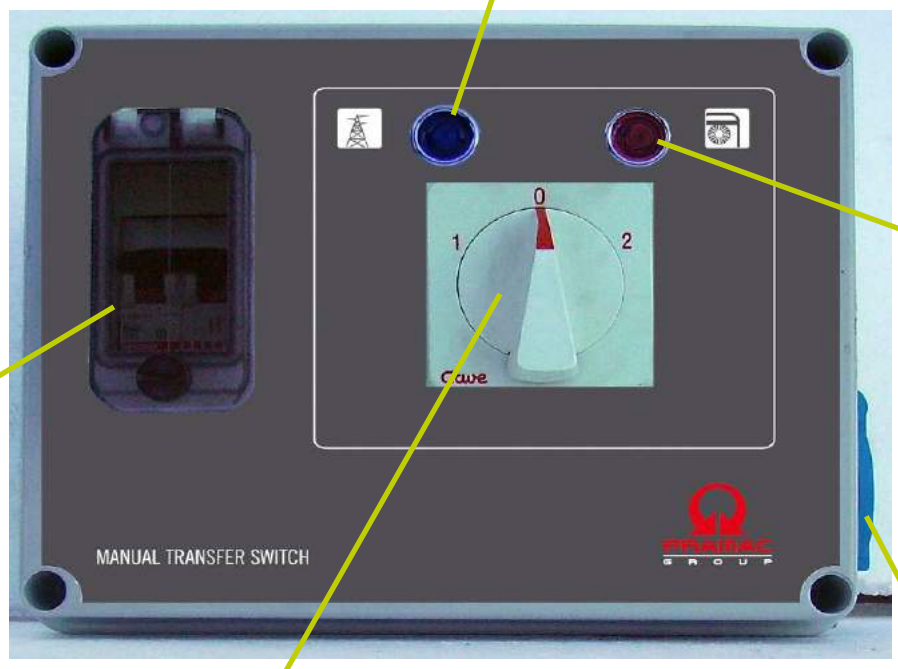
MANUAL TRANSFER SWITCH



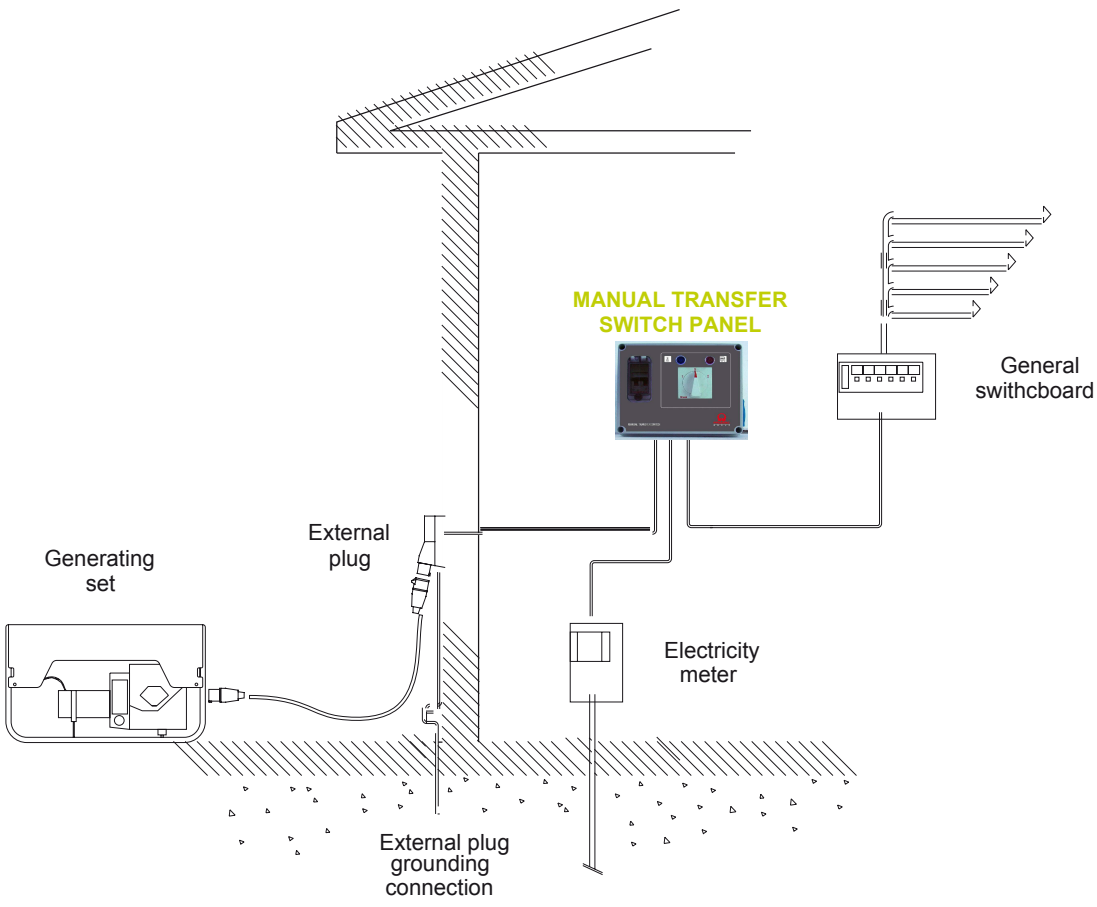
Led indicating electric grid voltage

Led indicating generating set voltage

Magneto Thermal Protection for the protection of the generating set

Schuko socket 230V 16A

Line switch
- Position 1: select the electric source "generating set"
- Position 0: no electric source has been selected
- Position 2: select the electric source "power grid"



Manual of Instructions for Use and Maintenance

English

"MTS" PANEL FOR MANUAL TRANSFER SWITCHING

*Document in the original language (**Italian**)*

Handling or using the product, or parts thereof, without having rst read and comprehended the contents of this manual is prohibited.

This manual must always accompany the product.

English

General contents

Introduction

Thank you for having purchased this product.
Before proceeding with the installation, use or maintenance of the product, please carefully read this manual and strictly observe all safety precautions contained herein.
This manual provides all indications necessary to guarantee the correct installation and proper use of the product, in conditions that ensure user safety. Moreover, observance of the indications herein contained allows for optimal product performance and guarantees said performance over time, by means of simple periodical maintenance procedures.

General warnings

Product installation procedures require appropriate technical quali cation on the part of the personnel and familiarity with some commonly used tools. In case of doubts, dif culty in comprehending this manual, or need for assistance, please contact the product retailer.
The majority of accidents occurring during the installation, use or maintenance of machines and equipment are the result of failure to observe the most elementary safety rules and underestimating the potential danger of a given situation.
The owner and personnel using the machine must pay maximum attention to any potentially hazardous situation.

Improper product use or failure to observe the instructions contained in this manual may lead to serious injury to persons or animals and/or damage to property.

The Manufacturer cannot foresee all possible situations that may entail risks during actual product operation and conditions of use. For this reason, the warnings contained in this manual cannot comprise all possible potentially hazardous conditions. If equipment and methods not expressly recommended by the Manufacturer are used during the various operations, it is indispensable to verify that the work is in any case carried out within the limits of the personal safety of operating personnel and of third parties. Moreover, it is important to verify that the product is not damaged or rendered unsafe due to improper installation, use or maintenance on behalf of the user.
The fundamental precautions to be adopted are described in **Chapter 2 "General safety information"** of this manual.

Safety symbols

Additional information is provided, as required, within the description of operations that may entail speci c risks:

DANGER
Warnings preceded by this symbol expressly relate to imminent danger, with the possibility of serious physical injury to persons or risk of death.

WARNING
Warnings preceded by this symbol expressly relate to hazards, with the possibility of serious physical injury to persons and product damages, and the consequent degeneration of required safety conditions.

NOTE
Warnings preceded by this symbol focus reader attention on important information, mainly of a technical nature.

Additional information is provided, as required, within the description of operations that may entail speci c risks.

English

1 General product information

1.1 Identi cation

Manufacturer

PRAMAC S.p.A.

District of Il Piano
I-53031 Casole d'Elsa (SI) – Italy

Telephone +39 0577 9651
Fax +39 0577 925011
E-mail info@pramac.com
Web site www.pramac.com

VAT code no.01012470520
Registration in the Court of Siena
Economic Register of Companies no.113563
Siena Chamber of Commerce no.01012470520

Model

The trade name that identi es the product is: **MTS Panel for manual electric switching**.

Used with a compatible generating set and connected to the power grid, the "MTS" Panel enables the manual switching between the two sources of power. In case of power outages, it is possible to start the generating set (in the manners herein intended) and switch appropriately the "MTS" Panel so to provide electrical current to the strictly necessary users (Ex: household lightning), compatibly with the energy charge of the generating set.

1.2 Compatibility

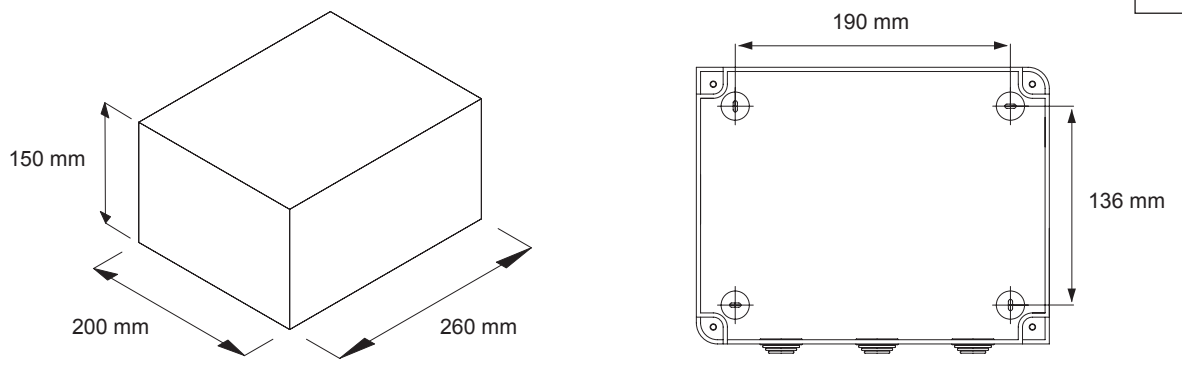
The "MTS" Panel may be used solely with the models of generating sets PRAMAC 220V up to 9 kW.

DANGER
Do not use the "MTS" Panel with generating sets other than those indicated.

1.3 Dimensions

Dimensions of the product (Figure 1):

Figure 1



1.4 Technical data

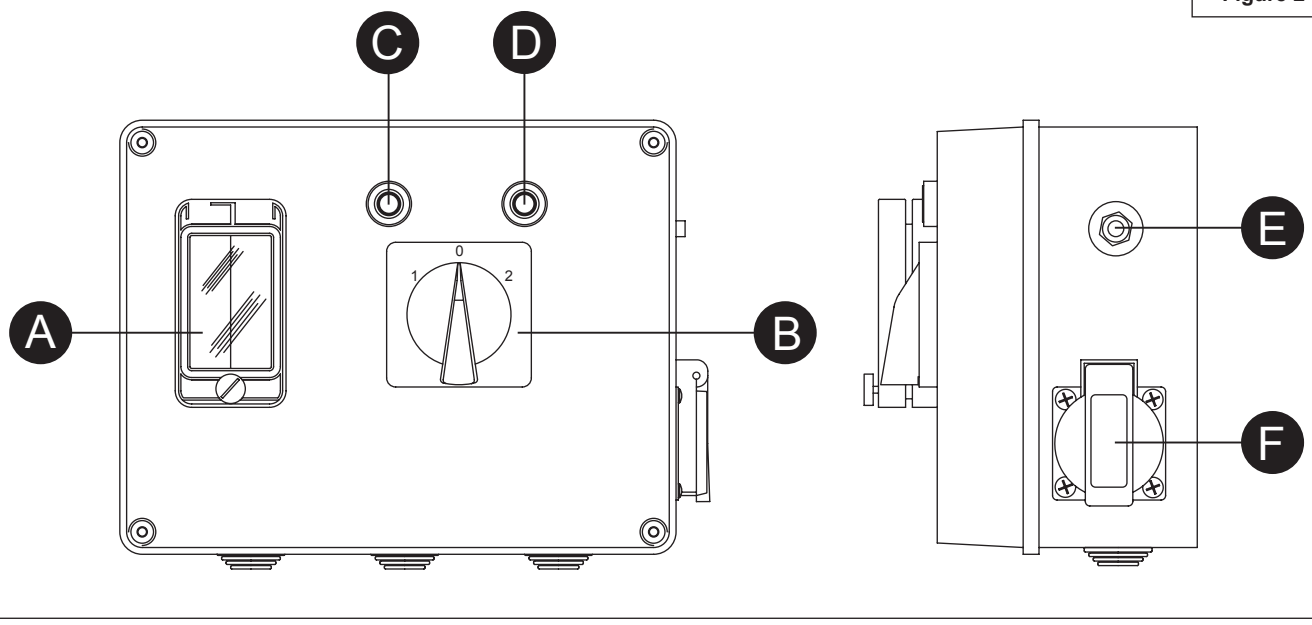
Working power	**40A**
Tension power	**230 Vac**
Protection level of the “MTS” Panel	**IP 65**
Power of line switch	**100A**
Power of magnetothermal switch for the protection of the generating set	**40A**
Power of thermal switch for the protection of the auxiliary inlet	**15A**
Type of the auxiliary inlet	**Schuko 230V - 16A**

English

1.5 Description of main components

The indications herein contained have the aim to be unequivocal, hence the description of the main components of the “MTS” Panel are the following (**Figure 2**):

Figure 2



Explanation:

A Magnetothermal switch for the protection of the generating set
B Line switch

- *Position 1:* select the electric source “generating set”
- *Position 0:* no electric source has been selected
- *Position 2:* select the electric source “power grid”

C Led indicating generating set voltage
D Led indicating electric grid voltage
E Magnetothermal switch for the protection of the auxiliary inlet
F Auxiliary inlet

2 General safety information

2.1 Permitted use

Used with a compatible generating set and connected to the power grid, the MTS Panel enables the manual switching between the two sources of power.
Any other use is explicitly prohibited and may result in user safety hazards and product damage.

2.2 Improper use

Improper use means any use other than those permitted (for which the MTS Panel has been designed), or use in any manner that is not intended or that is expressly prohibited.

DANGER
Improper product use is to be considered highly dangerous. The Manufacturer declines all liability for injury to persons or animals and/or damage to property deriving from improper product use.

2.3 Personnel requirements for installation

The MTS Panel is positioned between the electricity meter and the general power panel of the place of installation. The installation of the MTS Panel require quali ed personnel. Personnel must possess an adequate technical preparation must have entirely read and comprehended this manual.

DANGER
The installation of the product on behalf of non quali ed personnel is expressly prohibited. The manufacturer declines all liability for injury to persons or animals and/or damage to property deriving from improper installation of the product.

2.4 Precautions during installation

It is important to know the overall dimensions of the product in order to ensure the correct installation and the space required for the operations. It is indispensable to use tools in good conditions and to adopt individual precautions provided by local regulations.

DANGER
Contact with electrical current may result in serious injury for personnel or cause immediate death by electrocution.

2.5 Precautions during operation

- Do not smoke nor permit the presence of live ames or sparks in the proximity of the product.
- Do not use live ames as light sources to inspect the product.
- Never use gasoline, solvents or other in ammable uids to clean the product. Use only non- ammable and atoxic solvents.

- Never use water in case of electricity-caused res.

2.6 Product disposal instructions

Should it become necessary to dispose of the product or of its components at the end of product life cycle, the speci c criteria provided for by local regulations must be adopted.

The Manufacturer operates in compliance with the directives adopted by **European Community** member states.

Directive 2002/96/CE, relating to the disposal and recycling of waste electric and electronic equipment **(WEEE)**:

- The product is associated to the following symbol, indicating the need for differentiated waste collection:

- The product may not be disposed of like urban waste. The construction materials must be appropriately selected, differentiated and transferred to speci c material collection and disposal centres created by local authorities. Failure to comply with these instructions may result in administrative and criminal sanctions.

- The user may return the product, free of charge, directly to the retailer, upon purchasing an equivalent product.

Directive 2002/95/CE*, relating to restrictions of the use of certain hazardous substances in electric and electronic equipment* **(RoHS)***:*

- Product components are compliant with the above Directive and, therefore, they do not contain noxious or hazardous substances in percentages exceeding tolerated limits.

- In case of re or of improper use of the product and/or product components, leakage of modest quantities of substances noxious to mankind and to the environment may occur.

3 Installation instructions

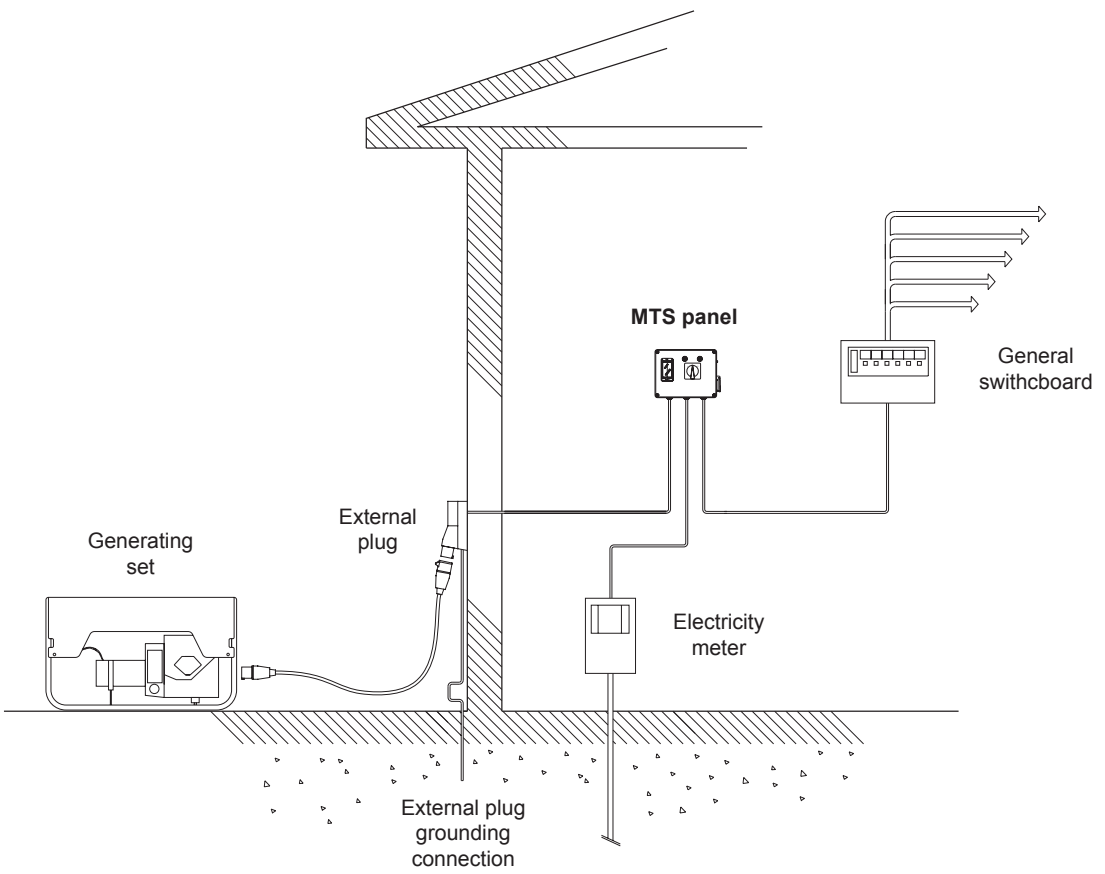
NOTE
Installation, use and maintenance procedures require appropriate technical quali cation on the part of the personnel. In case of doubts, dif culty in comprehending this manual, or need of assistance, please contact the product retailer.

NOTE
Before assembling the "MTS" Panel, verify compatibility with the generating set to be used (Chapter 1.2) and with the general power panel of the place of installation.

English

The following graph (***gure 3***) shows connection of the MTS panel to the generating set, to the electricity meter and to the general switchboard of the place of installation.

Figure 3



1. Identify a proper and easy to reach place where to install the wall mounted MTS panel, taking into account the needed power connections to be carried out (external plug to connect to generating set and its grounding connection, electricity meter and general switchboard connection).

2. Remove the upper cover of the MTS panel carefully, to avoid damaging the internal components and the relative power connections.

3. Four holes must be drilled on the wall and on the back of the MTS panel, taking care of the INTERASSE quota (as shown in ***Figure 1***) and afterwards fasten the MTS panel using proper xing brackets.

4. Temporarily insulate the installation place electrical system disconnecting it from the national power grid.

5. Disconnect the meter from the general switchboard of the place of installation, diverting the connection towards the MTS panel input as shown in ***Figure 4***.

6. Connect the switchboard of the installation place to the MTS panel output as shown in ***Figure 4***.

7. Connect the pre-set cable for the generating set to the input as shown in ***Figure 4***.

8. Re – assemble the MTS panel upper cover.

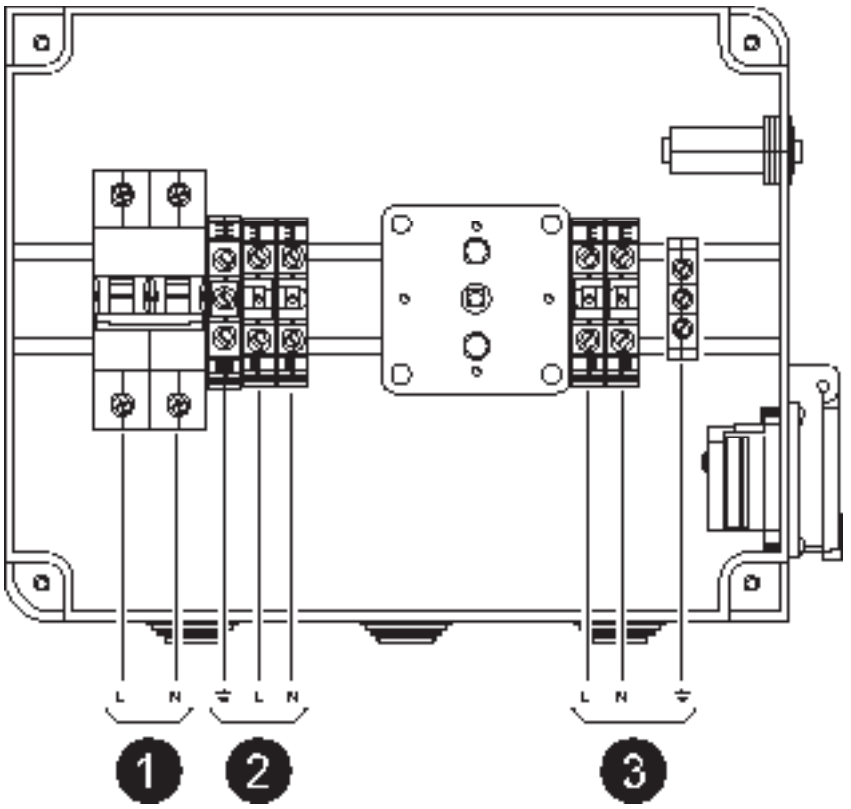
9. Reset the power grid connection of the place of installation to the national power grid.

DANGER
Carry out all needed connections in compliance with local legislation in respect of safety and security or power /electrical systems, using proper and certi cated materials, when required.

3.1 Electric connection

The following graph shows power connections for the MTS panel installation.

Figure 4



Legend:

1 Generating set input connection
2 Electricity meter input connection
3 Switchboard input connection

3.2 Veri cation procedures

WARNING
Veri cation implies sudden interruption of power supply to all devices connected to the grid of the place of installation, hence extreme attention is required to avoid accidental damages due to the aforementioned condition (i.e.: unexpected switching off of PCs or similar sensible equipments).

1. After installation, the led "**D**" (***Figure 2***) of the MTS panel will switch on and indicate the presence of main power grid voltage.
2. Any device which is not to be used must be disconnected from the electrical system of the place of installation. Veri cation can be carried out, for instance, when just the lightning system is connected (in accordance to the sustainable load the generating set can bear).
3. Set the MTS panel line commuter "**B**" (***Figure 2***) in position "**2**". All devices connected to the electrical system of the place of installation must be now properly fed and operating.
4. Engage the generating set on appropriate modes as provided for in its user and maintenance manual. The MTS panel led "**C**" (***Figure 2***) will switch on to indicate the presence of generating set voltage. Should this condition not take place, check status of the magentothermal switch "**A**" (***Figure 2***), which must be set on "ON" mode.
5. Interrupt power supply from the switchboard of the place of installation. All devices connected to the electrical system of the place of installation must not be fed and the MTS panel led "**D**" (***Figure 2***) will switch off and indicate absence of generating set voltage.
6. Set the MTS panel line commuter"**B**" (***Figure 2***) on position "**1**". All devices connected to the electrical system of the place of installation must be now properly fed and operating.
7. Connect an MTS panel auxiliary inlet "**F**" to a device, in accordance with the sustainable load the generating set can bear and check its functioning.
8. Set the MTS panel line commuter "**B**" (***Figure 2***) in position "**2**" again and switch the generating set off according to modes as provided for in its user and maintenance manual.
9. Connect again all devices to the electrical system of the place of installation.

Should one or more of the abovementioned conditions not take place, please check section " Troubleshooting" (***Ch. 5***).

4 Instructions for use

In case of interruption of power supply from the main electric grid, proceed according to the following modes:

1. Switch off any device which is not strictly needed for the functioning of the electrical system of the place of installation.
2. Start up the generating set in accordance with modes as provided for in its user and maintenance manual.
3. Set the MTS panel line commuter "**B**" (***Figure 2***) in position "**1**". All devices connected to the electrical system of the place of installation must be now properly fed and operating. If using the magnetothermal switch "**A**" (***Figure***

2) reduce the generating set load as much as possible, switching off all other devices and set the MTS panel magnetothermal switch "**A**" (***Figure 2***) on position "ON".

4. Wait for the power supply to be re-established from the main electric grid as shown by the MTS panel led "**D**" (***Figure 2***). If this condition takes place, set MTS panel line commuter "**B**" in position "**2**". All devices connected to the electrical system of the place of installation must be now properly fed and operating.

5. Stop the generating set on the modes provided for in its user and maintenance manual.

6. Connect again all devices to the electrical system of the place of installation.

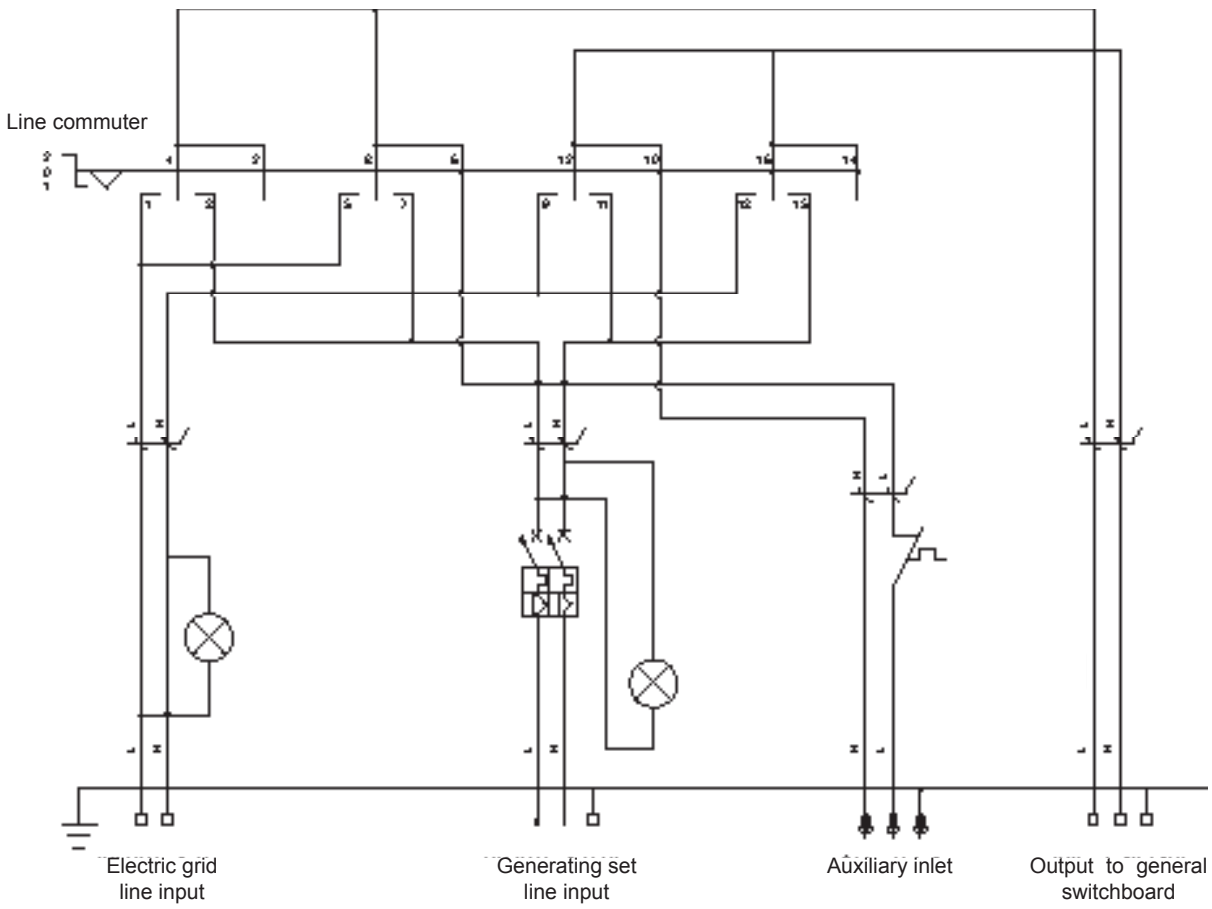
5 Troubleshooting

Symptoms	Causes	Solutions
The generating set is functioning, but the MTS panel is not indicating voltage from the generating set.	The generating set magnetothermal switch is positioned on "OFF" status.	Set the generating set magnetothermal switch on "ON" mode.
	The generating set electric connection cable to the MTS panel is damaged.	Stop using the generating set and the MTS panel and ask quali ed personnel for required intervention.
	The generating set is damaged.	Stop using the generating set immediately and ask for assistance of an authorised center.
The generating set is functioning, but it appears to be overloaded when connected to the MTS panel.	A short-circuit is taking place on all devices connected to the MTS panel electric system of the place of installation.	Stop using the generating set and the MTS panel and ask quali ed personnel for required intervention.
	The generating set is overloaded.	Reduce the load on the generating set by disconnecting all devices which are not extremely important.
The devices are not fed or functioning when the power supply from the main electric grid is re-established.	The MTS panel line commuter is not positioned in "1" mode.	Set the MTS panel line commuter on mode "1".
	One or more magnetothermal switches of the general switch-board of the place of installation are positioned on "OFF" mode.	Set relevant magnetothermal switches on mode "ON".

English

6 Wiring diagram

Figure 5



Line commuter

1-2	X		
3-4			X
5-6	X		
7-8			X
9-10	X		
11-12			X
13-14	X		
15-16			X