  $\leq 95\%$ , including indoor marine environments.
- Winding Protection System 2: reinforced insulation for tropical environment (abrasive atmosphere), rental (except for coastal area), relative humidity  $> 95\%$

### COMPLIANT WITH INTERNATIONAL STANDARDS

The LSA 42.3 alternator conforms to the main international standards and regulations:  
- IEC 60034, NEMA MG 1.32-33, ISO 8528-3, CSA C22.2 n°100-14, UL 1146 (UL 1004 on request), marine regulations, etc.

It can be integrated into a CE marked generator.

The LSA 42.3 is designed, manufactured and marketed in an ISO 9001 environment and ISO 14001.



### CANOPY

Canopy painted in RAL9016 made up of modular panels with 1000h+ tested salt spray resistant zinc metal sheet, with access doors on each side with high quality gaskets and lockable handles for easy maintenance and service.

### SUPER SILENT

Soundproofing by means washable and fireproof soundproofing material, to get noise attenuation - max 75B(A)@1m.

Exhaust silencer integrated in the genset shape with flat rain flap.

### BASE FRAME

Heavy duty base guarantees the highest standards of durability and resistance, painted using a high quality powder coating process (1000+h tested salt spray resistance).

Fully bundled, able to retain 110% of all the sets fluids, the base frame is provided with integrated fork pockets and pull bar for easy maneuverability and site positioning.

### FUEL TANK

Integrated metal fuel tank complete with double fuel refilling point (one each side)

### LEAK PROOF TRAY WITH DETECTOR SENSOR

Fluid leak check in the leak proof tray .

### FUEL VALVE (6 WAY)

System designed for use the fuel from external tank and increase the autonomy of the generator

### LUBE OIL DRAIN PUMP

Makes it easier to the engine oil change

### SINGLE LIFTING POINT

Access easy by rung and handle incorporated (available on both sides)

### PLASTIC BUMPER

Protections for the transport and stocking

### MANUAL BATTERY SWITCH

### EARTH ROD

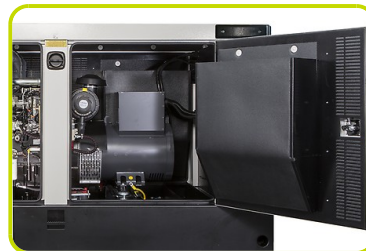
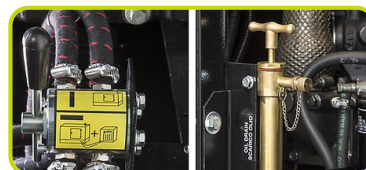
Earth stock with cable fixed inside the genset

### INTERNAL LIGHTING

Internal lighting with switch: for control operations or maintenance engine/alternator.

### DOCS HOLDER

Box internal for documents, manuals and electrical drawings



### Dimensional data

|                    |        |       |
|--------------------|--------|-------|
| Length             | (L) mm | 3460  |
| Width              | (W) mm | 1200  |
| Height             | (H) mm | 1950  |
| Dry weight         | Kg     | 2250  |
| Fuel tank material |        | Metal |
| Fuel tank capacity | l      | 500   |



### Autonomy

|                                    |     |       |
|------------------------------------|-----|-------|
| [50Hz] Fuel consumption @ 75% PRP  | l/h | 11.60 |
| [50Hz] Fuel consumption @ 100% PRP | l/h | 15.58 |
| [50hz] Running time @ 75% PRP      | h   | 43.10 |
| [50Hz] Running time @ 100% PRP     | h   | 32.09 |
| [60Hz] Fuel consumption @ 75% PRP  | l/h | 13.74 |
| [50Hz] Fuel consumption @ 100% PRP | l/h | 17.96 |
| [60hz] Running time @ 75% PRP      | h   | 36.39 |
| [60Hz] Running time @ 100% PRP     | h   | 27.84 |



### Noise level Rent 50Hz (2000-14)

|                              |       |    |
|------------------------------|-------|----|
| Guaranteed noise level (LWA) | dB(A) | 90 |
| Noise pressure level @ 1 mt  | dB(A) | 72 |
| Noise pressure level @ 7 mt  | dB(A) | 61 |



### Installation data

|                                      |        |      |
|--------------------------------------|--------|------|
| [50Hz] Exhaust gas flow @ PRP        | m³/min | 11.5 |
| [50Hz] Exhaust gas temperature @ LTP | °C     | 560  |
| [60Hz] Exhaust gas flow @ PRP        | m³/min | 13.5 |
| [60Hz] Exhaust gas temperature @ LTP | °C     | 598  |

### Control panel availability

|                         |     |
|-------------------------|-----|
| MANUAL CONTROL PANEL    | MCP |
| AUTOMATIC CONTROL PANEL | ACP |
| MODULAR PARALLEL PANEL  | MPP |

## MCP - Manual Control Panel

Mounted on the genset, complete with digital control unit (InteliNanoNT Plus) for monitoring, control and protection of the generating set, protected through doors with lockable handle.

### CONTROL SECTION

- ON/OFF selector switch
- Emergency push button
- Differential protection with internal switch
- 5A Battery charger.
- Potentiometer for voltage adjustment (internal)
- Alternator AVR (single plug wiring)
- Internal lighting with automatic switch on control section door

- Control unit InteliNanoNT Plus
- Biggest LCD screen
- Generating set voltage (3 phases).
- Generating set frequency.
- Generating set current (1 phases).
- Battery voltage, Service time and Running hours indication
- Remote start/stop from external signal

#### Protection:

- Low fuel level
- Battery charger failure
- low oil pressure
- high engine temperature

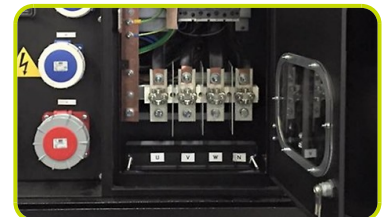
- Extra Instrumentation (analogue)
- Voltmeter with selector switch (3 phases)
- Ammeters (n.3)
- Hours-counter
- Engine water temperature
- Engine oil pressure
- Fuel level meter
- Mechanical hour counter

### POWER SECTION

- It integrates 4 poles modular circuit breaker suitably rated with thermal and magnetic overloads.
- Large and robust busbar (SOCOME Type 2) with cables passage opening from the bottom for easy power cable connection.
- Provided with safety switch to trip circuit breaker if operator open the power section door to operate on the bus bar.

### SOCKET SECTION

|                                                        |   |   |
|--------------------------------------------------------|---|---|
| • Two wires facility for remote start/stop             | ✓ |   |
| • Plug for auxiliary power supply                      | ✓ |   |
| • Sochet Kit                                           | : |   |
| 3P+N+T 400V 125A                                       | n | 1 |
| 3P+N+T 400V 63A                                        | n | 1 |
| 3P+N+T CEE 400V 32A                                    | n | 1 |
| 3P+N+T CEE 400V 16A                                    | n | 1 |
| 2P+T CEE 230V 16A                                      | n | 1 |
| 230V 16A SCHUKO                                        | n | 1 |
| Each socket with its own circuit breaker               | ✓ |   |
| Common differential protection for three phase sockets | ✓ |   |
| Each single phase provided with earth fault protection | ✓ |   |



## ACP - Automatic Control Panel

Mounted on the genset, complete with digital control unit (AC-03) for monitoring, control and protection of the generating set, protected through doors with lockable handle.

### CONTROL SECTION

- ON/OFF selector switch
- Emergency push button
- Differential protection with internal switch
- 5A Battery charger.
- Potentiometer for voltage adjustment (internal)
- Alternator AVR (single plug wiring)
- Internal lighting with automatic switch on control section door
- Control unit ( AC-03)
  - Generating set: Voltage, Current, Frequency.
  - Generating set Power (kVA - kW - kVA<sub>r</sub> - Cos  $\phi$ ).
  - Mains: voltage.
  - Hours-counter.
  - Battery voltage.
  - Engine speed r.p.m.
  - Fuel level (%), Engine temperature, Oil Pressure

Command and others:

- Four operation modes: OFF - Manual starting - Automatic starting - Automatic test.
- Pushbutton for forcing Mains contactor or Genset contactor.
- Push-buttons: start/stop, fault reset, up/down/page/enter selection.
- Acoustic alarm.
- RS232 Communication port.

Protections:

- Engine protections: low fuel level, low oil pressure, high engine temperature,
- Genset protection: under/over voltage, overload, under/over battery voltage, battery charger failure.

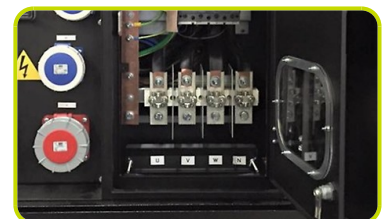
- Extra Instrumentation (analogue)
  - Engine water temperature
  - Engine oil pressure
  - Fuel level meter
  - Mechanical hour counter

### POWER SECTION

- It integrates 4 poles modular circuit breaker suitably rated with thermal and magnetic overloads.
- Large and robust busbar (SOCOME Type 2) with cables passage opening from the bottom for easy power cable connection.
- Provided with safety switch to trip circuit breaker if operator open the power section door to operate on the bus bar.

### SOCKET SECTION

|                                                        |   |   |
|--------------------------------------------------------|---|---|
| • Multipin connector for LTS                           |   | ✓ |
| • Two wires facility for remote start/stop             |   | ✓ |
| • Plug for auxiliary power supply                      |   | ✓ |
| • Sochet Kit                                           |   | : |
| 3P+N+T 400V 125A                                       | n | 1 |
| 3P+N+T 400V 63A                                        | n | 1 |
| 3P+N+T CEE 400V 32A                                    | n | 1 |
| 3P+N+T CEE 400V 16A                                    | n | 1 |
| 2P+T CEE 230V 16A                                      | n | 1 |
| 230V 16A SCHUKO                                        | n | 1 |
| Each socket with its own circuit breaker               |   | ✓ |
| Common differential protection for three phase sockets |   | ✓ |
| Each single phase provided with earth fault protection |   | ✓ |



## MPP - Modular Parallel Panel

Mounted on the genset, complete with digital control unit IntelliVision5 for monitoring, control, protection and load sharing for both single and multiple gen-sets operating in standby or parallel modes (up to 32 gen-sets in island).

### CONTROL SECTION

- ON/OFF selector switch
- Emergency push button
- Differential protection with internal switch
- 5A Battery charger.
- Potentiometer for voltage adjustment (internal)
- Alternator AVR (single plug wiring)
- Internal lighting with automatic switch on control section door
- Control Unit IntelliVision5 (5,7" Colour TFT display 320×240 pixels)

#### Majors Measures Available:

- Generating set: Voltage, Current, Frequency, Hours-counter
- Generating set Power: kVA, kW, kVAr, Cos  $\phi$ , kWh, kVAh.
- Mains: Voltage, Current, Frequency, kW, kVAr, Cos  $\phi$ .
- Engine: Speed (r.p.m.), Temperature, Oil Pressure
- Fuel level, Battery voltage

#### Comand and Others:

- Operation modes: OFF, AMF function, Single Parallel to mains Island application, Single Parallel to Mains AMF application, Multiple parallel genset Island application.

- Pushbuttons: start/stop, fault reset, up/down/page/enter selection.
- Acoustic alarm.

#### Protection:

- Engine protections: low fuel level, low oil pressure, high engine temperature.
- Genset protections: under/over voltage, overload, under/over frequency, starting failure, under/over battery voltage
- Others: overcurrent, shortcircuit, reverse power, Earth fault

#### • Extra Instrumentation (analogue)

- Engine water temperature
- Engine oil pressure
- Fuel level meter
- Mechanical hour counter

### POWER SECTION

- It integrates 4 poles motorized moulded case circuit breaker suitably rated with thermal and magnetic overloads
- Large and robust busbar (SOCOME Type 2) with cables passage opening from the bottom for easy power cable connection.
- Provided with safety switch to trip circuit breaker if operator open the power section door to operate on the bus bar.

### SOCKET SECTION

|                                                        |   |   |
|--------------------------------------------------------|---|---|
| • Multi-pin connectors for paralle running             | ✓ |   |
| • Multipin connector for LTS                           | ✓ |   |
| • Two wires facility for remote start/stop             | ✓ |   |
| • Plug for auxiliary power supply                      | ✓ |   |
| • Sochet Kit                                           | : |   |
| 3P+N+T 400V 125A                                       | n | 1 |
| 3P+N+T 400V 63A                                        | n | 1 |
| 3P+N+T CEE 400V 32A                                    | n | 1 |
| 3P+N+T CEE 400V 16A                                    | n | 1 |
| 2P+T CEE 230V 16A                                      | n | 1 |
| 230V 16A SCHUKO                                        | n | 1 |
| Each socket with its own circuit breaker               | ✓ |   |
| Common differential protection for three phase sockets | ✓ |   |
| Each single phase provided with earth fault protection | ✓ |   |



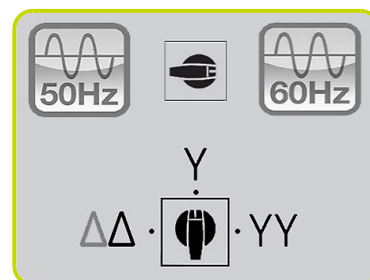
## Supplements:

Only Available when order

:

### GENSET CONTROL EQUIPMENT

|                                                                |                                                                              |      |
|----------------------------------------------------------------|------------------------------------------------------------------------------|------|
| Dual Frequency Switch (50/60Hz)                                | Y400/230V 50Hz<br>Y480/277V 60Hz                                             | DFS  |
| Voltage Selector Switch 2 postions (only with ACP/MPP and DFS) | Y400/230V 50Hz<br>Y480/277V 60Hz<br>YY208/120V 60Hz                          | VSS1 |
| Voltage Selector Switch 3 postions (only with ACP/MPP and DFS) | Y400/230V 50Hz<br>$\Delta$ 230V 3P 50Hz<br>Y480/277V 60Hz<br>YY208/120V 60Hz | VSS2 |
| Voltage Selector Switch 2 positions (only with ACP and DFS))   | Y400/230V 50Hz<br>$\Delta\Delta$ 230V 1P 50Hz<br>Y480/277V 60Hz              | VSS3 |
| Voltage Selector Switch 2 postions (only with ACP/MPP and DFS) | Y400/230V 50Hz<br>$\Delta$ 230V 3P 50Hz<br>Y480/277V 60Hz                    | VSS4 |



### ELECTRICAL OPTION

|                                                                         |                 |        |
|-------------------------------------------------------------------------|-----------------|--------|
| Remote control trough IL-NT-GPRS + ANTENNA                              | (only with ACP) | RCG 16 |
| Free Voltage Contacts with module IL-NT-EFCPM2+IR-B8 relay board        | (only with ACP) | TLP 6  |
| Remote control trough with InternetBridge-NT                            | (only with MPP) | RCG 13 |
| Free Voltage Contacts with module IGS-PTM +IR-B8 relay board            | (only with MPP) | TLP 4  |
| Differential Protection type B                                          |                 | ADI-B  |
| Insulation Monitoring Device (Replace standard differential protection) |                 | IMD    |
| Socket Section Customized                                               |                 | SPKS   |



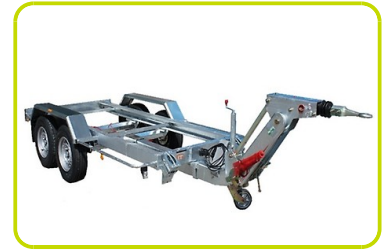
### MECHANICAL OPTION

|                                        |      |
|----------------------------------------|------|
| Pre-heating system                     | PHS  |
| Quick Fit Fuel connectors              | QFC  |
| Quick Fit Connectors inside the canopy | QFC1 |
| Water Separator Filter                 | WSP  |
| Heavy-DUTY Air Filter                  | HDF  |
| Hot Parts Protections                  | HPP  |
| Exhaust Spark Arestor ATEX certified   | ESA  |
| Air Shut-Off Valve                     | ASV  |
| Baseframe Bumpers                      | BFB  |
| Galvanized Sliding Skid                | GGS  |



## Accessories

|                                                   |   |
|---------------------------------------------------|---|
| Items available as accessory equipment            | : |
| RTR-B Road Trailer with Drawbar Height-Adjustable | • |
| RTR - Road Trailer                                | • |
| STR - Site trailer                                | • |



## LTS - LOAD TRANSFER SWITCH - Accessories ACP

The Load Transfer Switch (LTS) panel operates the power supply changeover between the generator and the Mains in backup applications, guarantying the feeding to the load within a short period of time.

It consists of a standalone cabinet which can be installed separate from the generating set. The logic control of the power supply changeover is operated by means of the Automatic Control panel mounted on the generating set, so therefore none logic device is required on the LTS panel.



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