MICROIDEA

DIGITAL TRANSFER SWITCH - EVO

DTS-B / DTS-E
USER AND INSTALLATION MANUAL

V0.1-EN_29-01-2019 - FW 0.0

GB !!! WARNING !!!

- Carefully read the documentation before the installation or use.
- This equipment is to be installed by qualified personnel, complying to current standards, to avoid damages or safety hazards.
- Before any maintenance operation on the device, remove all the voltages from measuring and supply inputs and short-circuit the CT input terminals.
- The manufacturer cannot be held responsible for electrical safety in case of improper use of the equipment.
- Products illustrated herein are subject to alteration and changes without prior notice. Technical data and descriptions in the documentation are accurate, to the best of our knowledge, but no liabilities for errors, omissions or contingencies arising there from are accepted.
- A circuit breaker must be included in the electrical installation of the building. It must be installed close by the equipment and within easy reach of the operator.
  It must be marked as the disconnecting device of the equipment: IEC /EN 61010-1 § 6.11.2.
- Clean the device with a soft dry cloth; do not use abrasives, liquid detergents or solvents.

FR !!! ATTENTION !!!

- Lire attentivement le documentation avant toute utilisation et installation.
- Ces appareils doivent être installés par un personnel qualifié, conformément aux normes en vigueur en matière d'installations, afin d'éviter de causer des dommages à des personnes ou choses.
- Avant toute intervention sur l'instrument, mettre les entrées de mesure et d'alimentation hors tension et court-circuiter les transformateurs de courant.
- Le constructeur n'assume aucune responsabilité quant à la sécurité électrique en cas d'utilisation impropre du dispositif.
- Les produits décrits dans ce document sont susceptibles d'évoluer ou de subir des modifications à n'importe quel moment. Les descriptions et caractéristiques techniques du catalogue ne peuvent donc avoir aucune valeur contractuelle.
- Un interrupteur ou disjoncteur doit être inclus dans l'installation électrique du bâtiment. Celui-ci doit se trouver tout près de l'appareil et l'opérateur doit pouvoir y accéder facilement. Il doit être marqué comme le dispositif d'interruption de l'appareil : IEC/ EN 61010-1 § 6.11.2.
- Nettoyer l'appareil avec un chiffon doux, ne pas utiliser de produits abrasifs, detergents liquides ou solvants.

DE !!! ACHTUNG !!!

- Dieses Dokumentation vor Gebrauch und Installation aufmerksam lesen.
- Zur Vermeidung von Personen- und Sachschäden dürfen diese Geräte nur von qualifiziertem Fachpersonal und unter Befolgung der einschlägigen Vorschriften installiert werden.
- Vor jedemβEingriff am Instrument die Spannungszufuhr zu den Messeingängen trennen und die Stromwandler kurzschlie en.
- Bei zweckwidrigem Gebrauch der Vorrichtung übernimmt der Hersteller keine Haftung für die elektrische Sicherheit.
- Die in dieser Broschüre beschriebenen Produkte können jederzeit weiterentwickelt und geändert werden. Die im Katalog enthaltenen Beschreibungen und Daten sind daher unverbindlich und ohne Gewähr.
- In die elektrische Anlage des Gebäudes ist ein Ausschalter oder Trennschalter einzubauen.
  Dieser muss sich in unmittelbarer Nähe des Geräts befinden und vom Bediener leicht zugänglich sein. Er muss als Trennvorrichtung für das Gerät gekennzeichnet sein: IEC/ EN 61010-1 § 6.11.2.
- Das Gerät mit einem weichen Tuch reinigen, keine Scheuermittel, Flüssigreiniger oder Lösungsmittel verwenden.

ES !!! ADVERTENCIA !!!

- Leer atentamente las documentación antes de instalar y utilizar el regulador.
- Este dispositivo debe ser instalado por personal cualificado conforme a la normativa de instalación vigente a fin de evitar daños personales o materiales.
- Antes de realizar cualquier operación en el dispositivo, desconectar la corriente de las entradas de alimentación y medida, y cortocircuitar los transformadores de corriente.
- El fabricante no se responsabilizará de la seguridad eléctrica en caso de que el dispositivo no se utilice de forma adecuada.
- Los productos descritos en este documento se pueden actualizar o modificar en cualquier momento. Por consiguiente, las descripciones y los datos técnicos aquí contenidos no tienen valor contractual.
- La instalación eléctrica del edificio debe disponer de un interruptor o disyuntor. Éste debe encontrarse cerca del dispositivo, en un lugar al que el usuario pueda acceder con facilidad. Además, debe llevar el mismo marcado que el interruptor del dispositivo (IEC/ EN 61010-1 § 6.11.2).
- Limpiar el dispositivo con un trapo suave; no utilizar productos abrasivos, detergentes líquidos ni disolventes.

RO !!! AVERTIZARE !!!

- Citiţi cu atenţie documentaţie înainte de instalare sau utilizare.
- Acest echipament va fi instalat de personal calificat, în conformitate cu standardele actuale, pentru a evita deteriorări sau pericolele.
- Înainte de efectuarea oricărei operaţiuni de întreţinere asupra dispozitivului, îndepărtaţi toate tensiunile de la intrările de măsurare şi de alimentare şi scurtcircuitaţi bornele de intrare CT.
- Producătorul nu poate fi considerat responsabil pentru siguranţa electrică în caz de utilizare incorectă a echipamentului.
- Produsele ilustrate în prezentul sunt supuse modificărilor şi schimbărilor fără notificare anterioară. Datele tehnice şi descrierile din documentaţie sunt precise, în măsura cunoştinţelor noastre, dar nu se acceptă nicio răspundere pentru erorile, omiterile sau evenimentele neprevăzute care apar ca urmare a acestora.
- Trebuie inclus un disjunctor în instalaţia electrică a clădirii. Acesta trebuie instalat aproape de echipament şi într-o zonă uşor accesibilă operatorului. Acesta trebuie marcat ca fiind dispozitivul de deconectare al echipamentului: IEC/EN 61010-1 § 6.11.2.
- Curăţaţi instrumentul cu un material textil moale şi uscat; nu utilizaţi substanţe abrazive, detergenţi lichizi sau solvenţi.

IT !!! ATTENZIONE !!!

- Leggere attentamente la documentazione prima dell'utilizzo e l'installazione.
- Questi apparecchi devono essere installati da personale qualificato, nel rispetto delle vigenti normative impiantistiche, allo scopo di evitare danni a persone o cose.
- Prima di qualsiasi intervento sullo strumento, togliere tensione dagli ingressi di misura, di alimentazione e cortocircuitare i trasformatori di corrente.
- Il costruttore non si assume responsabilità in merito alla sicurezza elettrica in caso di utilizzo improprio del dispositivo.
- I prodotti descritti in questo documento sono suscettibili in qualsiasi momento di evoluzioni o di modifiche.
  Le descrizioni ed i dati a catalogo non possono pertanto avere alcun valore contrattuale.
- Un interruttore o disgiuntore va compreso nell'impianto elettrico dell'edificio. Esso deve trovarsi in stretta vicinanza dell'apparecchio ed essere facilmente raggiungibile da parte dell'operatore. Deve essere marchiato come il dispositivo di interruzione dell'apparecchio: IEC/ EN 61010-1 § 6.11.2.
- Pulire l'apparecchio con panno morbido, non usare prodotti abrasivi, detergenti liquidi o solventi.

CZ !!! UPOZORNĚNÍ !!!

- Dokumentace se pozorně přečtěte, než začnete instalovat a používat.
- Tato zařízení smí instalovat kvalifikovaní pracovníci v souladu s platnými předpisy a normami pro předcházení úrazů osob či poškození věcí.
- Před jakýmkoli zásahem do přístroje odpojte měřicí a napájecí vstupy od napětí a zkratujte transformátory proudu.
- Výrobce nenese odpovědnost za elektrickou bezpečnost v případě nevhodného používání regulátoru.
- Výrobky popsané v tomto dokumentu mohou kdykoli projít úpravami či dalším vývojem. Popisy a údaje uvedené v katalogu nemají proto žádnou smluvní hodnotu.
- Spínač či odpojovač je nutno zabudovat do elektrického rozvodu v budově. Musejí být nainstalované v těsné blízkosti přístroje a snadno dostupné pracovníku obsluhy. Je nutno ho označit jako vypínací zařízení přístroje: IEC/ EN 61010-1 § 6.11.2.
- Přístroj čistěte měkkou utěrkou, nepoužívejte abrazivní produkty, tekutá čistidla či rozpouštědla.

PL !!! UWAGA !!!

- Przed użyciem i instalacją urządzenia należy uważnie przeczytać dokumentacja.
- W celu uniknięcia obrażeń osób lub uszkodzenia mienia tego typu urządzenia muszą być instalowane przez wykwalifikowany personel, zgodnie z obowiązującymi przepisami.
- Przed rozpoczęciem jakichkolwiek prac na urządzeniu należy odłączyć napięcie od wejść pomiarowych i zasilania oraz zewrzeć zaciski przekładnika prądowego.
- Producent nie przyjmuje na siebie odpowiedzialności za bezpieczeństwo elektryczne w przypadku niewłaściwego użytkowania urządzenia.
- Produkty opisane w niniejszym dokumencie mogą być w każdej chwili udoskonalone lub zmodyfikowane. Opisy oraz dane katalogowe nie mogą mieć w związku z tym żadnej wartości umownej.
- W instalacji elektrycznej budynku należy uwzględnić przełącznik lub wyłącznik automatyczny. Powinien on znajdować się w bliskim sąsiedztwie urządzenia i być łatwo osiągalny przez operatora. Musi być oznaczony jako urządzenie służące do wyłączania urządzenia: IEC/ EN 61010-1 § 6.11.2.
- Urządzenie należy czyścić miękką szmatką, nie stosować środkow ściernych, płynnych detergentow lub rozpuszczalnikow.

RU !!! ПРЕДУПРЕЖДЕНИЕ !!!

- Прежде чем приступать к монтажу или эксплуатации устройства, внимательно ознакомьтесь одержанием настоящего документация.
- Во избежание травм или материального ущерба монтаж должен существляться только квалифицированным персоналом в соответствии с действующими нормативами.
- Перед проведением любых работ по техническому обслуживанию устройства необходимо обесточить все измерительные и питающие входные контакты, а также замкнуть накоротко входные контакты трансформатора тока (TT).
- Производитель не несет ответственность за обеспечение электробезопасности в случае ненадлежащего использования устройства.
- Изделия, описанные в настоящем документе, в любой момент могут подвергнуться изменениям или усовершенствованиям. Поэтому каталожные данные и описания не могут рассматриваться как действительные с точки зрения контрактов.
- Электрическая сеть здания должна быть оснащена автоматическим выключателем, который должен быть расположен вблизи оборудования в пределах доступа оператора. Автоматический выключатель должен быть промаркирован как отключающее устройство оборудования: IEC /EN 61010-1 § 6.11.2.
- Очистку устройства производить с помощью мягкой сухой ткани, без применения абразивных материалов, жидких моющих средств или растворителей.

TR !!! DİKKAT !!!

- Montaj ve kullanımdan önce bu el belgeleme dikkatlice okuyunuz.
- Bu aparatlar kişilere veya nesnelere zarar verme ihtimaline karşı yürürlükte olan sistem kurma normlarına göre kalifiye personel tarafından monte edilmelidirler.
- Aparata (cihaz) herhangi bir müdahalede bulunmadan önce ölçüm girişlerindeki gerilimi kesip akım transformatörlerinede kısa devre yaptırınız.
- Üretici aparatın hatalı kullanımından kaynaklanan elektriksel güvenliğe ait sorumluluk kabul etmez.
- Bu dokümanda tarif edilen ürünler her an evrimlere veya değişimlere açıktır. Bu sebeple katalogdaki tarif ve değerler herhangi bir bağlayıcı değeri haiz değildir.
- Binanın elektrik sisteminde bir anahtar veya şalter bulunmalıdır. Bu anahtar veya şalter operatörün kolaylıkla ulaşabileceği yakın bir yerde olmalıdır. Aparatı (cihaz) devreden çıkartma görevi yapan bu anahtar veya şalterin markası: IEC/ EN 61010-1 § 6.11.2.
- Aparatı (cihaz) sıvı deterjan veya solvent kullanarak yumuşak bir bez ile siliniz aşındırıcı temizlik ürünleri kullanmayınız.

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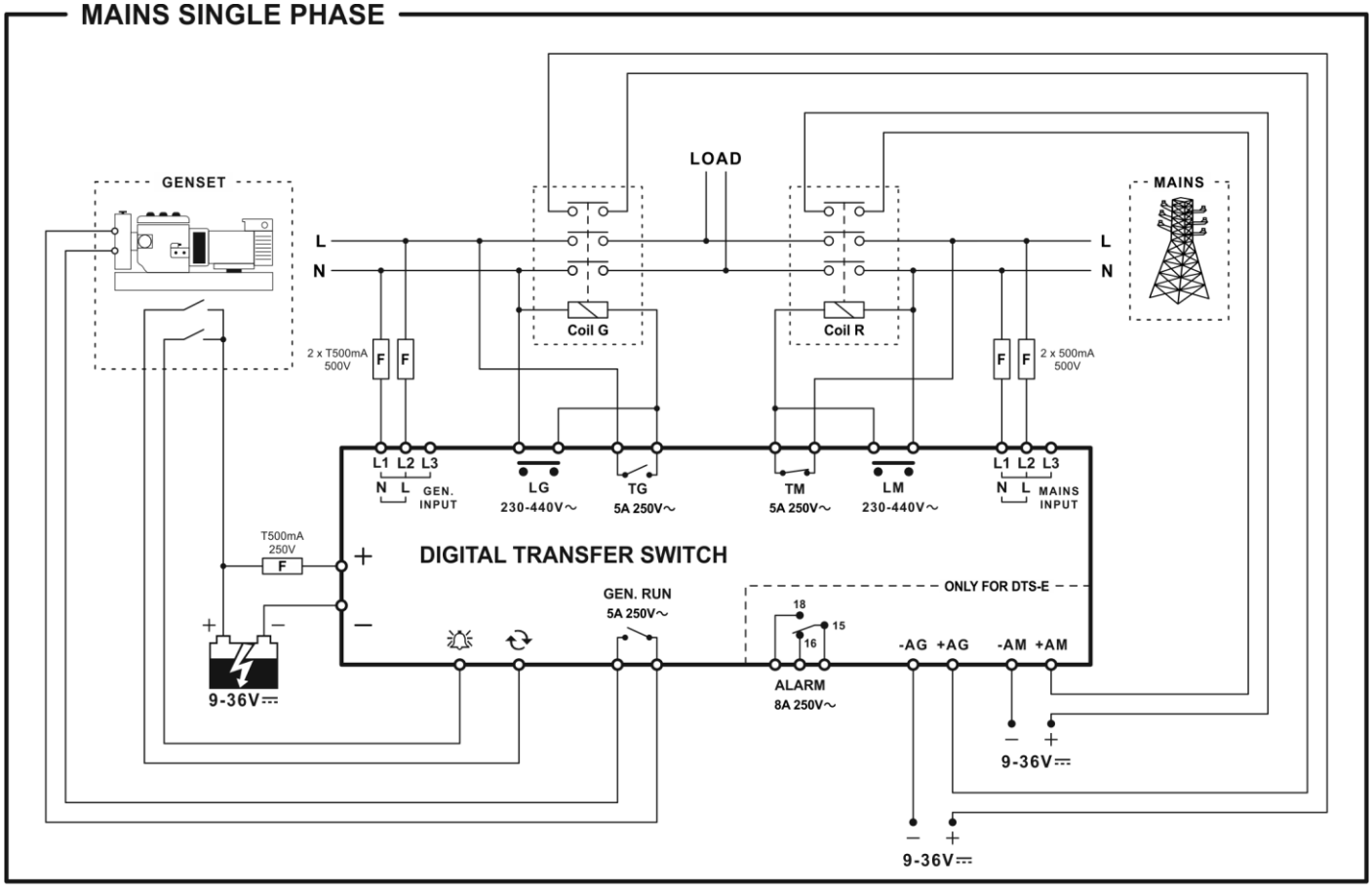
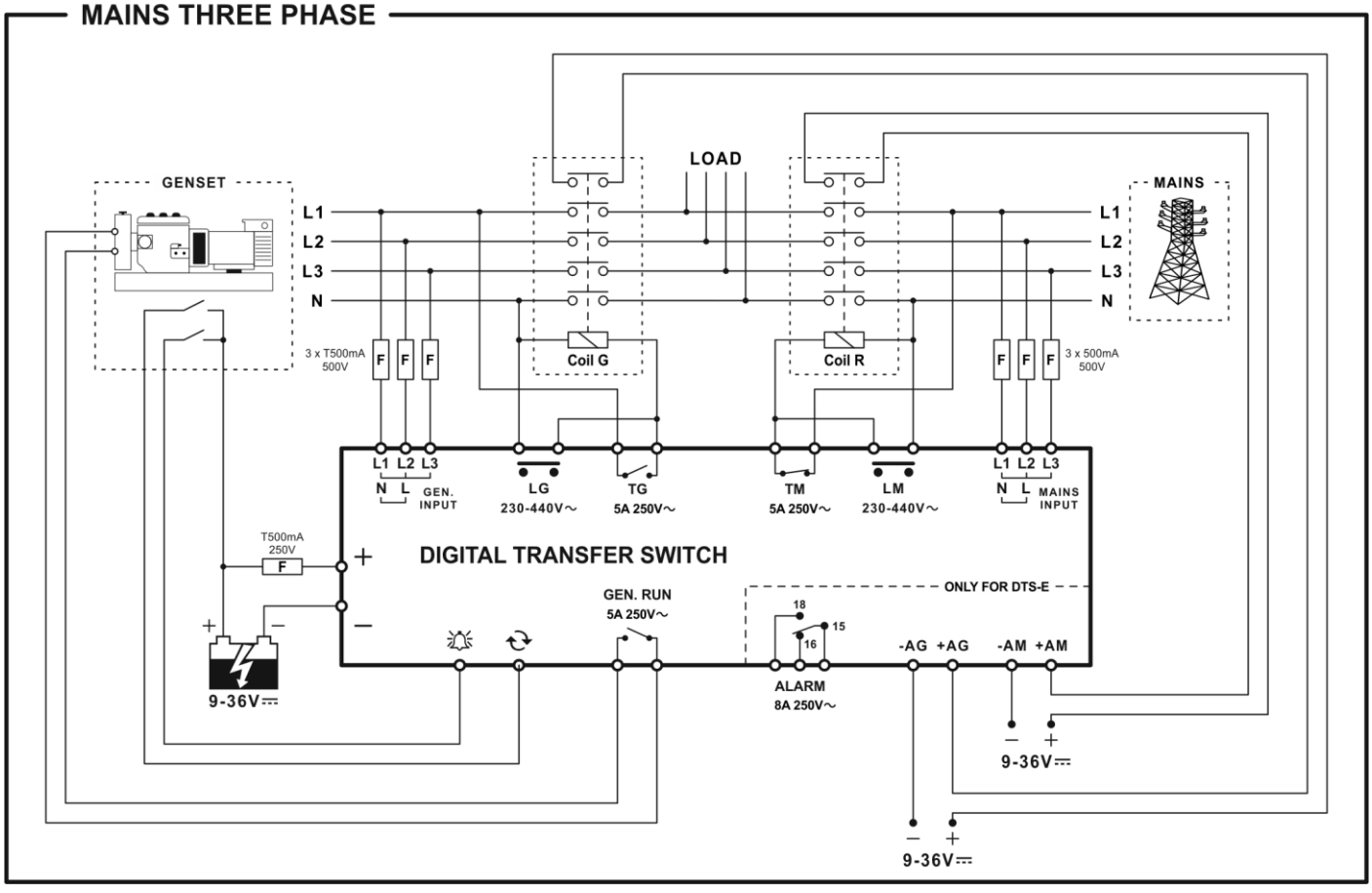
TYPICAL WIRING DIAGRAM (for reference purposes only)

MAINS SINGLE PHASE



MAINS THREE PHASE



The installation has to be equipped with an external disconnection device that should be easily reachable and identified as DISCONNECTION DEVICE (not included into the package).

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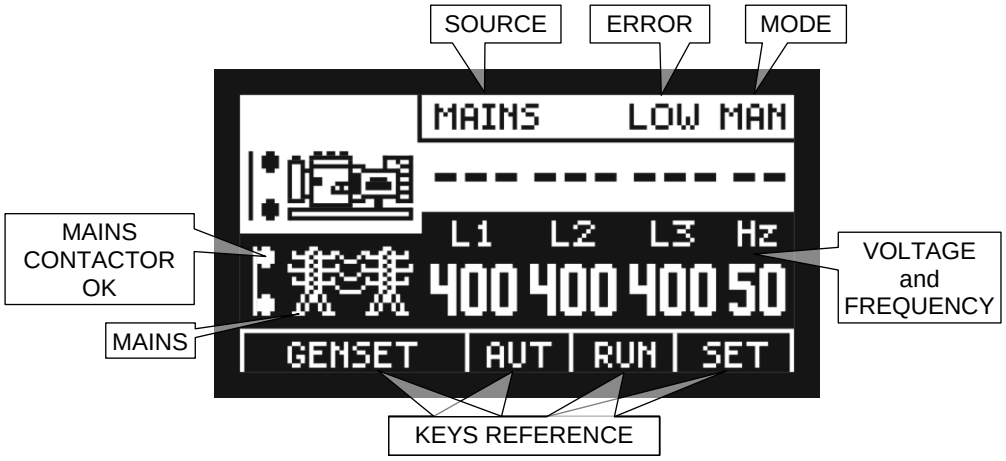
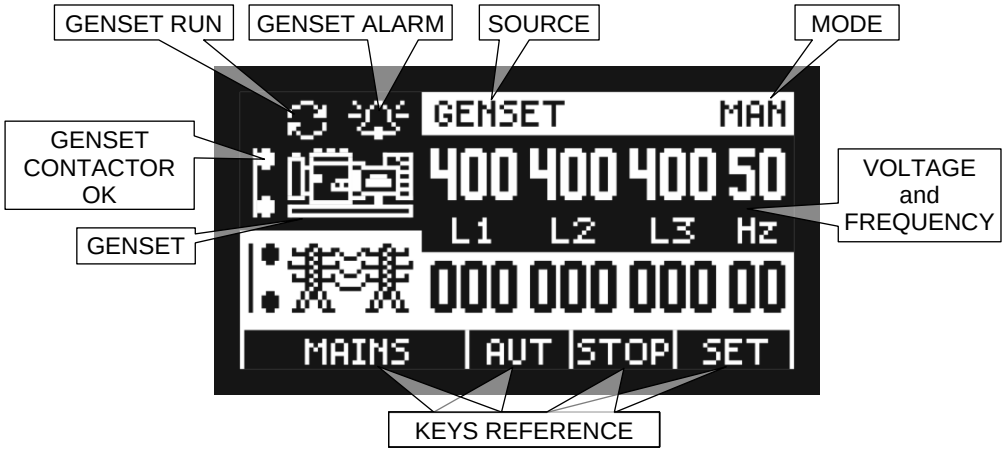
DISPLAY FEATURES

SOURCE MAINS



SOURCE GENSET



FIRST POWER UP (basics)

On switch on, the display shows the model and the firmware version.

The device can operate in Aut or Man mode: this is activated by pressing for **3s** the key (**AUT/MAN)**.

The mode will switch alternatively from Auto and Mode.

Using the **P13 "Working mode"** (default = MAN) we can define the default mode; we can also lock this working mode by using the **P14 "Working mode lock"** (default = OFF).

The transition from Mains to Genset and vice versa has a delay that we can set by using the **P19 "Commutation delay"** (default = 500ms), to let the switch gears (contactors) to correctly operate.

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SETTINGS

To access the menu:

1) Press for **5s** key **(SET)** to access **"SETTINGS"**..
2) Use keys and to scroll trough the parameters to modify.
3) Press key **(SET)** to select the desired value.
4) Use keys and to modify the selected value (keep the key pressed if you need to increase the speed of the value modification).
5) Press key **(SET)** to go back to the parameters, then repeat the sequence if you need to modify others.

   To exit this menu press for **3s** the key **(EXIT)**.
6) You will be prompted for **"Save parameters?"** then press key **(YES)** or **(NO)**.

1) 2) 3)

4) 5) 6)

FACTORY RESET (default parameters)

- Press for **5s** key **(SET)** to access **"SETTINGS"**.
- Press together the keys and **(SET)** for **3s**.
- At the prompt **"Default parameters?"** press key **(YES)** to confirm or **(NO)** to cancel the procedure.
- You return to the **"SETTINGS"**, to exit this menu press for **3s** the key **(EXIT)**.
- At the prompt **"Save parameters?"** press key **(YES)** to confirm or **(NO)**.

IMPORTANT: only after this last confirmation the instrument will consider and use all the changes previously done into the SETTINGS menu.

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PARAMETERS TABLE

PAR.	FUNZIONE	UM	VALORI	DESCRIZIONE	DEFAULT
P0A	Language	-	ITA / ENG	Device language (English, italian).	**ENG**
P0B	Contrast display	-	0…25	Display contrast settings.	**8**
P0C	Password	-	OFF / ON	If ON allows to choose a numeric password of 4 digits. Default value is 0000.	**OFF**
P01	Voltage	V~	1PH 208 / 3PH 208 1PH 230 / 3PH 230 1PH 400 / 3PH 400 1PH 440 / 3PH 440	Connection type and voltage to monitor.	**3PH 400**
P02	Frequency	Hz	50 / 60	Nominal Frequency.	**50**
P03	Min. Mains voltage	% V~	-1…-20	Lower Mains voltage limit.	**-10**
P04	Max. Mains voltage	% V~	+1…+20	Higher Mains voltage limit.	**+10**
P05	Min. Genset voltage	%	-1…-20	Lower Genset voltage limit.	**-10**
P06	Max. Genset voltage	%	+1…+20	Higher Genset voltage limit.	**+10**
P07	Genset start delay	s	1…600	Changeover delay between the error identification on the Mains and turning ON the Genset.	**5**
P08	Delay Genset OK	s	1…600	Time limit within the Genset has to fit the assigned values. Once values are reached the time resets.	**120**
P09	Mains/Genset delay	s	1…240	Changeover delay between Genset OK and the change between Mains to Genset.	**5**
P10	Genset/Mains delay	s	1…240	Delay between stable Mains and Genset changeover.	**10**
P11	Genset off delay	s	1…240	Delay time between changeover and Genset switch-off.	**30**
P12	Frequency tolerance	±Hz	1…9	Frequency tolerance on Genset.	**5**
P13	Working mode	-	MAN / AUT	Working mode on switch-on.	**MAN**
P14	Working mode lock	-	ON / OFF	Working mode lock.	**OFF**
P15	Error mask	s	0…60	Filter mask to avoid false positive due to the transition between Genset and the connected load.	**3**
P16	Attempts to reconnection	-	0…20	Number of reconnection attempts after an error.	**0**
P17	Reconnect delay	s	10…900	Delay before reconnection attempts (see P16).	**120**
P18	Genset/Mains forced	-	ON / OFF	If enabled, forces the changeover back to Mains if the Genset, due to a malfunction, switch-off.	**OFF**
P19	Commutation delay **TM / TG**	ms	250…2500	Interlocking delay between Mains/Genset or vice versa.	**500**

DTS-E version only:

P20	PH asymmetry tolerance **only 3PH system**	V~	10…40	Tolerance value on phases asymmetry.	**20**
P21	PH asymmetry tolerance filter **only 3PH system**	s	1…30	Delay between asymmetry condition detected and the error notification on display.	**1**
P22	Alarm relay	-	NO / NC / OFF	If enabled, the relay activates on every error. The settings refer to relay on rest.	**NO**
P23	Contactors control	-	OFF LM-LG / AM-AG	Inputs to be monitored, coils or aux contacts. In case of errors the display will show “Er3”	**OFF**

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MANUAL MODE

WARNINGS:

- Changeover parameters like delays and filters are disabled.

- No errors are detected or signalled.

- **"SETTINGS"** menu available.

CHANGEOVER MAINS/GENSET:

With Mains as source press key **(RUN)** to start the Genset, once started it will send to the device the OK for a correct ignition as indicated in the top right corner by the rotary symbol.

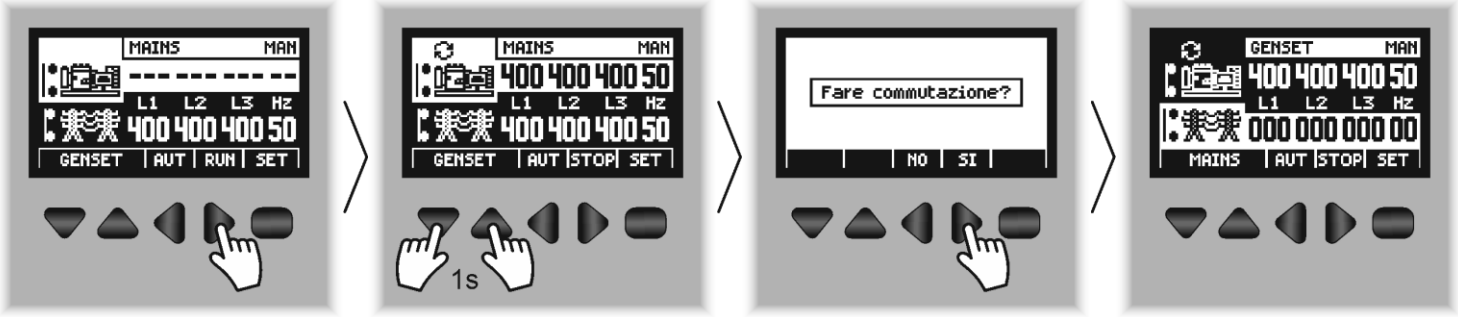
Note: If the Genset will fail to start, an alarm signal will be generated and the symbol will be .

It is highly recommended to wait for the voltage and frequency values to be corrected an stable before to activate the changeover.

To activate the changeover press together for **1s** the keys and **(GENSET)**.

At the prompt **"Perform switchover?"** press key **(YES)** to confirm or **(NO)** to cancel.

The changeover is confirmed by the Genset image, from the contact symbol closed (wich confirms the contactor bobbin activation **LG**) and from the voltage and frequency background colour changed.



Therefore to switch from Genset to Mains press together for **1s** the keys and **(MAINS)**, finally press the key **(STOP)** to switch-off the Genset.

!!! WARNING !!!

In manualemode no controls or warning are generated so, to avoid troubles, operate carefully.

AUTO MODE

WARNINGS:

- All the processes and functions are uniquely handled by the device.

- **"SETTINGS"** menu available.

- It is not possible to switch-on or off the Genset, the key **(RUN/STOP)** is disabled.

- Measurements follow the system status and phases are monitored individually.

- In source Mains, the missing of one single phase triggers the changeover procedure.

- In source Genset, the missing of one single phase trigger the error **"Er1"**.

- Frequency control is active only in Genset source mode.

In three phase systems also the asymmetry check is active **(only model DTS-E)**.

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WORKING DETAILS AND EXPLANATIONS

The first config step is to set the type of system to be monitored on **P01 "Voltage"** (default = 3PH 400).
If the default values are kept as they are, here is the explanation of the different working situations:

Mains KO

- After the delay set in **P07 "Genset start delay"** (default = 5s):
  Contact GEN. RUN = ON (contact closed)
- After the delay set in **P08 "Delay Genset OK"** (default = 120s) + time set in **P09 "Mains/Genset delay"** (default = 5s):
  Contact TM = OFF (contact open)
- After the delay set in **P19 "Commutation delay"** (default = 500ms)
  Contact TG = ON (contact closed, load on Generator)

Genset OK + Mains OK

- After the delay set in **P10 "Genset/Mains delay"** (default = 10s):
  Contact TG = OFF (contact open)
- After the delay set in **P19 "Commutation delay"** (default = 500ms)
  Contact TM = ON (contact closed, load on Mains)
- After the delay set in **P11 "Genset off delay"** (default = 30s):
  Contact GEN. = OFF (contact open)

Mains KO + Genset KO + P18 (OFF):

Contact TM = OFF (contact open)
Contact TG = ON (contact closed)
Relay ALARM = ON (contact closed)

ERRORS - P18 "Genset/Mains forced" (default = OFF)

If disabled, every time an error occurs, the Genset will be switch-off and the device will remain on Genset source.

If enabled, every time an error occurs, the Genset will be switch-off and the device will automatically commute on Mains source.

The error sign on the device is not cancelled until the problem on the Gen is not solved.
Then it is possible to press **(SET)** and make the error sign disappear.

Max or Min Mains Voltage Error.

It is indicated as **"HIGH"** (max) o **"LOW"** (min) in the proper section of the display (pag. 3 "ERROR").

The device starts the changeover sequence:

1) Genset ignition.
2) Genset voltages and frequency check.
3) Changeover from Mains to Genset.

The verification time of voltage and frequency is set in **P08 "Delay Genset OK"** (default = 120s), beyond this, the display will show error **"Er1/Er2"**.

The changeover will happen only when the Genset parameters will be validated.

On Genset as source, when the parameters are out of the limits, the display will show:

"Er1": Genset voltage out of limits, set in **P05** "**Min. Genset voltage"** (default = -10%) and in **P06 "Max. Genset voltage"** (default = +10%).

"Er2": Genset frequency out of limits, set in **P12 "Frequency tolerance"** (default = ±5Hz).

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Max or Min Genset Voltage Error (after changeover).

After the changeover Mains/Genset, a filter is applied in order to avoid false reading errors due to the Genset oscillations after the load has been connected.

This filter is set in **P15 "Error mask"** (default = 3s).

If the parameters values will still be out the limits after this period, the display will show:

"Er1": Genset voltage out of limits, set in **P05** "**Min. Genset voltage"** (default = -10%) and in **P06 "Max. Genset voltage"** (default = +10%).

"Er2": Genset frequency out of limits, set in **P12 "Frequency tolerance"** (default = ±5Hz).

Mains asymmetry phases Error (only DTS-E model).

This condition error is meant for three phase systems and is indicated as **"LSI"** in the proper section of the page (pag. 3 "ERROR").

The device starts the changeover sequence:

1) Genset ignition.
2) Genset voltages and frequency check.
3) Changeover from Mains to Genset.

On Genset as source, if the symmetry is beyond limits longer than the **P21 "PH asymmetry tolerance filter"** (default = 1s), the display will show:

"Er4": Phase asymmetry of the Genset beyond limits, set in **P20 "PH asymmetry tolerance"** (default = 20V).

Missing Voltage Error or Contactor malfunction (only DTS-E model).

This function is set in **P23 "Contactors control"**:

OFF = Disabled (default).

LM-LG = Input monitoring **LG** and **LM**, to verify the correct functionality of contactors coils.

AM-AG = Input monitoring -**AM/+AM** and -**AG/+AG**, to verify the closing of the aux contacts on contactors (if present), only low voltage from 9 to 36V⎓ can be applied.

In case of a problem to coils or aux contacts the display will show:

"Er3": coils error or missing closure of aux contactors.

Alarm relay enabling (only DTS-E model).

For every error detected, also the alarm relay will be activated (contacts 15-16-18).

The status can be set into **P22 "Alarm relay"**:

NO (15/18) contact open = Error will be on closed contact (default).

NC (15/16) contact closed = Error will be on open contact.

OFF = disabled alarm relay.

Changeover delay from Genset to Mains.

When the Mains comes back to stable values, the device starts the changeover Genset/Mains:

1) The changeover will start only after the delay set in **P10 "Genset/Mains delay"** (default 10s).
2) The Genset is switc-off only after the delay set in **P11 "Genset off delay"** (default 30s).

PASSWORD

The password, once enabled, must be inserted each time the parameters are saved and, in **Manual** mode, also to authorize the changeover.

As default, the password is disabled but here is the procedure to enable it:

1) Inside the **"IMPOSTAZIONI"** select on **P0C "PASSWORD"** (default OFF) then press key **(SET)**.
2) Press key to set the value to **ON**, then press **(SET)** to confirm and access the **"PASSWORD"** screen where you will be asked to insert the actual password, if this is the first time leave the value default **"0000"**.
3) Press key **(SET)** to confirm and to go to the new password insertion.
4) Use key and to define a number from 0 to 9, then **(>)** to select the next digit.
   Repeat the procedure for the 4 digits.
5) Press key **(SET)** to confirm and go back to parameters selection, then **(EXIT)** for **3s** to exit and return to the home screen.
6) At the prompt **"Save parameters?"** press key **(YES)** to confirm or **(NO)** to cancel.

1) 2) 3)

4) 5) 6)

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TECHNICAL DATA

Supply	
Voltage	9…36V⎓
Operating limits	-10%…+10% Ue
Power Consumption (at 36V)	1W
Meausurement/Overvoltage category	Class II
Measures and monitoring range	
Connection type and voltage V~	1PH 208 / 3PH 208 1PH 230 / 3PH 230 1PH 400 / 3PH 400 1PH 440 / 3PH 440
Frequency	50 / 60Hz
Genset voltage range	0…500V~
Mains voltage range	0…500V~
Measures precision	± 2%
-AG/+AG | - AM/+AM (aux contacts rating)	9…36V⎓
Start Gen rating contact	5A - 10…30V⎓
TM - Mains contactor coil	5A - 250V~
TG - Genset contactor coil	5A - 250V~
Alarm Relay Output	
Max current	8A
Max voltage	250V~
Electrical contact Life	100 x 10^3 ops
Mechanical contact Life	30 x 10^3 ops
Ambient conditions	
Operating temperature	-20 / +50 °C
Storage temperature	-30 / +70 °C
Operating altitude	up to 2000m
Maximum pollution degree	2
Relative Humidity w/o condensation	90 RH%
Connections and Housing	
Type of terminal	Pluggable
Conductor cable type	only 105°C - 1.5/2.5mm^2 - 16/14 AWG
Enclosure version	Flush Mount
Protection degree	IP41 Front - IP20 Terminals
Dimensions	96 x 96 x 70mm
Weight	360g

EC Directives: - 2014/30/UE - EMC
- 2014/35/UE - LVD

LATENCY TIME

The control device monitors up to 6 voltages, therefore the Max latency time between each measure is 2s.

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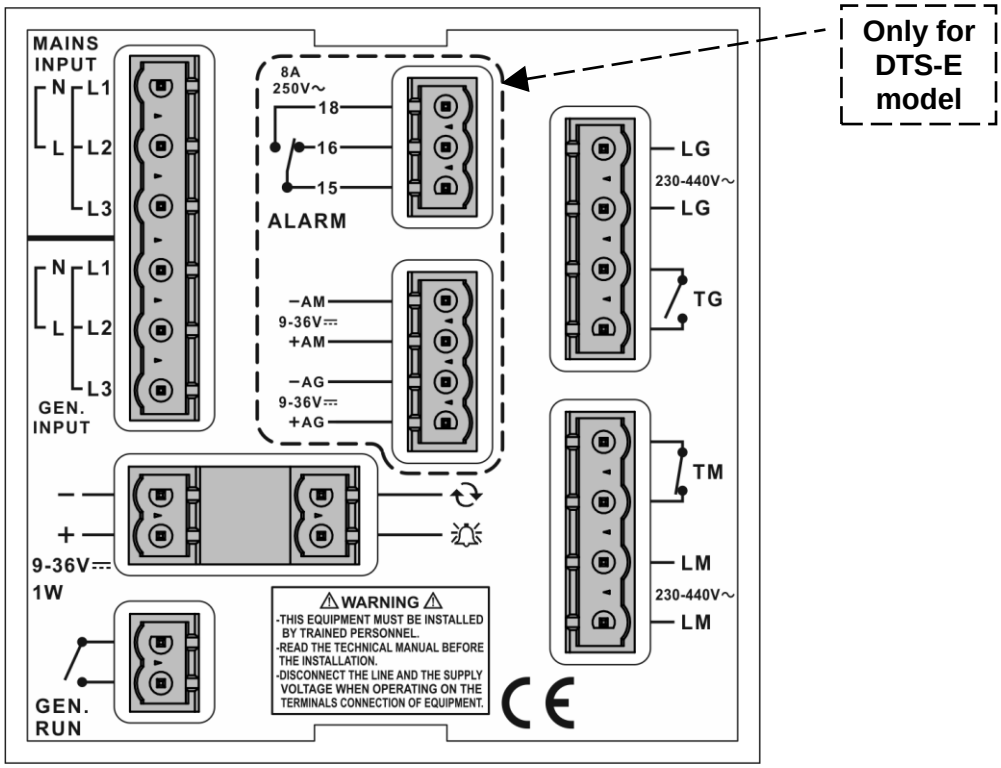
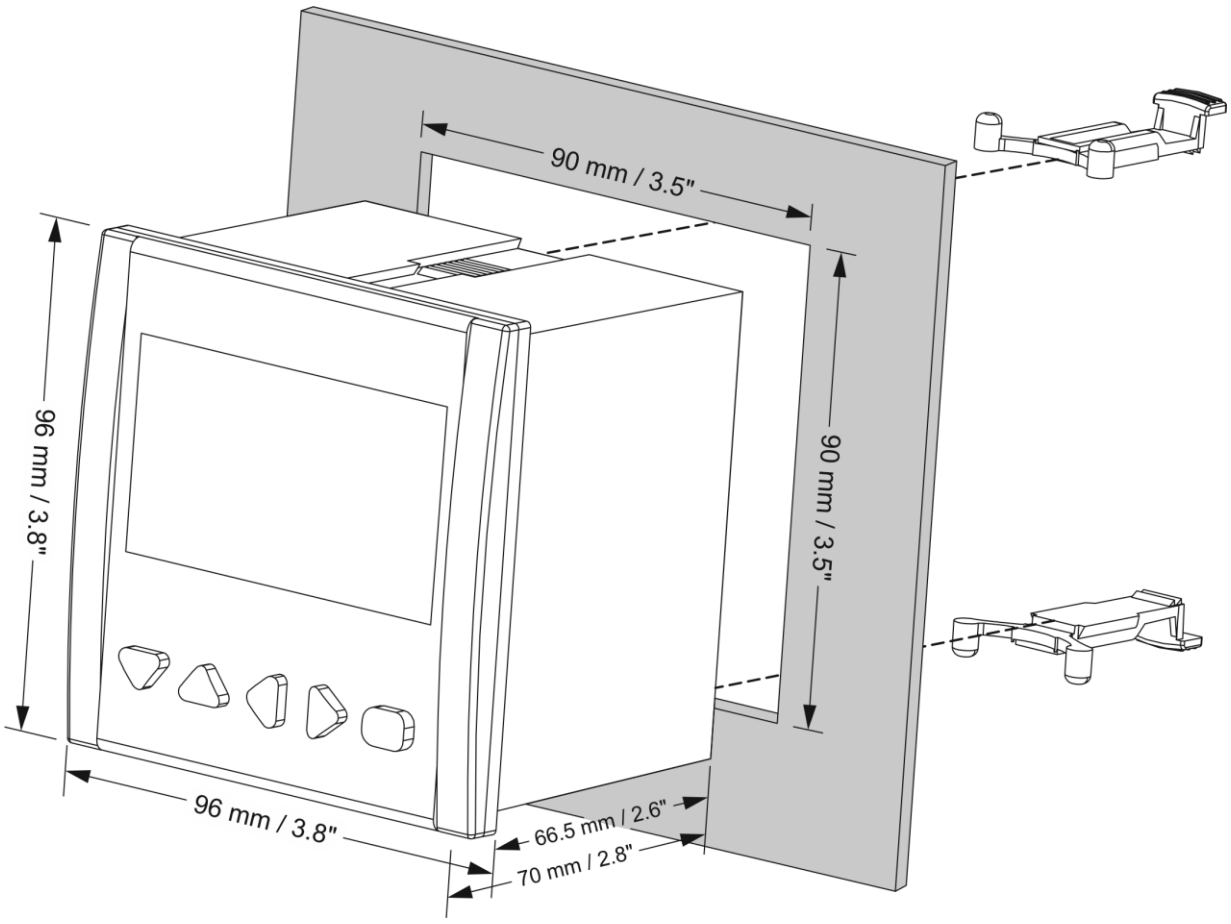
BACK PANEL CONNECTIONS



DIMENSIONS



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