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AUTOMATIC PANELS FOR GENERATING SETS

TECNOELETTRA srl

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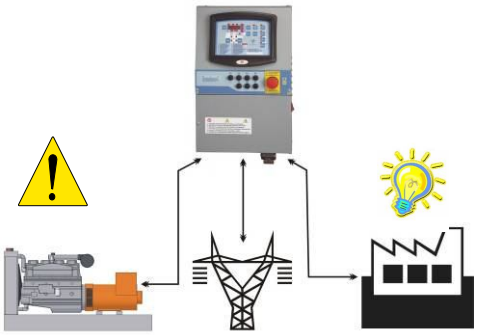
AT92B3806

Automatic panels with changeover switch for Diesel and Gasoline



Description

The project

In projecting AT92B3806 automatic panel, Tecnoelettra srl has been involved in realizing an highly industrialized product

Design has been minded without leaving the important aspects which These aspects are: sturdiness, reliability, easiness in connection and security.

Standard composition

- 1- metal case 15/10 thick painted by epoxy powder RAL7042
- 2- mains-genset switching contactors both electrically and mechanically blocked
- 1- 2A battery charger
- 1-Buzzer
- - protection fuses fox auxiliary
- 1-16 poles terminal board (complete with plug) for auxiliary engine connection
- 1- internal terminal board for special function auxiliary connection
- 1- terminal board for user's load power connection
- 1-ammeter transformer
- 1-emergency button

NEW **Control three – phases mains only for AT92B3806RT versions**

Order table

NEW

Ith contactors with temperature </= 40°C	KVA/400V-3Ph	KVA-230V-3Ph	KVA-230V-1Ph	Codes With mono – phase relay for the main control	Codes with control three – phases relays MAIN "RT"
28	19	11	10	*AT92B380619*	*AT92B3806RT19*
45	31	17	16	*AT92B380631*	*AT92B3806RT31*
60	42	23	22	*AT92B380642*	*AT92B3806RT42*
90	62	35	33	*AT92B380662*	*AT92B3806RT62*
110	76	43	40	*AT92B380676*	*AT92B3806RT76*
125	87	49	46	*AT92B380687*	*AT92B3806RT87*

Sample picture

Special functions

- **Remote Start**
- **Remote Stop**

Function enable only in automatic mode; it permits to stop the generator by an external signal, also during a mains failure. A sample of this function, is when you want to start the generator automatically after a mains failure but only if an external level sensor confirm presence of water in a tank or in a garage.

- **EJP/T**

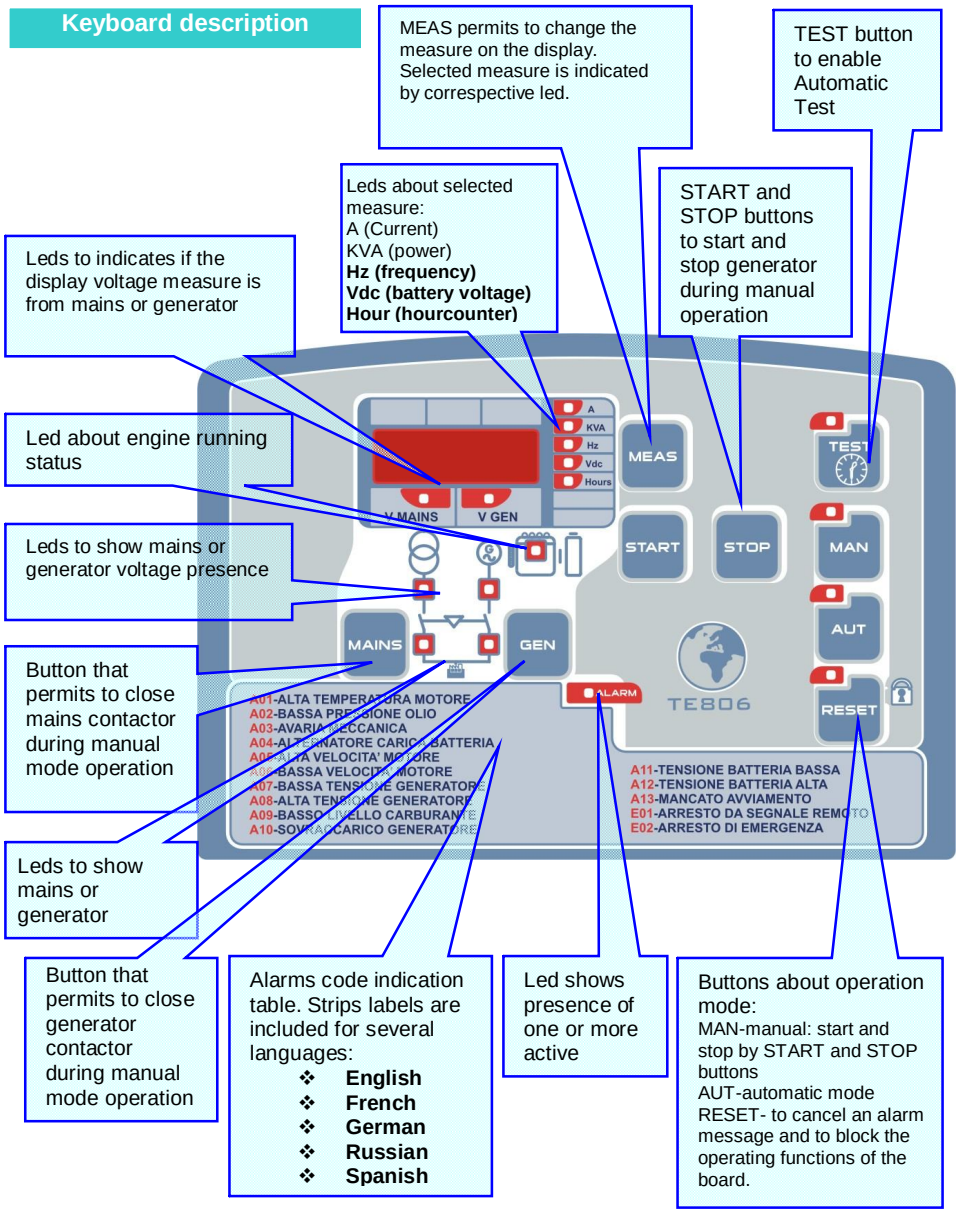
Specific function for French market: generator starting is by a remote signal and the changeover switch is after a programmable time max 30'.

- **SCR**

Function enable only in automatic mode; it permits to start the generator and make the changeover switch on the load by a remote signal also with mains presence. It permits also the stop of the generator and the changeover switch on mains side when this signal disappear.

➢ Voltage monitoring system: mains and generator monophase
DISPLAY ELECTRICAL MEASURES
➢ Mains and Generator voltage
➢ Frequency
➢ Current
➢ Power in kVA
➢ Battery voltage
➢ Hourcounter
DISPLAY ALARMS
-high engine temperature
-low oil pressure
-unespected stop
-batterycharger alternator fault
-high engine speed
-low engine speed
-low generator voltage
-high generator voltage
-low fuel level
-Generator overload
-low battery voltage
-high battery voltage
-starting failure
-emergency stop

Keyboard description



Technical data

- Working temperature -20 +50°C
- Stocking temperature -30+80°C
- Supply range 9-17Vcc
- Frequency range 45 ÷ 65Hz
- Measures accuracy +/- 5% +/- 1 digit
- Ambient protection IP20

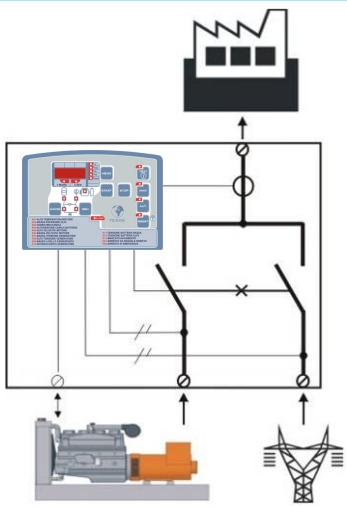
Normes reference

IEC/EN 50082-1 , IEC/EN61000-6-2, IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5
IEC/EN 61000-4-6
89/336/CEE , 72/23/CEE

CE

Dimensions (sample image)

Sample drawing



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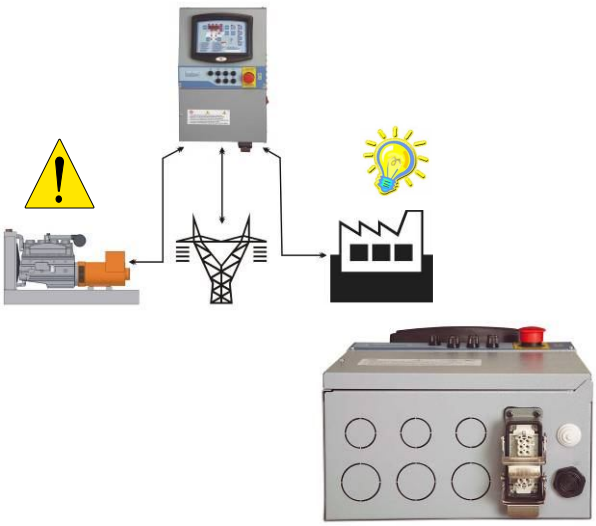
(2009) 2/2-AT92B3806 - EN

AT92B3805

Automatic panels with changeover switch for Diesel and Gasoline



Descrizione

The project

In projecting AT92B3805 automatic panel, Tecnoelettra srl has been involved in realizing an highly industrialized product

Design has been minded without leaving the important aspects which These aspects are: sturdiness, reliability, easiness in connection and security.

Standard composition

- 1- metal case 15/10 thick painted by epoxy powder RAL7042
- 2- mains-genset switching contactors both electrically and mechanically blocked
- 1- 2A battery charger
- 1-Buzzer
- 7-protection fuses
- 1-16 poles terminal board (complete with plug) for auxiliary engine connection
- 1- internal terminal board for special function auxiliary connection
- 1- terminal board for user's load power connection
- 3-ammeter transformers
- 1-emergency button
- 1-electronic board **TE805**

Special Functions

- **Remote start**
- **Remote stop**
- **SCR**
- **EJP – EJP/T**
- **Genset Start/Stop on mains kW threshold**
- **Dummy load control**
- **Rent hours**
- **Automatic and test modes block**
- **Engine startin case of TLR failure**
- **Functioning mode exit**
- **Remote control**

Order table

Ith contactors with temperature</= 40°C	KVA/400V-3Ph	KVA-230V-3Ph	KVA-230V-1Ph	Codes
28	19	11	10	AT92B380519
45	31	17	16	AT92B380531
60	42	23	22	AT92B380542
90	62	35	33	AT92B380562
110	76	43	40	AT92B380576
125	87	49	46	AT92B380587

Control panel's functions

- Monitoring system: mains and generaor triophase

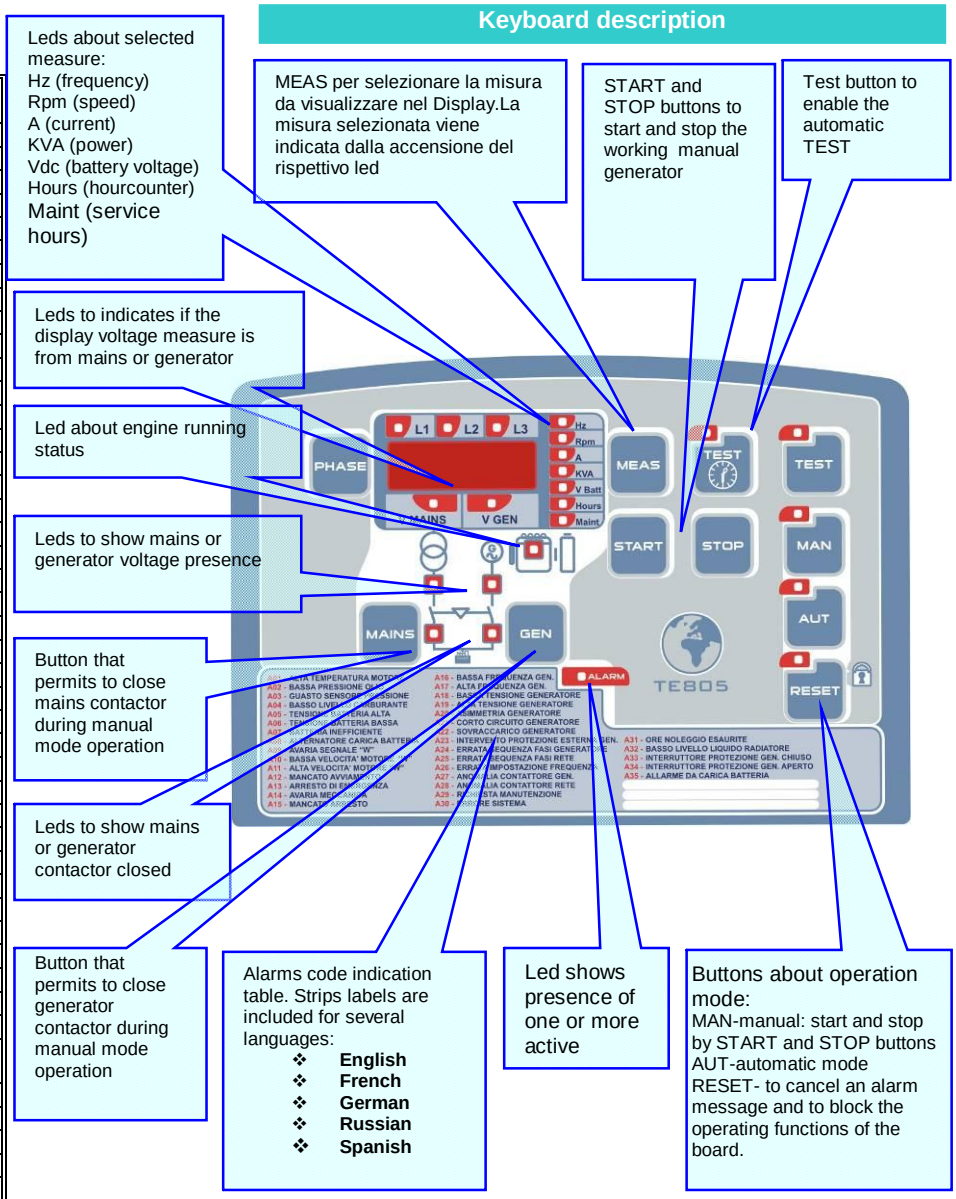
DISPLAY ELECTRICAL MEASURES

- Mains and generator triphase voltages
- Mains and generator frequency
- Triphase current
- Power in kVA
- Battery voltage
- Hourcounter
- Left maintenance hours
- Generator RPM

DISPLAY ALARMS

-high engine temperature (digital sensor)
-low oil pressure (digital sensor)
-unespected stop
-batterycharger alternator failure
-high engine speed
-low engine speed
-low generator voltage
-high generator voltage
-low fuel level (digital sensor)
-generator overload
-low battery voltage
-high battery voltage
-starting failure
-emergency stop
-pressure digital sensor fault
-faulty battery
-RPM signal detection fault
-stop failure
-low generator frequency
-high generator frequency
-generator voltage asymmetry
-short circuit protection
-generator external protection
-generator phases wrong sequence
-mains phases wrong sequence
-wrong frequency system selected
-generator contactor fault
-mains contactor fault
-maintenance request
-system error (board's operating system fault autodetection)
-rental hours finished
-low coolant level
-generator's magnetothermic switch closed
-generator's magnetothermic switch open
-alarm from automatic batterycharger
-4 programmable user alarms

Keyboard description



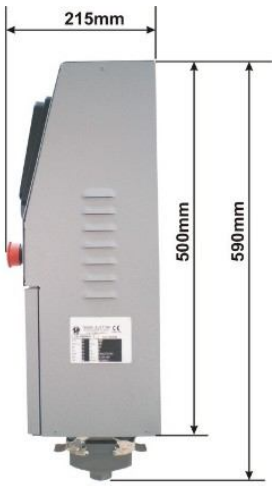
Technical data

- Working temperature -20 +50°C
- Stocking temperature -30+80°C
- Supply range 9-33Vcc
- Frequency range 45 ÷ 65Hz
- Measures accuracy +/- 1% +/- 1 digit
- Ambient protection IP20

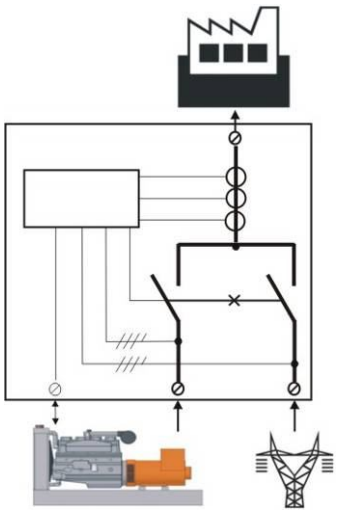
Normes reference

IEC/EN 50082-1 , IEC/EN61000-6-2, IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5
IEC/EN 61000-4-6
89/336/CEE , 72/23/CEE

Dimensions (sample image)



Sample drawing



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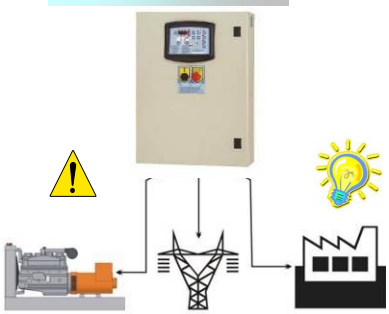
TE806

Automatic panels with changeover switch for generators
Diesel : 11 ÷ 277kVA (12Vdc)

19-87kVA



Socomec

Technoelectric

Description

The project

TE806 automatic panels are built into small metal boxes to be fixed to the wall or bigger metal boxes to be fixed to the floor. Their main functions are the generator control and change over remote command switch. They are provided with a powerful and really reliable electronic card named TE806. This electronic card is homologated in order to be used in the hardest environments with high security.
A 4 led digits display shows all controls in terms of engine control and electrical measures related to mains and generator. TE806 electronic card is an easy and powerful device with a lot of available functions. An higher attention has been concentrated on power area where installation of switch to protect generator is involved. High quality components are used (such as Lovato and Socomec wide space is provided to all users who have to create connection. From 100KVA copper bars (which are nickel-plated to prevent oxidation) are provided. They bring all connection to the lower part of the panel.

Standard composition

- 1 Metal box IP54 RAL 7032 / 7035
- 1 1P+N switch for engine pre-heating
- 1 Buzzer for acoustic alarm
- 1 Emergency button
- 1 changeover switch main - generator
- 1 Auxiliary terminal board
- 1 Power terminal board up to 87kVA (copper bus bars >88Kva)
- 1 Automatic battery charger
- - Protection fuses for auxiliary circuits
- 1 Amperemetric transformers
- 1 Mains control with three-phase relay
- **1 TE806 Electronic board with RS232 output for programmation**

Order table

Ith contactors with temperature </= 40°C	Vdc	KVA/400V-3Ph	Code 4 poles	Dimensions			Weight
				H	L	P	Kg
With contactors							
28	12	19	806RT4019	600	400	250	22
45	12	31	806RT4031	600	400	250	22
63	12	42	806RT4042	600	400	250	25
90	12	62	806RT4062	750	500	250	31
110	12	76	806RT4076	750	500	250	31
125	12	87	806RT4087	750	500	250	32
160	12	111	S806RT4111	1000	600	250	50
250	12	173	S806RT4173	1000	600	250	50
350	12	242	S806RT4242	1000	600	320	60
With Socomec –ATY change-over							
400	12	277	S806RTSATY40277	1000	600	450	70
With Technoelectric change-over							
400	12	277	S806RTTH40277	1000	600	450	70

Funzioni speciali

- **Remote Start**
- **Remote Stop**

Function enable only in automatic mode; it permits to stop the generator by an external signal, also during a mains failure. A sample of this function, is when you want to start the generator automatically after a mains failure but only if an external level sensor confirm presence of water in a tank or in a garage.

- **EJP/T**

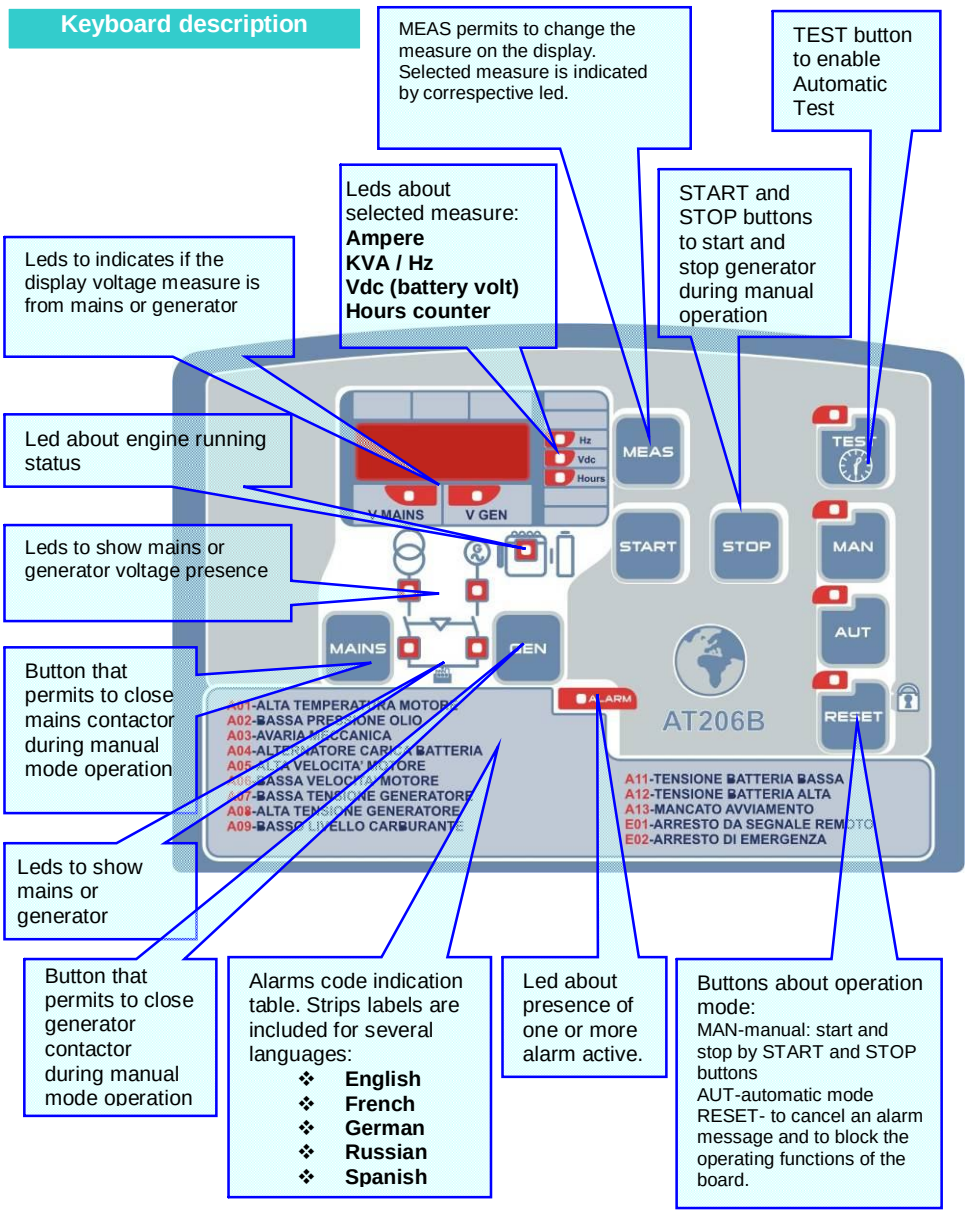
Specific function for French market: generator starting is by a remote signal and the changeover switch is after a programmable time max 30'.

- **SCR**

Function enable only in automatic mode; it permits to start the generator and make the changeover switch on the load by a remote signal also with mains presence. It permits also the stop of the generator and the changeover switch on mains side when this signal disappear.

➢ Voltage monitoring system: mains and generaor monophase
DISPLAY ELECTRICAL MEASURES
➢ Mains and Generator voltage
➢ Frequency
➢ Battery voltage
➢ Power kVA
➢ Hourcounter
DISPLAY ALARMS
-high engine temperature
-low oil pressure (digital sensor)
-unespected stop
-batterycharger alternator fault
-high engine speed
-low engine speed
-low generator voltage
-high generator voltage
-low fuel level (digital sensor) -overload voltage
-low battery voltage
-high battery voltage
-starting failure
-emergency stop

Keyboard description



Technical data

- Working temperature -20 +50°C
- Stocking temperature -30+80°C
- Supply range 9-17Vcc
- Frequency range 45 ÷ 65Hz
- Measures accuracy +/- 5% +/- 1 digit
- Ambient protection IP20

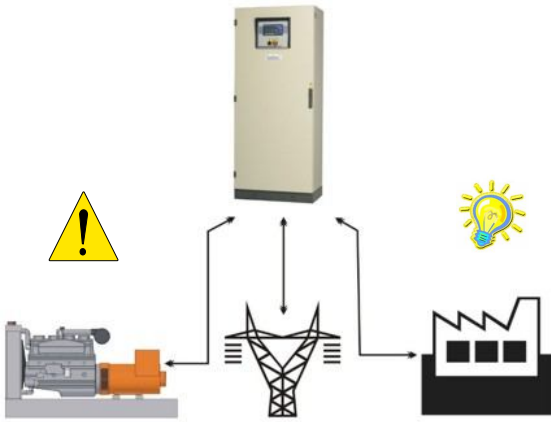
Normes reference

IEC/EN 50082-1 , IEC/EN61000-6-2, IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5
IEC/EN 61000-4-6
89/336/CEE , 72/23/CEE

CE

TE804 (Standard)

Automatic panels with changeover switch for generators
Diesel : 19 ÷ 2214kVA



277-2214kVA

19-87kVA

Description

The project

TE804 automatic panels can be built into small metal boxes to be fixed to the wall or bigger metal boxes to be fixed to the floor. Their main functions are the generator control and change over switch control. They are provided with a powerful and really reliable electronic card named TE804. This electronic card is homologated in order to be used in the hardest environments with high security.
A back light display shows all controls in terms of engine control and electrical measures related to mains and generator.
This electronic card allows to satisfy every customer's request since all is included and the remote control too. An high attention has been concentrated on power area related to mains/genset switching. Actually, high quality components are used (such as Lovato and Socomec) and an important attentino has been dedicated to power cables connection area. A wide space is provided to all users who have to create connection. From 100KVA copper bars (which are nickel-plated to prevent oxidation) are provided. They bring all connection to the lower part of the panel.

Standard composition

- 1 Metal box IP54 RAL 7032 / 7035
- 1 1P+N switch for engine pre-heating
- 1 Buzzer for acoustic alarm
- 1 Emergency button
- 1 Mains/generator change over switching
- 1 Auxiliary terminal board
- 1 Power terminal board up to 87kVA (copper bus bars >88Kva)
- 1 Automatic battery charger
- - protection fuses for auxiliary circuits
- 3 amperemetric transformers
- **1 Electronic board TE804L with RS232 output for remote control and programming function**

Special functions included

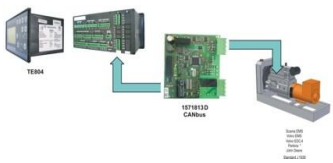
- **Remote start**
- **Remote stop**
- **SCR**
- **EJP – EJP/T**
- ***Genset start/stop on mains kW threshold consuption***
- ***Dummy load control***
- ***Rent hours function***
- ***Automatic and Test modes block***
- ***Engine start in case of mains contactor failure***
- ***Function mode status output***
- ***Remote control***

Order table

Ith changeover switch with temperature </= 40°C	Vdc	KVA 400V-3Ph	Code 4 poles	Dimensions			Weight
				H	L	P	Kg
With contactors							
28	12	19	804L4019	600	400	250	22
45	12	31	804L4031	600	400	250	22
63	12	42	804L4042	600	400	250	25
90	12	62	804L4062	750	500	250	31
110	12	76	804L4076	750	500	250	31
125	12	87	804L4087	750	500	250	32
160	12	111	804L4111	1200	600	320	65
160	24	111	804L4111B	1200	600	320	65
250	24	173	804L4173	1200	600	320	65
250	12	173	804L4173B	1200	600	320	65
350	24	242	804L4242	1600	700	400	130
With Socomec ATY change-over							
400	24	277	804LSATY40277	1600	700	400	130
400	12	277	804LSATY40277B	1600	700	400	130
630	24	436	804LSATY40436	1600	800	500	135
800	24	554	804LSATY40554	1600	800	500	135
1250	24	865	804LSATY40865	1800	800	600	220
1600	24	1107	804LSATY41107	1800	1000	800	350
2500	24	1730	804LSATY41730	2000	1000	800	380
3200	24	2214	804LSATY42180	2000	1000	800	430
With Technoelectric change-over							
400	24	277	804LTH40277	1600	700	400	130
400	12	277	804LTH40277B	1600	700	400	130
630	24	436	804LTH40436	1600	800	500	135
800	24	554	804LTH40554	1600	800	500	135
1250	24	865	804LTH40865	1800	800	600	220
1600	24	1107	804LTH41107	1800	1000	800	350
2500	24	1730	804LTH41730	2000	1000	800	380
3150	24	2180	804LTH42180	2000	1000	800	430

Code 1571813D: CANbus communication card

- Scania EMS
- Volvo EMS / EMS2
- Volvo EDC4
- Perkins series 2300/2800
- John Deere
- Deutz EMR2
- Standard J1939



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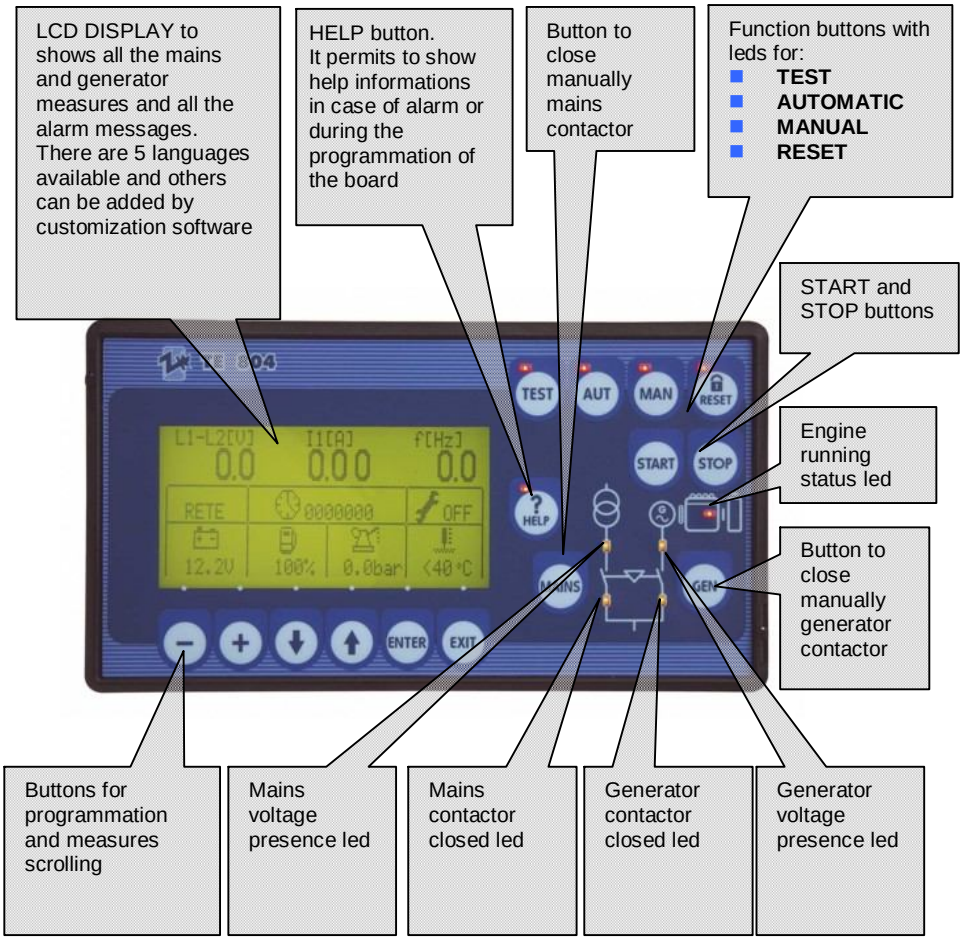
Control panel's function

- LCD graphic display, 192x64pixel, 95x45mm with backlight, 5 languages available, minimum and maximum working temperature sensor
- Mains and generator triphase voltages
- Mains and generator frequency
- Triphase current
- Power in kVA, kW, kVAR
- Battery voltage
- Hourcounter
- Left maintenance hours
- Generator RPM
- Energy meters
- Power factor meter

DISPLAY ALARMS

-high engine temperature (digital sensor)
-low oil pressure (digital sensor)
-unespected stop
-batterycharger alternator failure
-high engine speed
-low engine speed
-low generator voltage
-high generator voltage
-low fuel level (digital sensor)
-generator overload
-low battery voltage
-high battery voltage
-starting failure
-emergency stop
-pressure digital sensor fault
-faulty battery
-RPM signal detection fault
-stop failure
-low generator frequency
-high generator frequency
-generator voltage asymmetry
-short circuit protection
-generator external protection
-generator phases wrong sequence
-mains phases wrong sequence
-wrong frequency system selected
-generator contactor fault
-mains contactor fault
-maintenance request
-system error (board's operating system fault autodetection)
-rental hours finished
-low coolant level
-generator's magnetothermic switch closed
-generator's magnetothermic switch open
-alarm from automatic batterycharger
-engine temperature pre-alarm (analogic sensor)
-analogic temperature sensor fault
-digital temperature sensor fault
-oil pressure pre-alarm (analogic sensor)
-analogic pressure sensor fault
-digital pressure sensor fault
-fuel level pre-alarm (analogic sensor)
-analogic fuel level sensor fault
-digital fuel level sensor fault
-n.8 programmable user alarms

Keyboard description



TE804 references normes

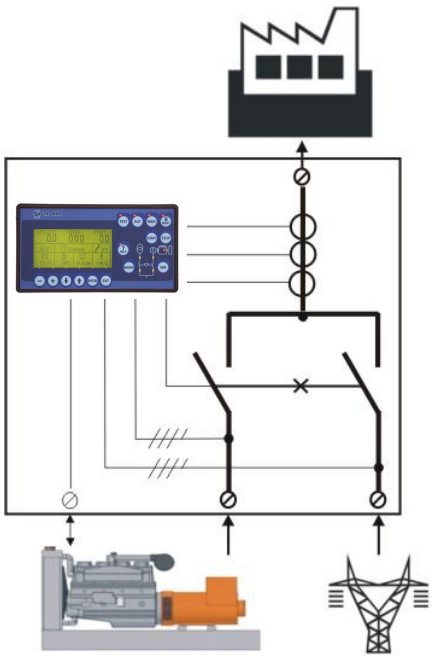
- IEC/EN 60255-6 , IEC/EN 60664-1
- IEC/EN 61000-4-5 , IEC/EN 61000-4-4,
- IEC/EN 61000-4-3 , IEC/EN 61000-4-6
- IEC/EN 60255-22-2 , IEC/EN 55011
- IEC/EN-60255-21-2-IEC/EN-60068-2-6(LLOYD)
- IEC/EN 60068-2-52 (RINA)
- IEC/EN 60028-2-61 , IEC/EN 61010-1

c UL us

TE804 technical data

- Working temperature -20 ÷ +60°C
- Stocking temperature –30 ÷ +80°C
- Supply range 9÷33Vcc
- Triphase voltage input range 50÷620Vac
- Frequency range 45 ÷ 65Hz
- Board front ambient protection IP64
- Measures accuracy +/- 1% +/- 1 digit
- True RMS measures (TRMS)
- Panel ambient protection IP54

Sample drawing



NEW TE804 (Small)

Automatic panels with changeover switch for generators
Diesel : 111 ÷ 554kVA

Tecnoelettra standard is all along to build electrical panels of an high quality, reliability and above all it leaves big internal spaces of connection of the power cables, offering a big practicality to the fittter. Even if the small series keeps high qualitative standard, it intends as an alternative for whom requires lower dimensions because of available spaces, without renounce to a good practicality of connection of the power cables on behalf of the fitter.

Socomec

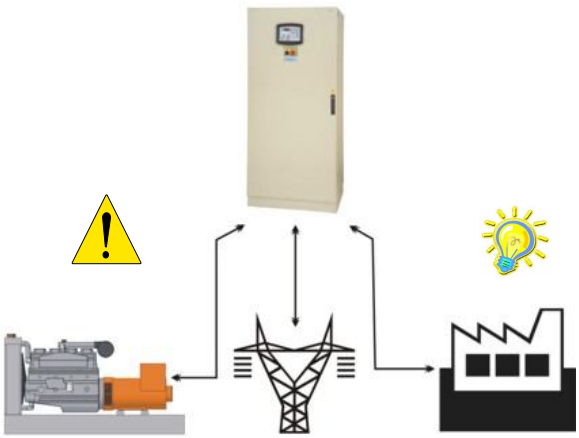
Technoelectric

Order table

Ith changeover switch with temperature </= 40°C	Vdc	KVA/400V-3Ph	Code 4 poles	Dimensions			Weight
				H	L	P	Kg
Small with contactors							
160	12	111	S804L4111	1000	600	250	50
160	24	111	S804L4111B	1000	600	250	50
250	24	173	S804L4173	1000	600	250	50
250	12	173	S804L4173B	1000	600	250	50
350	24	242	S804L4242	1000	600	320	60
Small with Socomec –ATY change-over							
400	24	277	S804LSATY40277	1000	600	450	75
400	12	277	S804LSATY40277B	1000	600	450	75
630	24	436	S804LSATY40436	1000	600	450	80
800	24	554	S804LSATY40554	1000	600	450	80
Small with Technoelectric change-over							
400	24	277	S804LTH40277	1000	600	450	75
400	12	277	S804LTH40277B	1000	600	450	75
630	24	436	S804LTH40436	1000	600	450	80
800	24	554	S804LTH40554	1000	600	450	80

TE805 (Standard)

Automatic panels with changeover switch for generators
Diesel : 19 ÷ 2214kVA



277-2214kVA

19-87kVA

Description

The project

TE805D automatic panels can be built into small metal boxes to be fixed to the wall or bigger metal boxes to be fixed to the floor. Their main functions are the generator control and change over switch control. They are provided with a powerful and really reliable electronic card named TE805. This electronic card is homologated in order to be used in the hardest environments with high security.
A 4 led digits display shows all controls in terms of engine control and electrical measures related to mains and generator.
TE805 electronic card is an easy and powerful device with a lot of available functions. An higher attention has been concentrated on power area where installation of switch to protect generator is involved. High quality components are used (such as Lovato, Socomec, Technoelectric). A wide space is provided to all users who have to create connection. From 100KVA copper bars (which are nickel-plated to prevent oxidation) are provided. They bring all connection to the lower part of the panel.

Standard composition

- 1 Metal box IP54 RAL 7032 / 7035
- 1 1P+N switch for engine pre-heating
- 1 Buzzer for acoustic alarm
- 1 Emergency button
- 1 Magnetothermic switch with tripping coil
- 1 Auxiliary terminal board
- 1 Power terminal board up to 87kVA (copper bus bars >88Kva)
- 1 Automatic battery charger
- - Protection fuses for auxiliary circuits
- 3 Amperemetric transformers
- **1 TE805 Electronic board with RS232 output for remote control and/or programmation**

Special functions included

- **Remote start**
- **Remote stop**
- **SCR**
- **EJP – EJP/T**
- ***Genset start/stop on mains kW threshold consuption***
- ***Dummy load control***
- ***Rent hours function***
  - ***Automatic and Test modes block***
- ***Engine start in case of mains contactor failure***
  - ***Function mode status output***

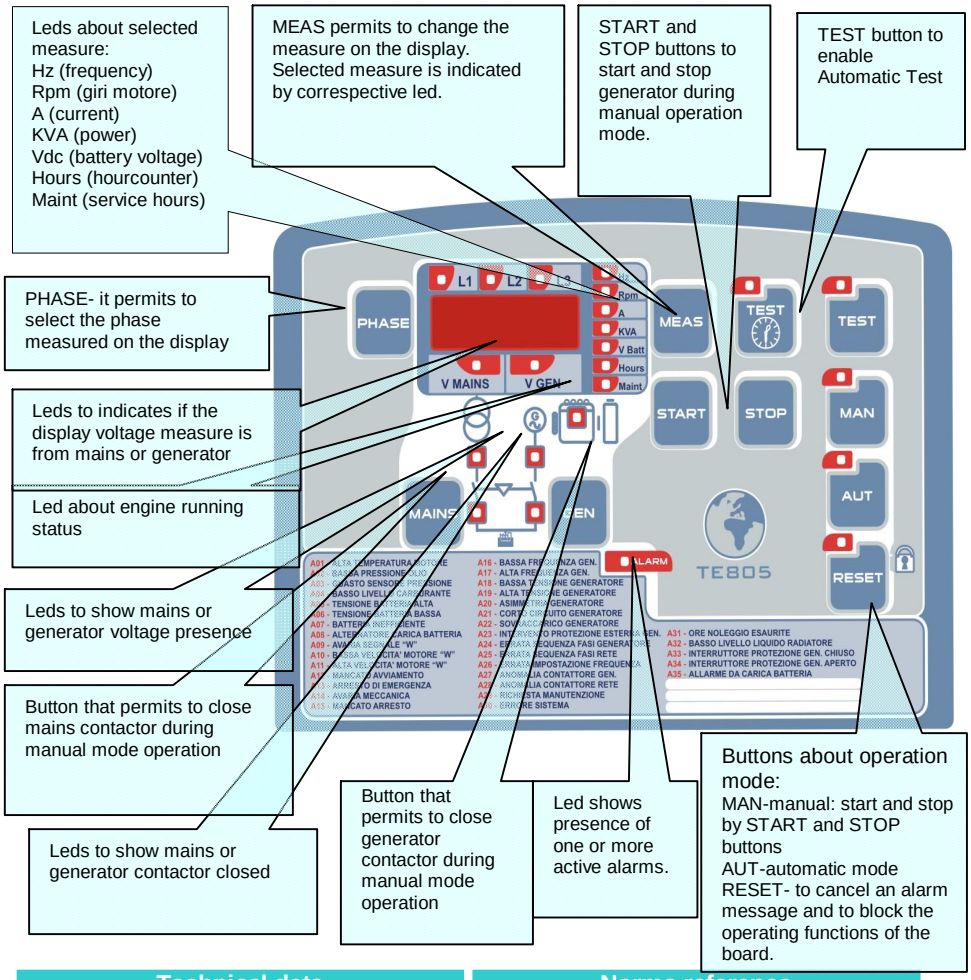
Order table

Ith changeover remote control with temperature </= 40°C	Vdc	KVA/400V-3Ph	Code 4 poles	Dimensions			Weight
				H	L	P	Kg
With contactors							
28	12	19	8054019	600	400	250	22
45	12	31	8054031	600	400	250	22
63	12	42	8054042	600	400	250	25
90	12	62	8054062	750	500	250	31
110	12	76	8054076	750	500	250	31
125	12	87	8054087	750	500	250	32
160	12	111	8054111	1200	600	320	65
160	24	111	8054111B	1200	600	320	65
250	24	173	8054173	1200	600	320	65
250	12	173	8054173B	1200	600	320	65
350	24	242	8054242	1600	700	400	130
With Socomec ATY change-over							
400	24	277	805SATY40277	1600	700	400	125
400	12	277	805SATY40277B	1600	700	400	125
630	24	436	805SATY40436	1600	800	500	135
800	24	554	805SATY40554	1600	800	500	135
1250	24	865	805SATY40865	1800	800	600	220
1600	24	1107	805SATY41107	1800	1000	800	350
2500	24	1730	805SATY41730	2100	800	1000	380
3200	24	2180	805SATY42180	2100	800	1000	430
With Technoelectric change-over							
400	24	277	805TH40277	1600	700	400	125
400	12	277	805TH40277B	1600	700	400	125
630	24	436	805TH40436	1600	800	500	135
800	24	554	805TH40554	1600	800	500	135
1250	24	865	805TH40865	1800	800	600	220
1600	24	1107	805TH41107	1800	1000	800	350
2500	24	1730	805TH41730	2100	800	1000	380
3150	24	2180	805TH42180	2100	800	1000	430

Control panel's functions

Leds 7 segments display, with scrolling alarm message
➢ Mains and generator triphase voltages
➢ Mains and generator frequency
➢ Triphase current
➢ Power in kVA
➢ Battery voltage
➢ Hourcounter
➢ Left maintenance hours
➢ Generator RPM
DISPLAY ALARMS
-high engine temperature (digital sensor)
-low oil pressure (digital sensor)
-unespected stop
-batterycharger alternator failure
-high engine speed
-low engine speed
-low generator voltage
-high generator voltage
-low fuel level (digital sensor)
-generator overload
-low battery voltage
-high battery voltage
-starting failure
-emergency stop
-pressure digital sensor fault
-faulty battery
-RPM signal detection fault
-stop failure
-low generator frequency
-high generator frequency
-generator voltage asymmetry
-short circuit protection
-generator external protection
-generator phases wrong sequence
-mains phases wrong sequence
-wrong frequency system selected
-generator contactor fault
-mains contactor fault
-maintenance request
-system error (board's operating system fault autodetection)
-rental hours finished
-low coolant level
-generator's magnetothermic switch closed
-generator's magnetothermic switch open
-alarm from automatic batterycharger
-4 programmable user alarms

Keyboard description



Technical data

- Working temperature -20 +50°C
- Stocking temperature -30+80°C
- Supply range 9-33Vdc
- Frequency range 45 ÷ 65Hz
- Measures accuracy +/- 1% +/- 1 digit
- Ambient protection IP20

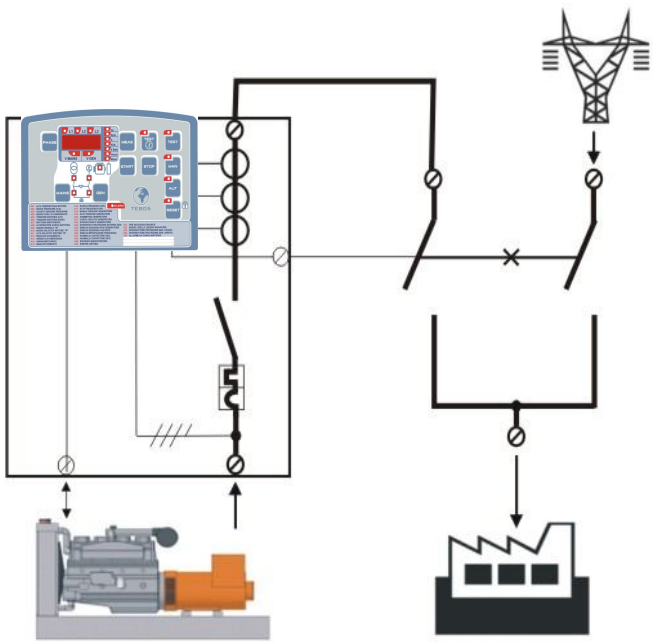
Norms reference

IEC/EN 50082-1 , IEC/EN61000-6-2, IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5
IEC/EN 61000-4-6
89/336/CEE , 72/23/CEE

CE

- ***Remote control:***
- ***By PC***
- ***By GSM system***
- ***By modem***
- ***By Ethernet and TCP/IP***
- ***By GPRS***

Sample drawing



Tecnoelettra srl (Italy) Internet :www.tecnoelettra.it E-mail:info@tecnoelettra.it
(2009) 2/3-TE805 standard - EN

TE805 (Small)

Automatic panels with changeover switch for generators
Diesel : 111 ÷ 554kVA

Tecnoelettra standard is all along to build electrical panels of an high quality, reliability and above all it leaves big internal spaces of connection of the power cables, offering a big practicality to the fittter. Even if the small series keeps high qualitative standard, it intends as an alternative for whom requires lower dimensions because of available spaces, without renounce to a good practicality of connection of the power cables on behalf of the fitter.

Socomec

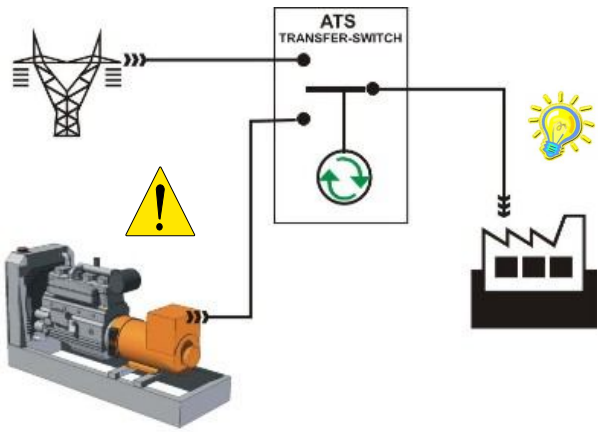
Technoelectric

Order table

Ith changeover switch with temperature </= 40°C	Vdc	KVA/400V-3Ph	Code 4 poles	Dimensions			Weight
				H	L	P	Kg
Small with contactors							
160	12	111	S8054111	1000	600	250	50
160	24	111	S8054111B	1000	600	250	50
250	24	173	S8054173	1000	600	250	50
250	12	173	S8054173B	1000	600	250	50
350	24	242	S8054242	1000	600	320	60
Small with Socomec –ATY change over							
400	24	277	S805SATY40277	1000	600	450	75
400	12	277	S805SATY40277B	1000	600	450	75
630	24	436	S805SATY40436	1000	600	450	80
800	24	554	S805SATY40554	1000	600	450	80
Small with Technoelectric change over							
400	24	277	S805TH40277	1000	600	450	75
400	12	277	S805TH40277B	1000	600	450	75
630	24	436	S805TH40436	1000	600	450	80
800	24	554	S805TH40554	1000	600	450	80

ATS-E

Automatic Transfer Switch panels for mains/generators from 1-19 ÷ 2214kVA



Description

The project

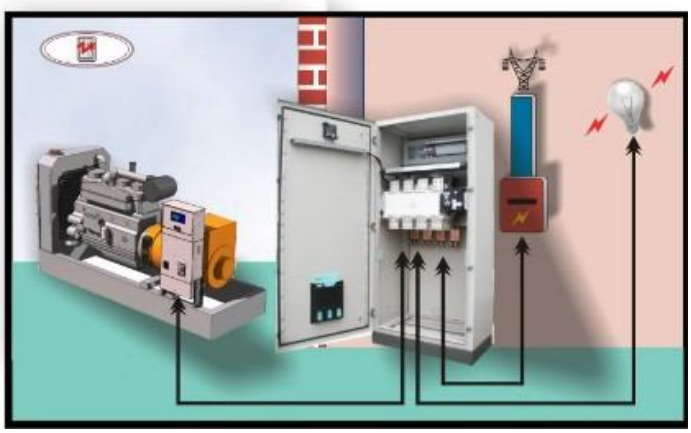
ATS-E panels are mains/generator change-over switching panels. They have been conceived in order to be connected to generators which are already equipped with an automatic control panel for mains or generator. The panel is provided with an ATS-E module whose main function is the possibility to make the manual mains/generator remote change over switching and vice versa.
An high attention has been concentrated on power area related to mains/genset switching. Actually, high quality components are used (such as Lovato and Socomec) and an important attentino has been dedicated to power cables connection area. A wide space is provided to all users who have to create connection. From 100KVA copper bars (which are nickel-plated to prevent oxidation) are provided. They bring all connection to the lower part of the panel.

Standard composition

Composition:

- 1-metal box IP52 ral 7032 / 7035
- 1-mains/generator change-over switching realized by contactors up to 242kVA and by motorized Change-over from 277kVA to 2214kVA
- 1-auxiliary terminal board
- 1-power terminal board or power bus bars
- protection fuses
- Control module: ATS-E

Application sample

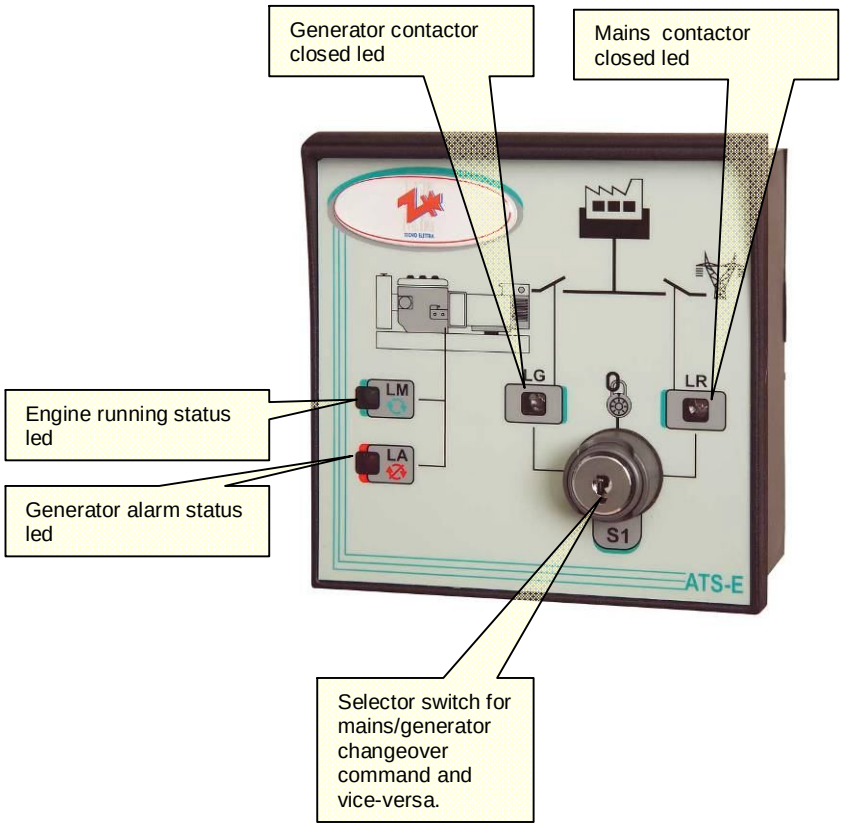


Order table

kVA	ATS-E	H	L	P	Kg
	4-poli				
With contactors					
19	103E4019	500	400	200	18
31	103E4031	500	400	200	18
42	103E4042	500	400	200	18
62	103E4062	500	400	200	20
76	103E4076	500	400	200	25
87	103E4087	500	400	200	25
111	103E4111	800	600	300	55
173	103E4173	800	600	300	55
242	103E4242	1000	600	450	80
With Socomec change-over					
277	103EATY40277	1000	600	450	75
436	103EATY40436	1000	600	450	85
554	103EATY40554	1000	600	450	85
865	103EATY40865	1600	800	600	210
1107	103EATY41107	1800	1000	800	340
1730	103EATY41730	2000	1000	800	370
2214	103EATY42180	2000	1000	800	420
With Technoelectric change-over					
277	103ETH40277	1000	600	450	75
436	103ETH40436	1000	600	450	85
554	103ETH40554	1000	600	450	85
865	103ETH40865	1600	800	600	210
1107	103ETH41107	1800	1000	800	340
1730	103ETH41730	2000	1000	800	370
2180	103ETH42180	2000	1000	800	420

Control panel's functions

The module enables the Manual control of Generator/Mains transfer switch (ATS) or vice-versa, by means of a key selector. The Generator/Mains change-over switch closing is signalled by the lighting of the respective Led (LR for mains side and LG for generator side). The module foresees two indications coming from the generator control panel:
LM: indicates that the engine is running
LA: indicates that the engine is in alarm



Technical data

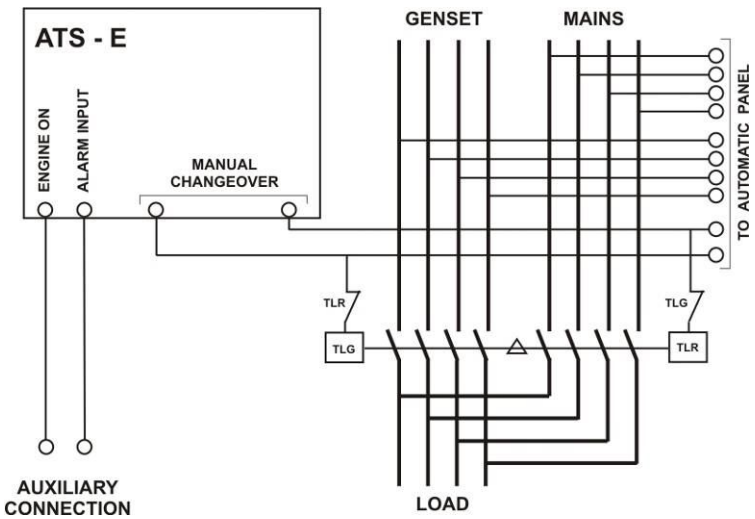
- Working temperature -20 ÷ +50°C
- Stocking temperature -30 ÷ +80°C
- Frequency range 45 ÷ 65Hz
- Ambient protection IP52

Reference normes

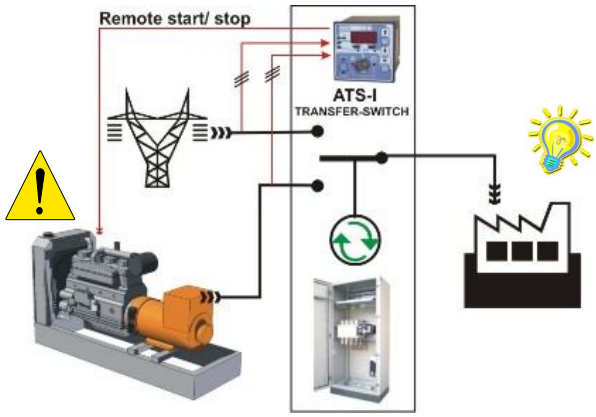
IEC/EN 50082-1 , IEC/EN61000-6-2, IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5
IEC/EN 61000-4-6
89/336/CEE , 72/23/CEE

CE

Sample drawing



ATS-I
Automatic Transfer Switch panels for mains/generators from 1-19 ÷ 2214kVA



The project

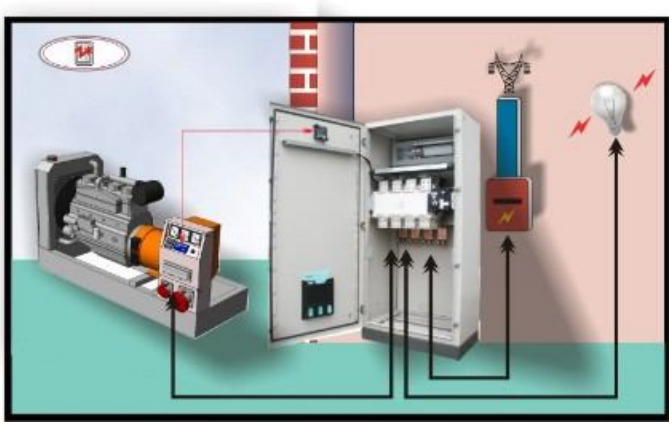
ATS-I panels are mains/generator change-over switching panels. This model is suitable to be connected to generators where a manual panel is installed and where protection device has to start and stop the generator automatically by a remote signal (i.e. Tecnoelettra's engine protection PDM1 or TE208).
In this case, ATS-I switching panel has an intelligent device which controls all electrical parameters for mains and generator by sending a starting signal to generator in case of failure in electrical line.
An high attention has been concentrated on power area related to mains/genset switching. Actually, high quality components are used (such as Lovato and Socomec) and an important attentino has been dedicated to power cables connection area. A wide space is provided to all users who have to create connection. From 100KVA copper bars (which are nickel-plated to prevent oxidation) are provided. They bring all connection to the lower part of the panel.

Standard composition

Composition:

- 1-metal box IP52 ral 7032 / 7035
- 1-mains/generator change-over switching realized by contactors up to 242kVA and by motorized change-over from 277kVA to 2214kVA
- 1-auxiliary terminal board
- 1-power terminal board or power bus bars
- protection fuses
- Control module: ATS-I

Application sample

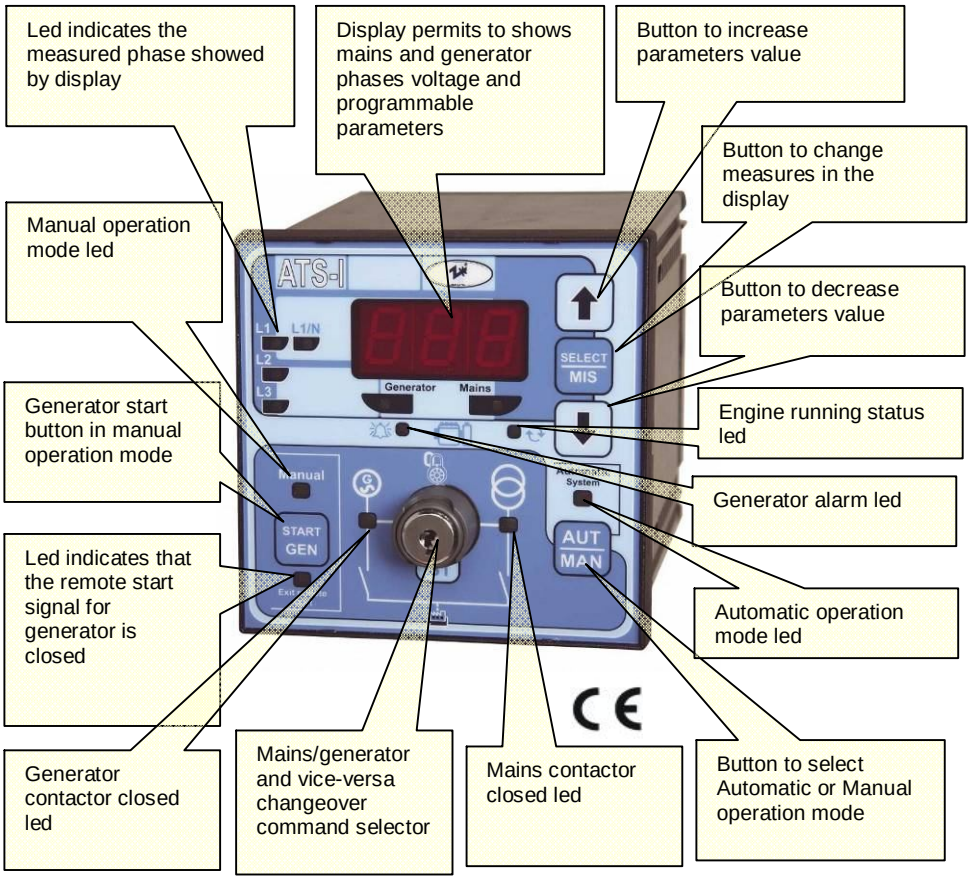


Order table

kVA	ATS-I	H	L	P	Kg
	4-poli				
With contactors					
19	103I4019	500	400	200	18
31	103I4031	500	400	200	18
42	103I4042	500	400	200	18
62	103I4062	500	400	200	20
76	103I4076	500	400	200	25
87	103I4087	500	400	200	25
111	103I4111	800	600	300	55
173	103I4173	800	600	300	55
242	103I4242	1000	600	450	80
With Socomec change-over					
277	103IATY40277	1000	600	450	75
436	103IATY40436	1000	600	450	85
554	103IATY40554	1000	600	450	85
865	103IATY40865	1600	800	600	210
1107	103IATY41107	1800	1000	800	340
1730	103IATY41730	2000	1000	800	370
2214	103IATY42180	2000	1000	800	420
With Technoelectric change-over					
277	103ITH40277	1000	600	450	75
436	103ITH40436	1000	600	450	85
554	103ITH40554	1000	600	450	85
865	103ITH40865	1600	800	600	210
1107	103ITH41107	1800	1000	800	340
1730	103ITH41730	2000	1000	800	370
2180	103ITH42180	2000	1000	800	420

Control panel's functions

ATS-I power unit enables the teleswitching control in Manual or Automatic mode. In manual mode operation it is possible to send, through a proper button, a stop and start remote signal to the generator.
Genset/Mains teleswitching is manually managed through the key selector.
In automatic mode operation the power unit controls the net through the thresholds of operation for minimum, maximum voltage or phase failure.
In case of operation, a contact for the generator remote start control is closed.
When the power unit receives the signal of started generator, after having checked that the frequency and voltage are within the right values, it controls the closing of the group contactor. When the net voltage is returned within the limits, the power unit makes the Mains/Genset switching, and successively, after an adjustable time, it sends a stop signal to the generator.
The voltage values on L1-L2-L3 (L1/N) phases are showed on the display.



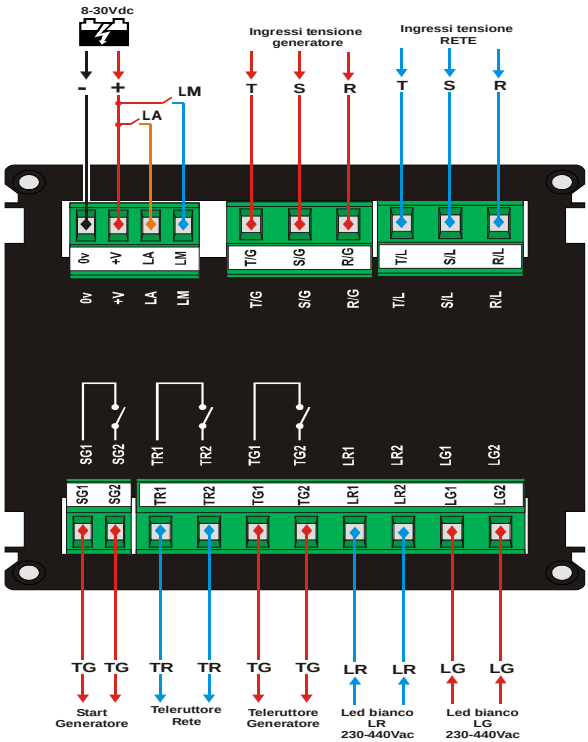
Technical data

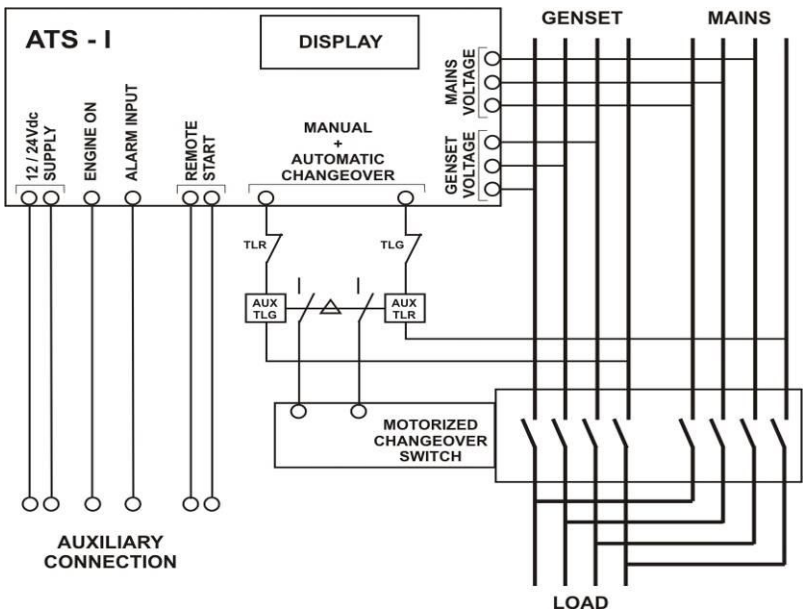
- Working temperature-20 +50°C
- Stocking temperature -30+80°C
- Frequency range 45 ÷ 65Hz
- Measures accuracy +/- 1% +/- 1 digit
- Ambient protection IP52

Reference normes

IEC/EN 50082-1 , IEC/EN61000-6-2, IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5
IEC/EN 61000-4-6
89/336/CEE , 72/23/CEE

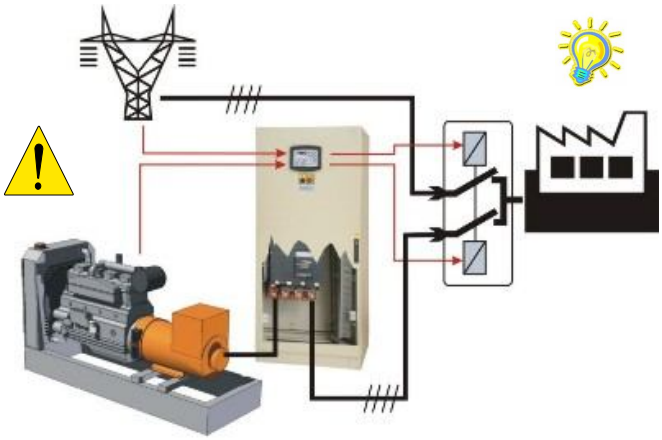
Collegamenti ATS-I





TE806D

Automatic panels with magnetothermic switch and changeover remote command from 11 to 277kVA



Description

The project

TE806D automatic panels can be built into small metal boxes to be fixed to the wall or bigger metal boxes to be fixed to the floor. Their main functions are the generator control and change over switch control. They are provided with a powerful and really reliable electronic card named TE806. This electronic card is homologated in order to be used in the hardest environments with high security. A 4 led digits display shows all controls in terms of engine control and electrical measures related to mains and generator. TE806 electronic card is an easy and powerful device with a lot of available functions. An higher attention has been concentrated on power area where installation of switch to protect generator is involved. High quality components are used (such as General Electric, AEG, Moeller) A wide space is provided to all users who have to create connection. From 100KVA copper bars (which are nickel-plated to prevent oxidation) are provided. They bring all connection to the lower part of the panel.

Standard composition

- 1 Metal box IP54 RAL 7032 / 7035
- 1 1P+N switch for engine pre-heating
- 1 Buzzer for acoustic alarm
- 1 Emergency button
- 1 Magnetothermic switch with tripping coil
- 1 Auxiliary terminal board
- 1 Power terminal board up to 87kVA (copper bus bars >88Kva)
- 1 Automatic battery charger
- - Protection fuses for auxiliary circuits
- 1 Amperemetric transformer
- 1 Mains control with three-phase relay
- **1 TE806 Electronic board with RS232 output for programmation**

Order table

CODE	KVA MAX	Vdc	Amp max	Hz	N° POLES	L	H	P
806DRT40011	11	12	16	50	4	400	600	250
806DRT40014	14	12	20	50	4	400	600	250
806DRT40017	17	12	25	50	4	400	600	250
806DRT40022	22	12	32	50	4	400	600	250
806DRT40028	28	12	40	50	4	400	600	250
806DRT40035	35	12	50	50	4	400	600	250
806DRT40044	44	12	63	50	4	400	600	250
806DRT40055	55	12	80	50	4	400	600	250
806DRT40070	70	12	100	50	4	400	600	250
806DRT40087	87	12	125	50	4	400	600	250
806DRT40111	111	12	160	50	4	550	850	250
806DRT40138	138	12	200	50	4	550	850	250
806DRT40173	173	12	250	50	4	550	850	250
806DRT40277	277	12	400	50	4	600	1000	320

Special functions

- **Remote Start**
- **Remote Stop**

Function enable only in automatic mode; it permits to stop the generator by an external signal, also during a mains failure. A sample of this function, is when you want to start the generator automatically after a mains failure but only if an external level sensor confirm presence of water in a tank or in a garage.

- **EJP/T**

Specific function for French market: generator starting is by a remote signal and the changeover switch is after a programmable time max 30'.

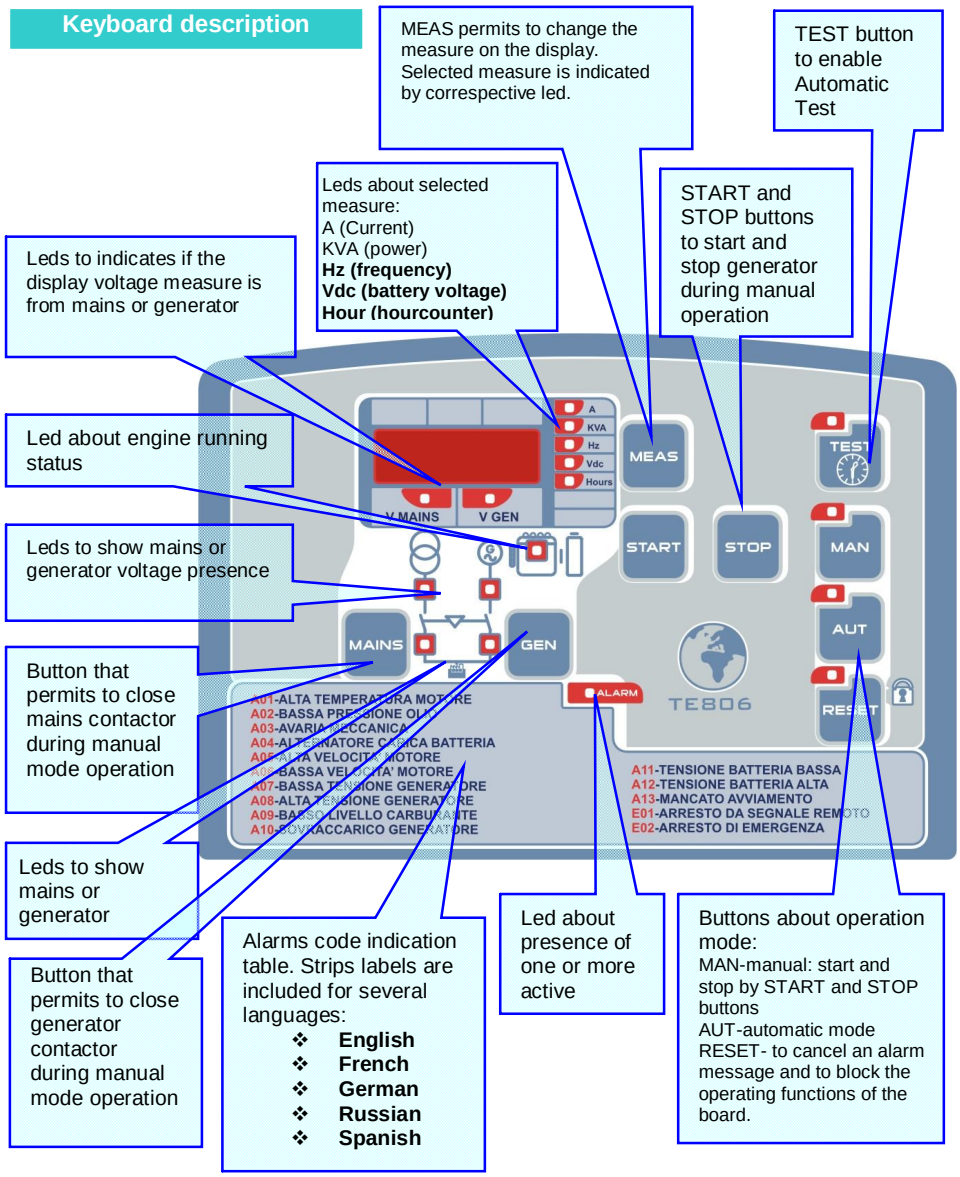
- **SCR**

Function enable only in automatic mode; it permits to start the generator and make the changeover switch on the load by a remote signal also with mains presence. It permits also the stop of the generator and the changeover switch on mains side when this signal disappear.

Control panel's function

➢ Voltage monitoring system: mains and generaor monophase
DISPLAY ELECTRICAL MEASURES
➢ Mains and Generator voltage
➢ Frequency
➢ Current
➢ Power in kVA
➢ Battery voltage
➢ Hourcounter
DISPLAY ALARMS
-high engine temperature
-low oil pressure
-unespected stop
-batterycharger alternator fault
-high engine speed
-low engine speed
-low generator voltage
-high generator voltage
-low fuel level
-generator overload
-low battery voltage
-high battery voltage
-starting failure
-emergency stop

Keyboard description



Technical data

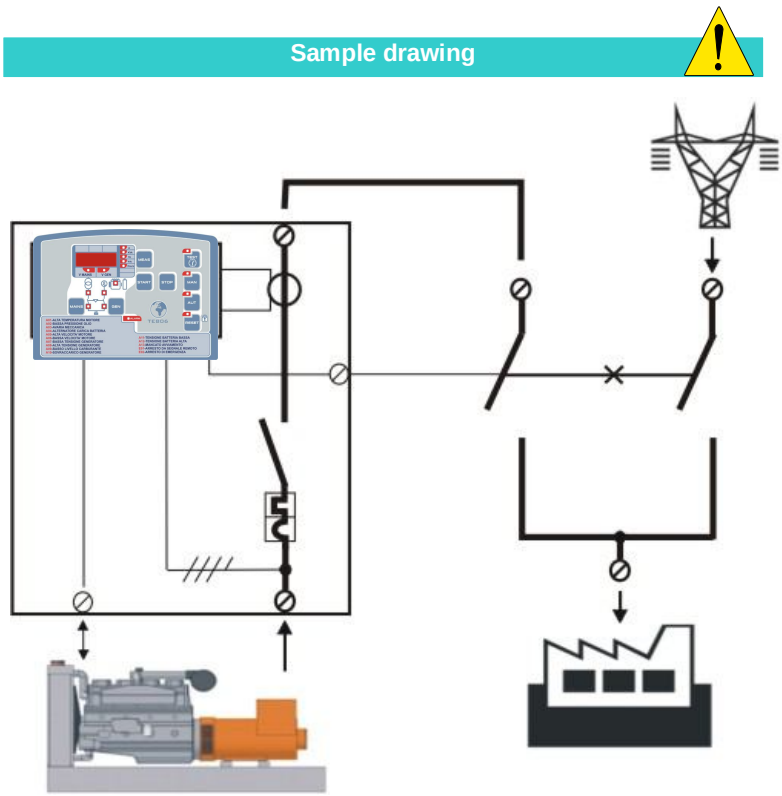
- Working temperature -20 ÷ +50°C
- Stocking temperature –30 ÷+80°C
- Supply range 9-17Vdc
- Frequency range 45 ÷ 65Hz
- Measures accuracy +/- 5% +/- 1 digit
- Command side ambient protection IP55
- Power side ambient protection IP44

Reference normes

IEC/EN 50082-1 , IEC/EN61000-6-2, IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5
IEC/EN 61000-4-6
89/336/CEE , 72/23/CEE

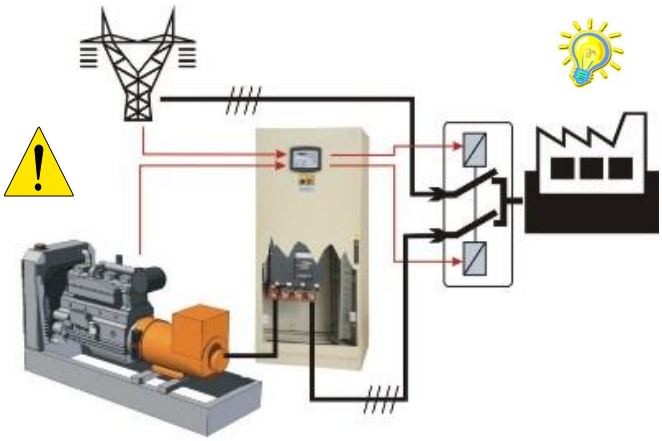
CE

Sample drawing



TE805D

Automatic panels with magnetothermic switch and changeover remote command from 11 to 2214kVA



Description

The project

TE805D automatic panels can be built into small metal boxes to be fixed to the wall or bigger metal boxes to be fixed to the floor. Their main functions are the generator control and change over switch control. They are provided with a powerful and really reliable electronic card named TE805. This electronic card is homologated in order to be used in the hardest environments with high security. A 4 led digits display shows all controls in terms of engine control and electrical measures related to mains and generator. TE805 electronic card is an easy and powerful device with a lot of available functions. An higher attention has been concentrated on power area where installation of switch to protect generator is involved. High quality components are used (such as General Electric, AEG, Moeller) A wide space is provided to all users who have to create connection. From 100KVA copper bars (which are nickel-plated to prevent oxidation) are provided. They bring all connection to the lower part of the panel.

Standard composition

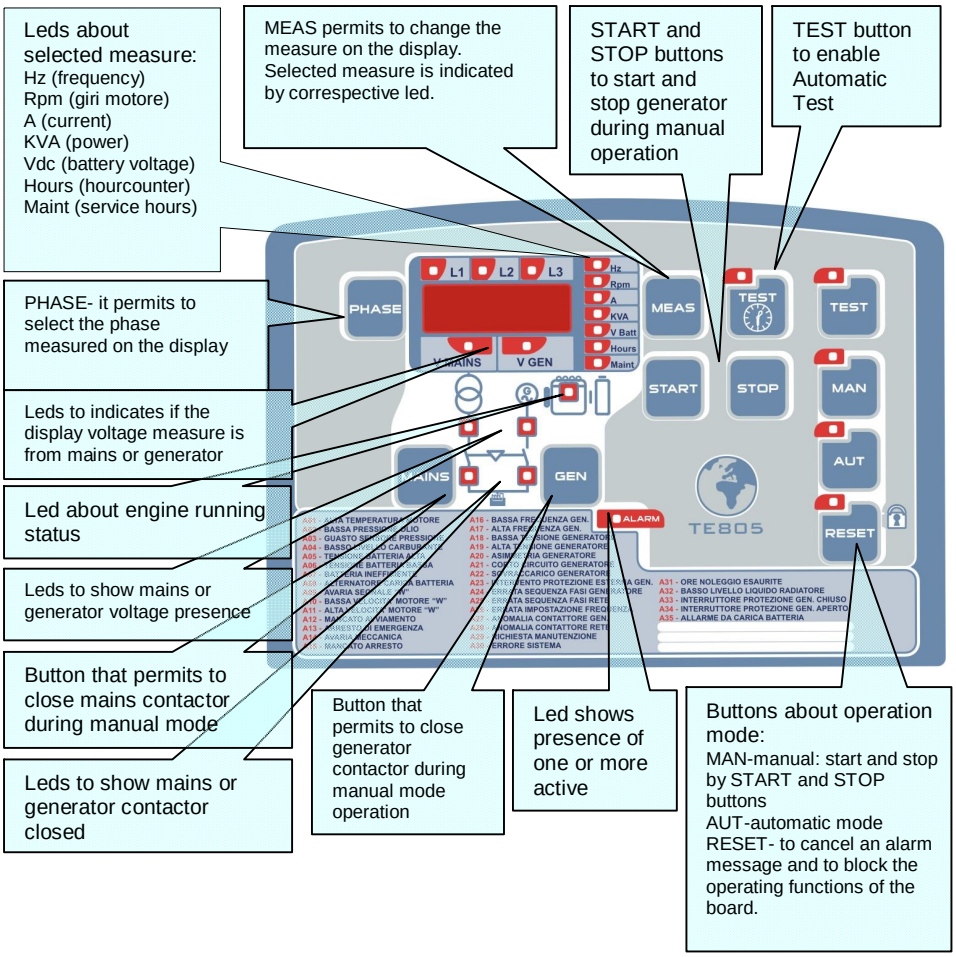
- 1 Metal box IP54 RAL 7032 / 7035
- 1 1P+N switch for engine pre-heating
- 1 Buzzer for acoustic alarm
- 1 Emergency button
- 1 Magnetothermic switch with tripping coil
- 1 Auxiliary terminal board
- 1 Power terminal board up to 87kVA (copper bus bars >88Kva)
- 1 Automatic battery charger
- 10 Protection fuses for auxiliary circuits
- 3 Amperemetric transformers
- **1 TE805 ELECTRONIC BOARD with RS232 output for remote control and/or programmation**

Order table

CODE	KVA MAX	Vdc	Amp max	Hz	N° POLES	L	H	P
805D40011	11	12	16	50	4	400	600	250
805D40014	14	12	20	50	4	400	600	250
805D40017	17	12	25	50	4	400	600	250
805D40022	22	12	32	50	4	400	600	250
805D40028	28	12	40	50	4	400	600	250
805D40035	35	12	50	50	4	400	600	250
805D40044	44	12	63	50	4	400	600	250
805D40055	55	12	80	50	4	400	600	250
805D40070	70	12	100	50	4	400	600	250
805D40087	87	12	125	50	4	400	600	250
805D40111	111	12	160	50	4	550	850	250
805D40138	138	24	200	50	4	550	850	250
805D40138B	138	12	200	50	4	550	850	250
805D40173	173	24	250	50	4	550	850	250
805D40173B	173	12	250	50	4	550	850	250
805D40277	277	24	400	50	4	600	1000	320
805D40436	436	24	630	50	4	600	1200	320
805D40554	554	24	800	50	4	600	1200	320
805D40865	865	24	1250	50	4	800	1600	500
805D41107	1107	24	1600	50	4	800	1600	500
805D41384	1384	24	2000	50	4	1000	1800	800
805D41730	1730	24	2500	50	4	1000	1800	800
805D42214	2214	24	3200	50	4	1000	1800	800

Control panel's functions

Leds 7 segments display, with scrolling alarm message
➢ Mains and generator triphase voltages
➢ Mains and generator frequency
➢ Triphase current
➢ Power in kVA
➢ Battery voltage
➢ Hourcounter
➢ Left maintenance hours
➢ Generator RPM
DISPLAY ALARMS
-high engine temperature (digital sensor)
-low oil pressure (digital sensor)
-unespected stop
-batterycharger alternator failure
-high engine speed
-low engine speed
-low generator voltage
-high generator voltage
-low fuel level (digital sensor)
-generator overload
-low battery voltage
-high battery voltage
-starting failure
-emergency stop
-pressure digital sensor fault
-faulty battery
-RPM signal detection fault
-stop failure
-low generator frequency
-high generator frequency
-generator voltage asymmetry
-short circuit protection
-generator external protection
-generator phases wrong sequence
-mains phases wrong sequence
-wrong frequency system selected
-generator contactor fault
-mains contactor fault
-maintenance request
-system error (board's operating system fault autodetection)
-rental hours finished
-low coolant level
-generator's magnetothermic switch closed
-generator's magnetothermic switch open
-alarm from automatic batterycharger
-4 programmable user alarms



Technical data

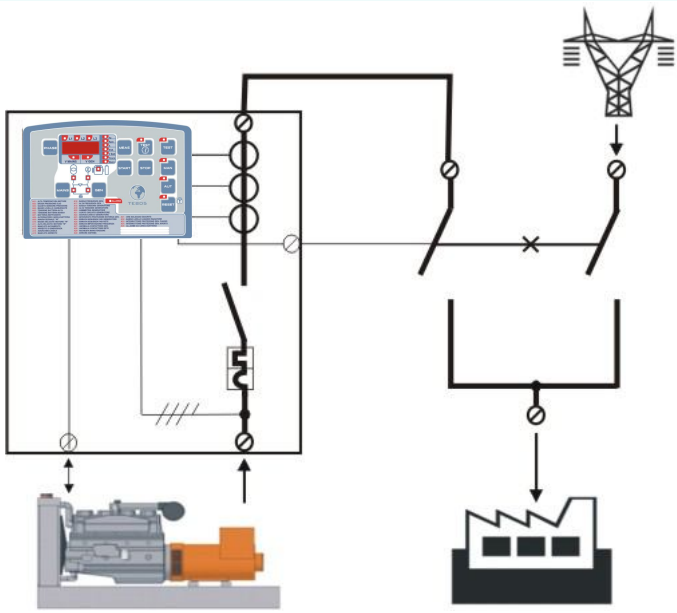
- Working temperature -20 +50°C
- Stocking temperature -30+80°C
- Supply range 9-33Vdc
- Frequency range 45 ÷ 65Hz
- Measures accuracy +/- 1% +/- 1 digit
- Board front ambient protection IP54

Normes reference

IEC/EN 50082-1 , IEC/EN61000-6-2, IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5
IEC/EN 61000-4-6
89/336/CEE , 72/23/CEE

- ***Remote Control***
- ***By PC***
- ***By GSM system***
- ***By Ethernet / TCP-IP***
- ***By GPRS***
- ***By Modem***

Sample drawing



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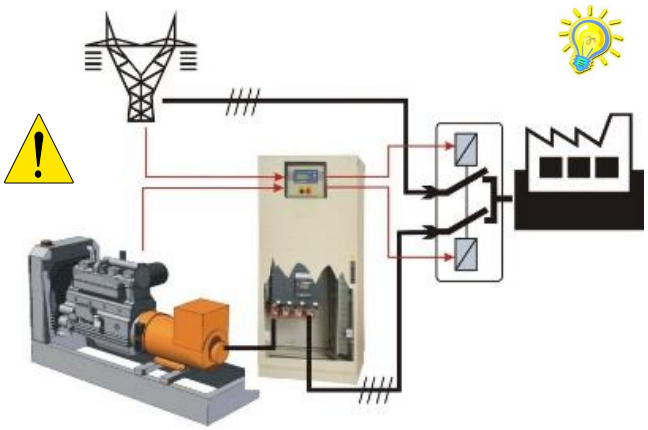
(2009) 2/2-TE805D - EN

TE804LD

Automatic panels with magnetothermic switch and changeover remote command from 11 to 2214kVA



Description

The project

TE804D automatic panels can be built into small metal boxes to be fixed to the wall or bigger metal boxes to be fixed to the floor. Their main functions are the generator control and change over switch control. They are provided with a powerful and really reliable electronic card named TE804. This electronic card is homologated in order to be used in the hardest environments with high security. A back light display shows all controls in terms of engine control and electrical measures related to mains and generator. This electronic card allows to satisfy every customer's request since all is included and the remote control too. An higher attention has been concentrated on power area where installation of switch to protect generator is involved. High quality components are used (such as General Electric, AEG, Moeller). A wide space is provided to all users who have to create connection. From 100KVA copper bars (which are nickel-plated to prevent oxidation) are provided. They bring all connection to the lower part of the panel.

Standard composition

- 1 Metal box IP54 RAL 7032 / 7035
- 1 1P+N switch for engine pre-heating
- 1 Buzzer for acoustic alarm
- 1 Emergency button
- 1 Magnetothermic switch with tripping coil
- 1 Auxiliary terminal board
- 1 Power terminal board up to 87kVA (copper bus bars >88Kva)
- 1 Automatic battery charger
- 10 Protection fuses for auxiliary circuits
- 3 Amperemetric transformers
- **1 TE804 ELECTRONIC BOARD with RS232 output for remote control and/or programmation**

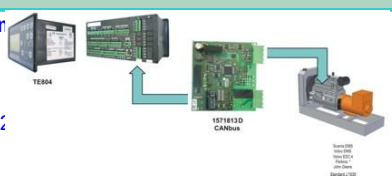
Special functions included

- **Remote start**
- **Remote stop**
- **SCR**
- **EJP – EJP/T**
- ***Genset start/stop on mains kW threshold consuption***
- ***Dummy load control***
- ***Rent hours function***
- ***Automatic and Test modes block***
- ***Engine start in case of mains contactor failure***
- ***Function mode status output***
- ***Remote control***

Optional board for Canbus J1939 communication is available

Code 1571813D: CANbus cor

- Scania EMS
- Volvo EMS / EMS2
- Volvo EDC4
- Perkins series 2300/
- John Deere
- Deutz EMR2
- Standard J1939



Order table

CODE	KVA MAX	Vdc	Amp max	Hz	N° POLES	L	H	P
804LD40011	11	12	16	50	4	400	600	250
804LD40014	14	12	20	50	4	400	600	250
804LD40017	17	12	25	50	4	400	600	250
804LD40022	22	12	32	50	4	400	600	250
804LD40028	28	12	40	50	4	400	600	250
804LD40035	35	12	50	50	4	400	600	250
804LD40044	44	12	63	50	4	400	600	250
804LD40055	55	12	80	50	4	400	600	250
804LD40070	70	12	100	50	4	400	600	250
804LD40087	87	12	125	50	4	400	600	250
804LD40111	111	12	160	50	4	550	850	250
804LD40138	138	24	200	50	4	550	850	250
804LD40138B	138	12	200	50	4	550	850	250
804LD40173	173	24	250	50	4	550	850	250
804LD40173B	173	12	250	50	4	550	850	250
804LD40277	277	24	400	50	4	600	1000	320
804LD40436	436	24	630	50	4	600	1200	320
804LD40554	554	24	800	50	4	600	1200	320
804LD40865	865	24	1250	50	4	800	1600	500
804LD41107	1107	24	1600	50	4	800	1600	500
804LD41384	1384	24	2000	50	4	1000	1800	800
804LD41730	1730	24	2500	50	4	1000	1800	800
804LD42214	2214	24	3200	50	4	1000	1800	800

Control panel's function

- LCD graphic display, 192x64pixel, 95x45mm with backlight, 5 languages available, minimum and maximum working temperature sensor
- Mains and generator triphase voltages
- Mains and generator frequency
- Triphase current
- Power in kVA, kW, kVAR
- Battery voltage
- Hourcounter
- Left maintenance hours
- Generator RPM
- Energy meters
- Power factor meter

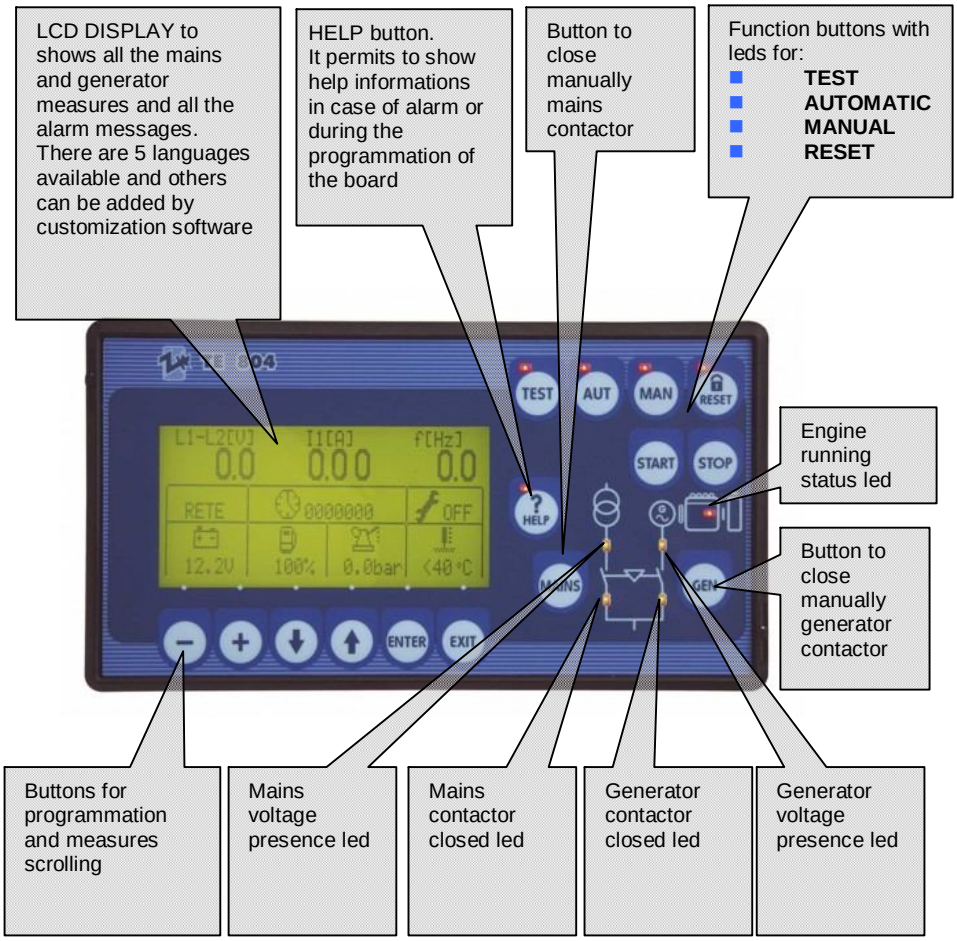
DISPLAY ALARMS

-high engine temperature (digital sensor)
-low oil pressure (digital sensor)
-unespected stop
-batterycharger alternator failure
-high engine speed
-low engine speed
-low generator voltage
-high generator voltage
-low fuel level (digital sensor)
-generator overload
-low battery voltage
-high battery voltage
-starting failure
-emergency stop
-pressure digital sensor fault
-faulty battery
-RPM signal detection fault
-stop failure
-low generator frequency
-high generator frequency
-generator voltage asymmetry
-short circuit protection
-generator external protection
-generator phases wrong sequence
-mains phases wrong sequence
-wrong frequency system selected
-generator contactor fault
-mains contactor fault
-maintenance request
-system error (board's operating system fault autodetection)
-rental hours finished
-low coolant level
-generator's magnetothermic switch closed
-generator's magnetothermic switch open
-alarm from automatic batterycharger
-engine temperature pre-alarm (analogic sensor)
-analogic temperature sensor fault
-digital temperature sensor fault
-oil pressure pre-alarm (analogic sensor)
-analogic pressure sensor fault
-digital pressure sensor fault
-fuel level pre-alarm (analogic sensor)
-analogic fuel level sensor fault
-digital fuel level sensor fault
-n.8 programmable user alarms

Panel reference normes

IEC/EN 50082-1, IEC/EN61000-6-2, IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5
IEC/EN 61000-4-6 , 89/336/CEE , 72/23/CEE

Keyboard description



TE804 board reference normes

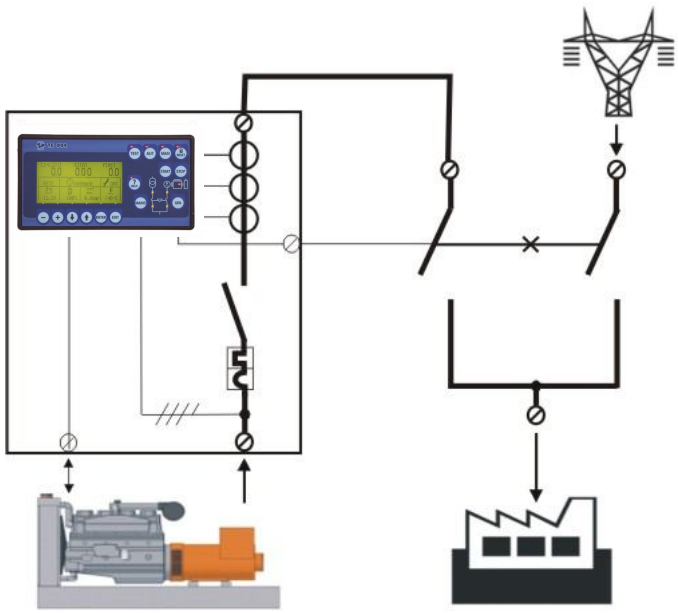
- IEC/EN 60255-6 , IEC/EN 60664-1
- IEC/EN 61000-4-5 , IEC/EN 61000-4-4,
- IEC/EN 61000-4-3 , IEC/EN 61000-4-6
- IEC/EN 60255-22-2 , IEC/EN 55011
- IEC/EN-60255-21-2-IEC/EN-60068-2-6(LLOYD)
- IEC/EN 60068-2-52 (RINA)
- IEC/EN 60028-2-61 , IEC/EN 61010-1

c UL us

TE804 board technical data

- Working temperature -20 ÷ +60°C
- Stocking temperature –30 ÷ +80°C
- Supply range 9÷33Vcc
- Triphase voltage input range 50÷620Vac
- Frequency range 45 ÷ 65Hz
- Board front ambient protection IP64
- Measures accuracy +/- 1% +/- 1 digit
- True RMS measures (TRMS)
- Panel ambient protection IP20

Sample drawing



Control panel's functions

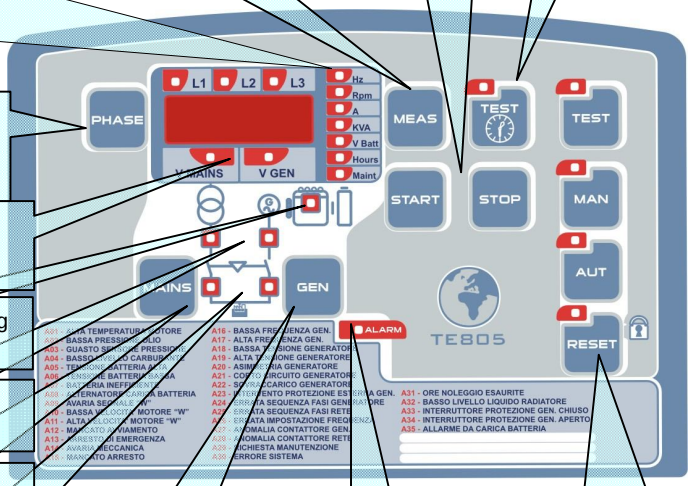
Leds 7 segments display, with scrolling alarm message
➢ Mains and generator triphase voltages
➢ Mains and generator frequency
➢ Triphase current
➢ Power in kVA
➢ Battery voltage
➢ Hourcounter
➢ Left maintenance hours
➢ Generator RPM
DISPLAY ALARMS
-high engine temperature (digital sensor)
-low oil pressure (digital sensor)
-unespected stop
-batterycharger alternator failure
-high engine speed
-low engine speed
-low generator voltage
-high generator voltage
-low fuel level (digital sensor)
-generator overload
-low battery voltage
-high battery voltage
-starting failure
-emergency stop
-pressure digital sensor fault
-faulty battery
-RPM signal detection fault
-stop failure
-low generator frequency
-high generator frequency
-generator voltage asymmetry
-short circuit protection
-generator external protection
-generator phases wrong sequence
-mains phases wrong sequence
-wrong frequency system selected
-generator contactor fault
-mains contactor fault
-maintenance request
-system error (board's operating system fault autodetection)
-rental hours finished
-low coolant level
-generator's magnetothermic switch closed
-generator's magnetothermic switch open
-alarm from automatic batterycharger
-4 programmable user alarms

Leds about selected measure:
Hz (frequency)
Rpm (giri motore)
A (current)
KVA (power)
Vdc (battery voltage)
Hours (hourcounter)
Maint (service hours)

MEAS permits to change the measure on the display. Selected measure is indicated by correspective led.

START and STOP buttons to start and stop generator during manual operation

TEST button to enable Automatic Test



PHASE- it permits to select the phase measured on the display

Leds to indicates if the display voltage measure is from mains or generator

Led about engine running status

Leds to show mains or generator voltage presence

Button that permits to close mains contactor during manual mode

Leds to show mains or generator contactor closed

Button that permits to close generator contactor during manual mode operation

Led shows presence of one or more active

Buttons about operation mode:
MAN-manual: start and stop by START and STOP buttons
AUT-automatic mode
RESET- to cancel an alarm message and to block the operating functions of the board.

Technical data

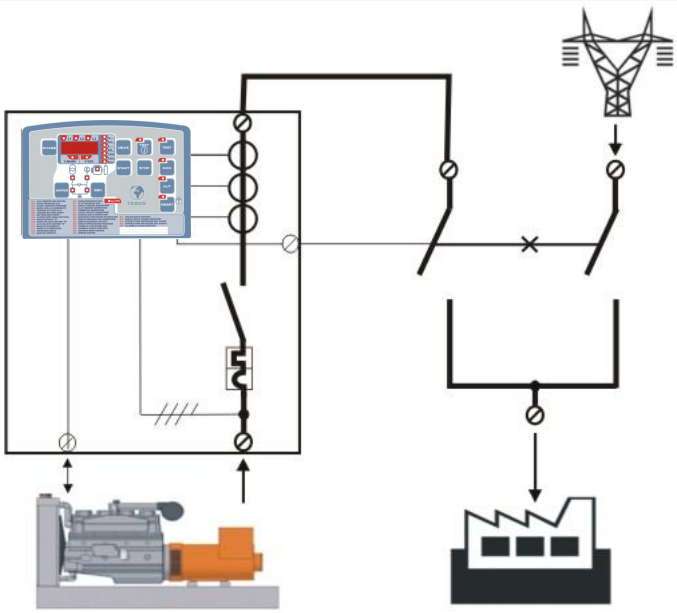
- Working temperature -20 +50°C
- Stocking temperature -30+80°C
- Supply range 9-33Vdc
- Frequency range 45 ÷ 65Hz
- Measures accuracy +/- 1% +/- 1 digit
- Board front ambient protection IP54

Normes reference

IEC/EN 50082-1 , IEC/EN61000-6-2,
IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4,
IEC/EN61000-4-5
IEC/EN 61000-4-6
89/336/CEE , 72/23/CEE

Sample drawing

- ***Remote Control***
- ***By PC***
- ***By GSM system***
- ***By Ethernet / TCP-IP***
- ***By GPRS***
- ***By Modem***



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(2009) 2/2-TEM8AC805

Control panel's function

- LCD graphic display, 192x64pixel, 95x45mm with backlight, 5 languages available, minimum and maximum working temperature sensor
- Mains and generator triphase voltages
- Mains and generator frequency
- Triphase current
- Power in kVA, kW, kVAR
- Battery voltage
- Hourcounter
- Left maintenance hours
- Generator RPM
- Energy meters
- Power factor meter

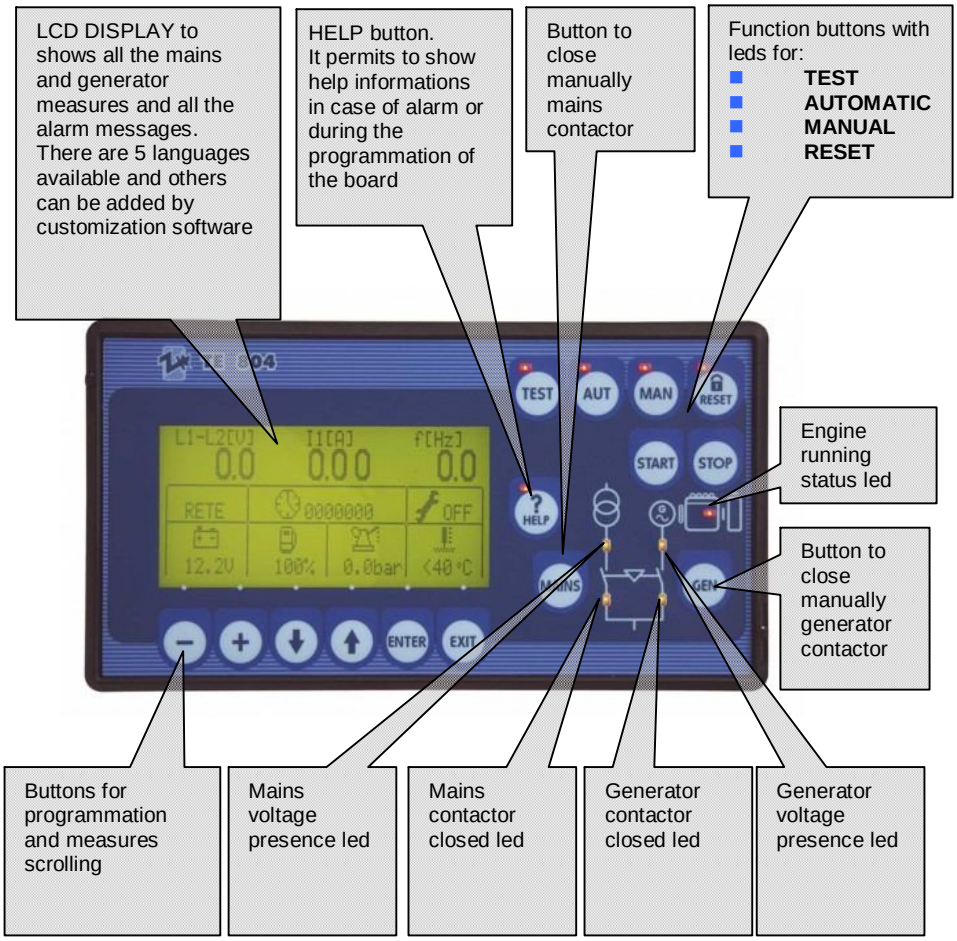
DISPLAY ALARMS

-high engine temperature (digital sensor)
-low oil pressure (digital sensor)
-unespected stop
-batterycharger alternator failure
-high engine speed
-low engine speed
-low generator voltage
-high generator voltage
-low fuel level (digital sensor)
-generator overload
-low battery voltage
-high battery voltage
-starting failure
-emergency stop
-pressure digital sensor fault
-faulty battery
-RPM signal detection fault
-stop failure
-low generator frequency
-high generator frequency
-generator voltage asymmetry
-short circuit protection
-generator external protection
-generator phases wrong sequence
-mains phases wrong sequence
-wrong frequency system selected
-generator contactor fault
-mains contactor fault
-maintenance request
-system error (board's operating system fault autodetection)
-rental hours finished
-low coolant level
-generator's magnetothermic switch closed
-generator's magnetothermic switch open
-alarm from automatic batterycharger
-engine temperature pre-alarm (analogic sensor)
-analogic temperature sensor fault
-digital temperature sensor fault
-oil pressure pre-alarm (analogic sensor)
-analogic pressure sensor fault
-digital pressure sensor fault
-fuel level pre-alarm (analogic sensor)
-analogic fuel level sensor fault
-digital fuel level sensor fault
-n.8 programmable user alarms

Panel reference normes

IEC/EN 50082-1, IEC/EN61000-6-2, IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5
IEC/EN 61000-4-6 , 89/336/CEE , 72/23/CEE

Keyboard description



TE804 board reference normes

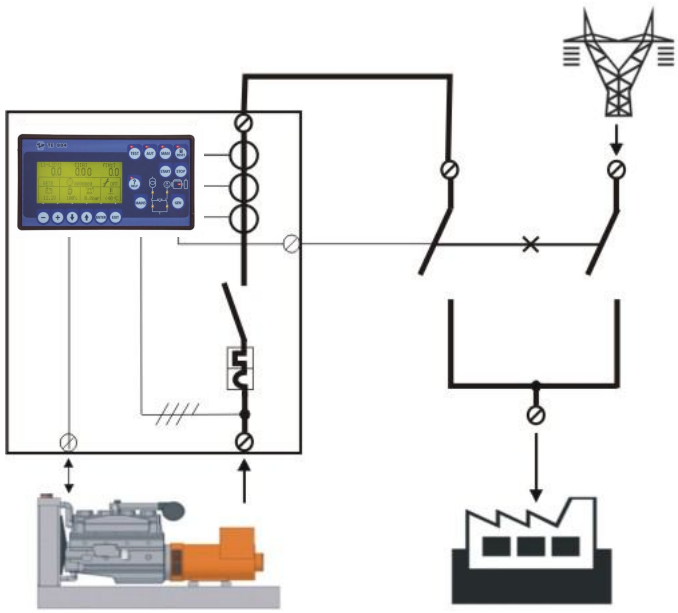
- IEC/EN 60255-6 , IEC/EN 60664-1
- IEC/EN 61000-4-5 , IEC/EN 61000-4-4,
- IEC/EN 61000-4-3 , IEC/EN 61000-4-6
- IEC/EN 60255-22-2 , IEC/EN 55011
- IEC/EN-60255-21-2-IEC/EN-60068-2-6(LLOYD)
- IEC/EN 60068-2-52 (RINA)
- IEC/EN 60028-2-61 , IEC/EN 61010-1

c UL us

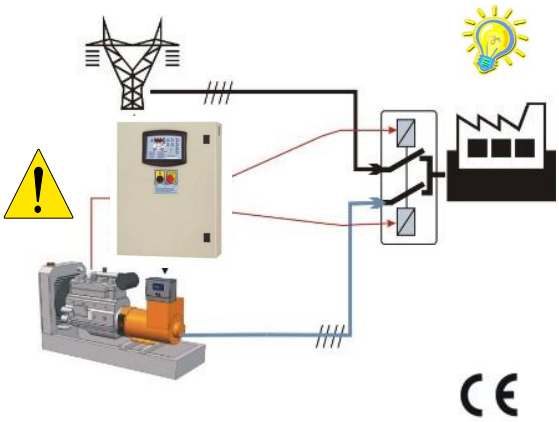
TE804 board technical data

- Working temperature -20 ÷ +60°C
- Stocking temperature –30 ÷ +80°C
- Supply range 9÷33Vcc
- Triphase voltage input range 50÷620Vac
- Frequency range 45 ÷ 65Hz
- Board front ambient protection IP64
- Measures accuracy +/- 1% +/- 1 digit
- True RMS measures (TRMS)
- Panel ambient protection IP20

Sample drawing



806SC
Automatic panels command for remote changeover switch



Description

The project

806SC panels allow to command and control a generator. They can control a remote change over switching. The panels are built into small metal boxes to be fixed to the wall
They are provided with a powerful and really reliable electronic card named TE806. This electronic card is homologated in order to be used in the hardest environments with high security.
A 4 led digits display shows all controls in terms of engine control and electrical measures related to mains and generator.
TE806 electronic card is an easy and powerful device with a lot of available functions

Standard composition

- 1 Metal box IP54 RAL 7032 / 7035
- 1 1P+N switch for engine pre-heating
- 1 Buzzer for acoustic alarm
- 1 Emergency button
- 1 Auxiliary terminal board
- 1 Automatic battery charger
- - Protection fuses for auxiliary circuits
- 1 Mains control with three-phase relay
- **1 TE806 Electronic board with RS232 output for programmation**

Order table

CODE	Vdc	Hz	L	H	P
806RTSC12	12	50	400	600	250

Special functions

- **Remote Start**
- **Remote Stop**

Function enable only in automatic mode; it permits to stop the generator by an external signal, also during a mains failure. A sample of this function, is when you want to start the generator automatically after a mains failure but only if an external level sensor confirm presence of water in a tank or in a garage.

- **EJP/T**

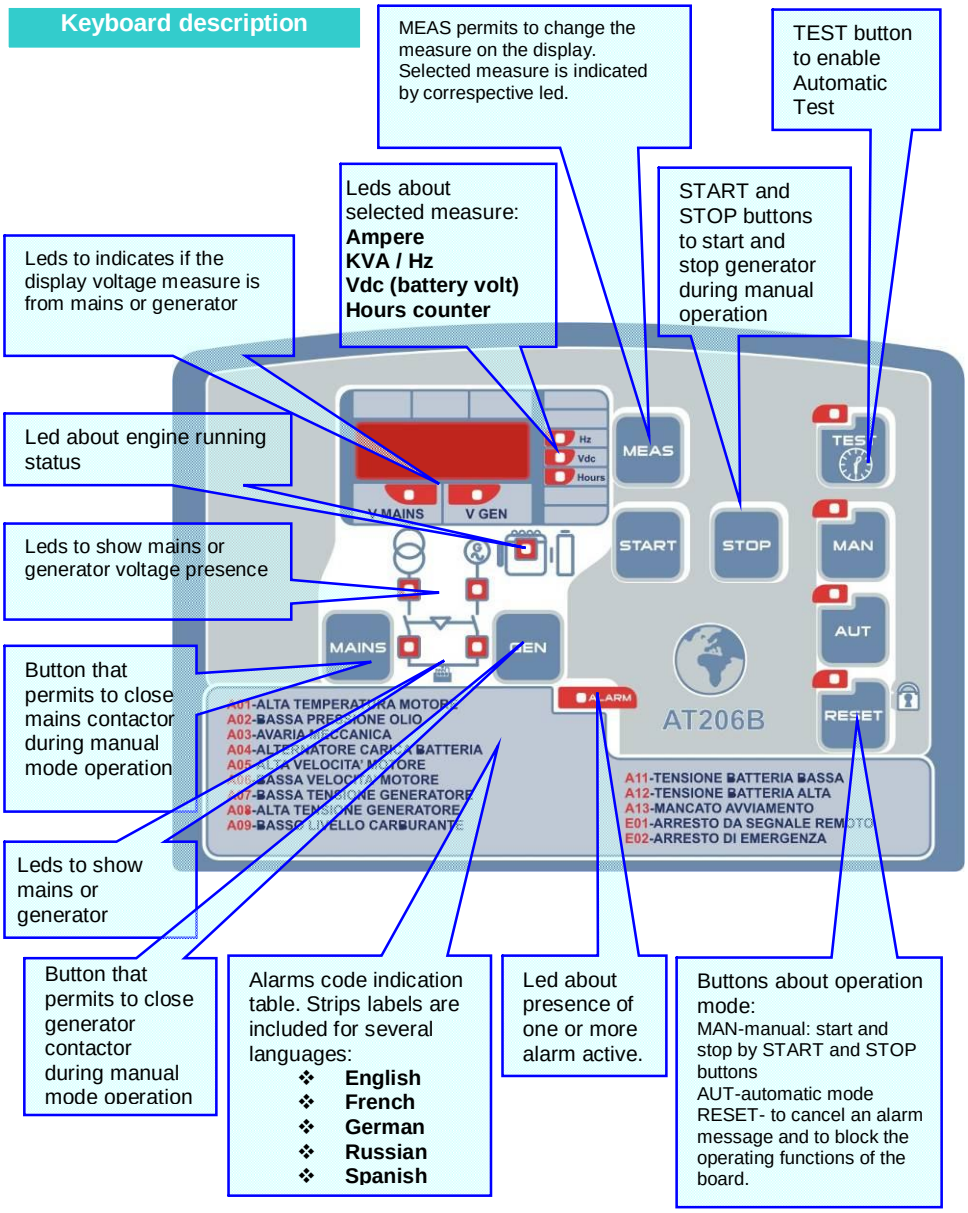
Specific function for French market: generator starting is by a remote signal and the changeover switch is after a programmable time max 30'.

- **SCR**

Function enable only in automatic mode; it permits to start the generator and make the changeover switch on the load by a remote signal also with mains presence. It permits also the stop of the generator and the changeover switch on mains side when this signal disappear.

➢ Voltage monitoring system: mains and generaor monophase
DISPLAY ELECTRICAL MEASURES
➢ Mains and Generator voltage
➢ Frequency
➢ Current
➢ Power in kVA
➢ Battery voltage
➢ Hourcounter
DISPLAY ALARMS
-high engine temperature
-low oil pressure
-unespected stop
-batterycharger alternator fault
-high engine speed
-low engine speed
-low generator voltage
-high generator voltage
-low fuel level
-generator overload
-low battery voltage
-high battery voltage
-starting failure
-emergency stop

Keyboard description



Technical data

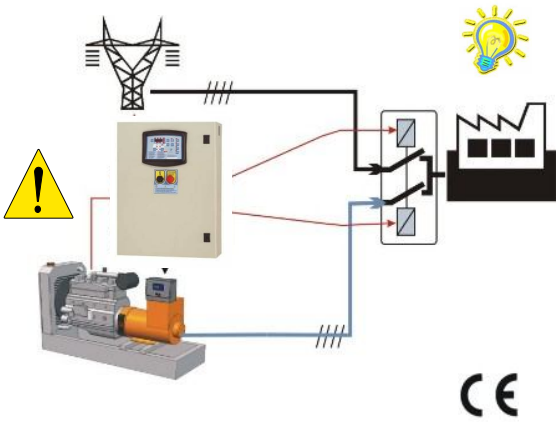
- Working temperature -20 +50°C
- Stocking temperature -30+80°C
- Supply range 9-17Vcc
- Frequency range 45 ÷ 65Hz
- Measures accuracy +/- 5% +/- 1 digit
- Ambient protection IP20

Normes reference

IEC/EN 50082-1 , IEC/EN61000-6-2, IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5
IEC/EN 61000-4-6
89/336/CEE , 72/23/CEE

CE

805SC
Automatic panels command for remote changeover switch



Description

The project

805SC panels allow to command and control a generator. They can control a remote change over switching. The panels are built into small metal boxes to be fixed to the wall
They are provided with a powerful and really reliable electronic card named TE805. This electronic card is homologated in order to be used in the hardest environments with high security.
A 4 led digits display shows all controls in terms of engine control and electrical measures related to mains and generator.
TE805 electronic card is an easy and powerful device with a lot of available functions

Standard composition

- 1 Metal box IP54 RAL 7032 / 7035
- 1 1P+N switch for engine pre-heating
- 1 Buzzer for acoustic alarm
- 1 Emergency button
- 1 Auxiliary terminal board
- 1 Automatic battery charger
- - Protection fuses for auxiliary circuits
- **1 TE805 Electronic board with RS232 output for remote control and/or programmation**

Order table

CODE	Vdc	Hz	L	H	P
805SC12	12	50	400	600	250
805SC24	24	50	400	600	250

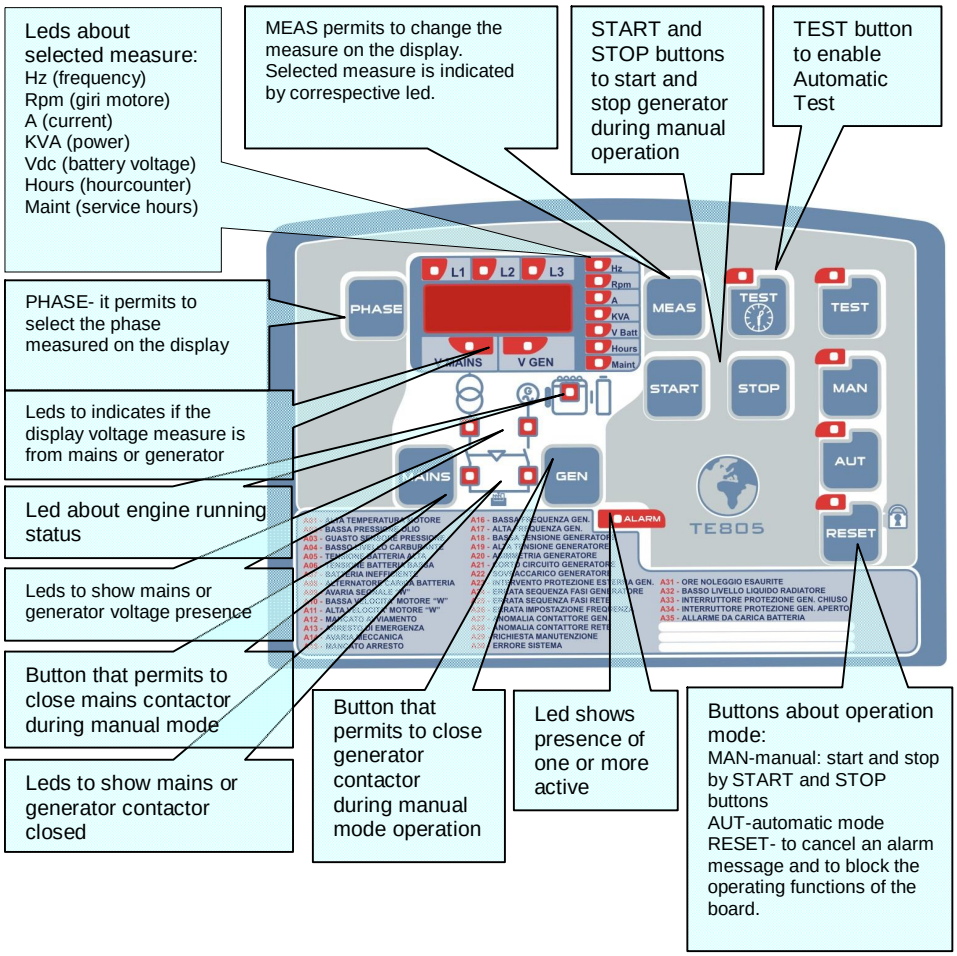
Special functions

- **Remote start**
- **Remote stop**
- **SCR**
- **EJP – EJP/T**
- ***Genset start/stop on mains kW threshold consuption***
- ***Dummy load control***
- ***Rent hours function***
- ***Automatic and Test modes block***
- ***Engine start in case of mains contactor failure***
- ***Function mode status output***
- ***Remote control***

Control panel's function

4 numbers led display ,7 segments with scrolling alarm message
➢ Mains and generator triphase voltages
➢ Mains and generator frequency
➢ Triphase current
➢ Power in kVA
➢ Battery voltage
➢ Hourcounter
➢ Left maintenance hours
➢ Generator RPM
DISPLAY ALARMS
-high engine temperature (digital sensor)
-low oil pressure (digital sensor)
-unespected stop
-batterycharger alternator failure
-high engine speed
-low engine speed
-low generator voltage
-high generator voltage
-low fuel level (digital sensor)
-generator overload
-low battery voltage
-high battery voltage
-starting failure
-emergency stop
-pressure digital sensor fault
-faulty battery
-RPM signal detection fault
-stop failure
-low generator frequency
-high generator frequency
-generator voltage asymmetry
-short circuit protection
-generator external protection
-generator phases wrong sequence
-mains phases wrong sequence
-wrong frequency system selected
-generator contactor fault
-mains contactor fault
-maintenance request
-system error (board's operating system fault autodetection)
-rental hours finished
-low coolant level
-generator's magnetothermic switch closed
-generator's magnetothermic switch open
-alarm from automatic batterycharger
-4 programmable user alarms

Keyboard description



Technical data

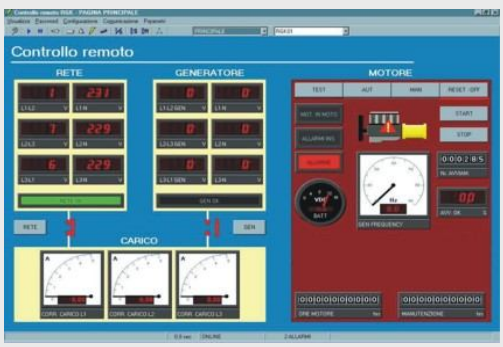
- Working temperature -20 +50°C
- Stocking temperature -30+80°C
- Supply range 9-33Vdc
- Frequency range 45 ÷ 65Hz
- Measures accuracy +/- 1% +/- 1 digit
- Board front ambient protection IP54

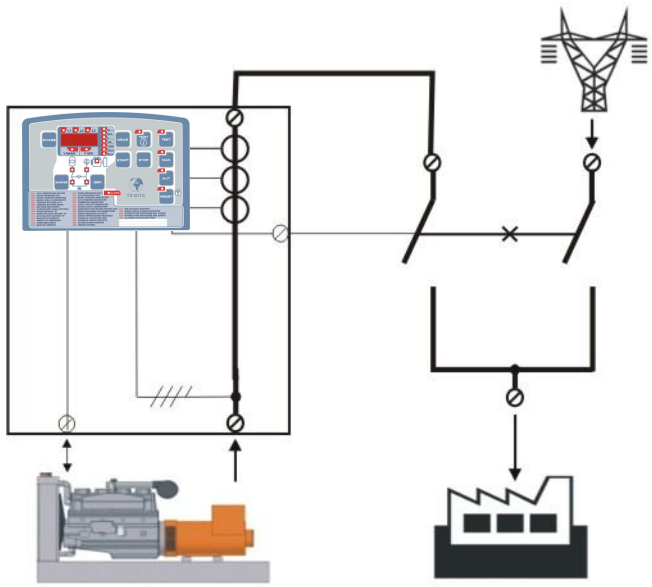
Reference normes

IEC/EN 50082-1 , IEC/EN61000-6-2, IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5
IEC/EN 61000-4-6
89/336/CEE , 72/23/CEE

Sample drawing

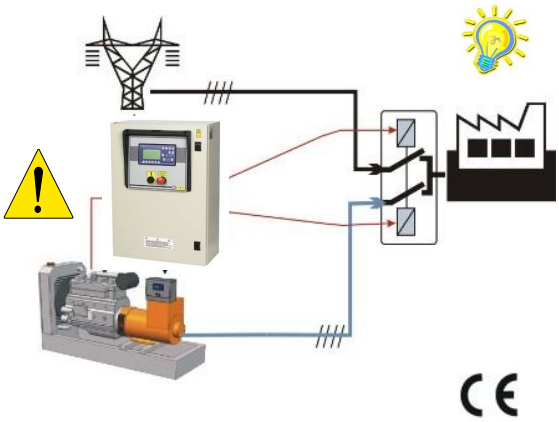
- ***Remote Control***
- ***By PC***
- ***By GSM system***
- ***By Ethernet / TCP-IP***
- ***By GPRS***
- ***By Modem***





Tecnoelettra srl (Italy) Internet :www.tecnoelettra.it E-mail:info@tecnoelettra.it
(2009) 2/2-805SC - EN

804SC
Automatic panels command for remote changeover switch



Description

The project

804SC panels allow to command and control a generator. They can control a remote change over switching. The panels are built into small metal boxes to be fixed to the wall
They are provided with a powerful and really reliable electronic card named TE804. This electronic card is homologated in order to be used in the hardest environments with high security.
A back light display shows all controls in terms of engine control and electrical measures related to mains and generator. This electronic card allows to satisfy every customer's request since all is included and the remote control too.

Standard composition

- 1 Metal box IP54 RAL 7032 / 7035
- 1 1P+N switch for engine pre-heating
- 1 Buzzer for acoustic alarm
- 1 Emergency button
- 1 Auxiliary terminal board
- 1 Automatic battery charger
- - Protection fuses for auxiliary circuits
- **1 TE804 Electronic board with RS232 output for remote control and/or programmation**

Order table

CODE	Vdc	Hz	L	H	P
804SC12	12	50	400	600	250
804SC24	24	50	400	600	250

- ***Remote Control***
- ***By PC***
- ***By GSM system***
- ***By Ethernet / TCP-IP***
- ***By GPRS***
- ***By Modem***

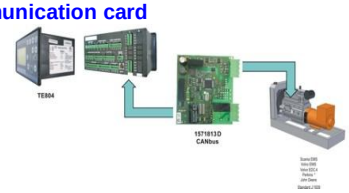
Special functions

- **Remote start**
- **Remote stop**
- **SCR**
- **EJP – EJP/T**
- ***Genset start/stop on mains kW threshold consuption***
- ***Dummy load control***
- ***Rent hours function***
- ***Automatic and Test modes block***
- ***Engine start in case of mains contactor failure***
- ***Function mode status output***
- ***Remote control***

Optional board for Canbus J1939 communication is available

Code 1571813D: CANbus communication card

- Scania EMS
- Volvo EMS / EMS2
- Volvo EDC4
- Perkins series 2300/2800
- John Deere
- Deutz EMR2
- Standard J1939



Control panel's function

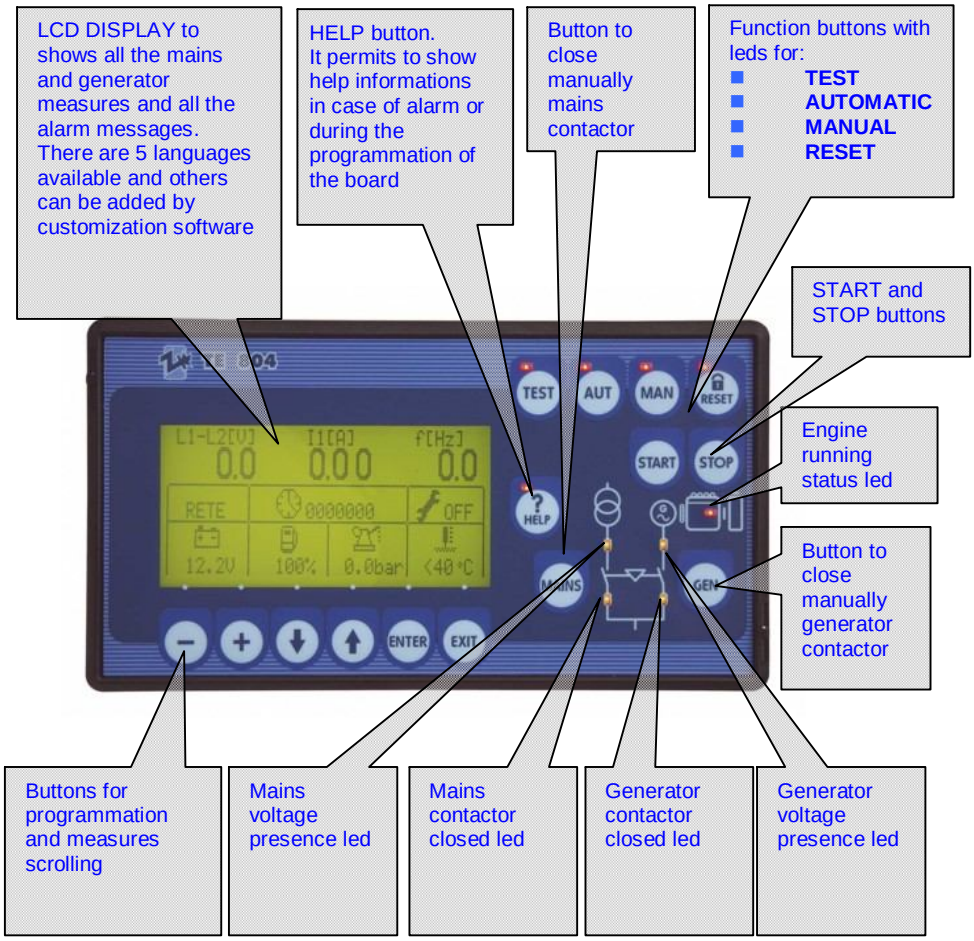
- LCD graphic display, 192x64pixel, 95x45mm with backlight, 5 languages available, minimum and maximum working temperature sensor
- Mains and generator triphase voltages
- Mains and generator frequency
- Triphase current
- Power in kVA, kW, kVAR
- Battery voltage
- Hourcounter
- Left maintenance hours
- Generator RPM
- Energy meters
- Power factor meter

DISPLAY ALARMS

-high engine temperature (digital sensor)
-low oil pressure (digital sensor)
-unespected stop
-batterycharger alternator failure
-high engine speed
-low engine speed
-low generator voltage
-high generator voltage
-low fuel level (digital sensor)
-generator overload
-low battery voltage
-high battery voltage
-starting failure
-emergency stop
-pressure digital sensor fault
-faulty battery
-RPM signal detection fault
-stop failure
-low generator frequency
-high generator frequency
-generator voltage asymmetry
-short circuit protection
-generator external protection
-generator phases wrong sequence
-mains phases wrong sequence
-wrong frequency system selected
-generator contactor fault
-mains contactor fault
-maintenance request
-system error (board's operating system fault autodetection)
-rental hours finished
-low coolant level
-generator's magnetothermic switch closed
-generator's magnetothermic switch open
-alarm from automatic batterycharger
-engine temperature pre-alarm (analogic sensor)
-analogic temperature sensor fault
-digital temperature sensor fault
-oil pressure pre-alarm (analogic sensor)
-analogic pressure sensor fault
-digital pressure sensor fault
-fuel level pre-alarm (analogic sensor)
-analogic fuel level sensor fault
-digital fuel level sensor fault
-n.8 programmable user alarms

Panel reference normes

IEC/EN 50082-1, IEC/EN61000-6-2, IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5
IEC/EN 61000-4-6 , 89/336/CEE , 72/23/CEE



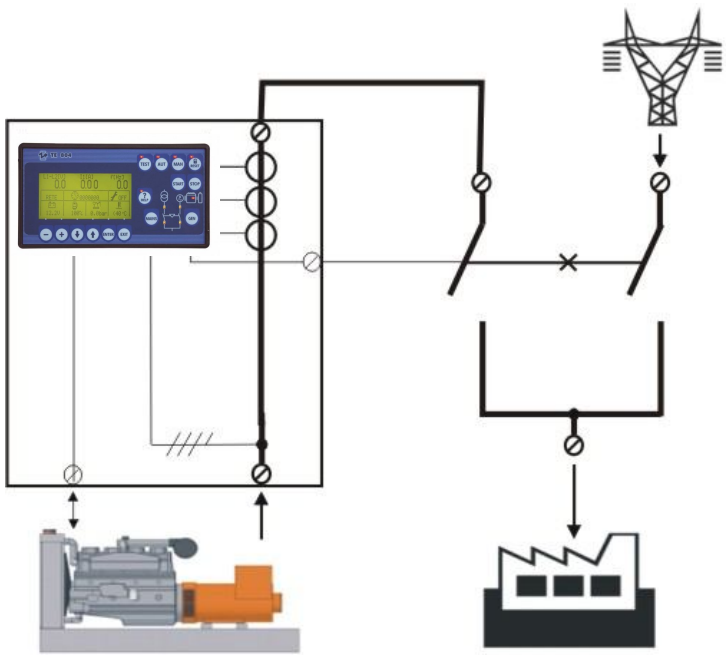
TE804 reference normes

- IEC/EN 60255-6 , IEC/EN 60664-1
- IEC/EN 61000-4-5 , IEC/EN 61000-4-4,
- IEC/EN 61000-4-3 , IEC/EN 61000-4-6
- IEC/EN 60255-22-2 , IEC/EN 55011
- IEC/EN-60255-21-2-IEC/EN-60068-2-6(LLOYD)
- IEC/EN 60068-2-52 (RINA)
- IEC/EN 60028-2-61 , IEC/EN 61010-1

TE804 technical data

- Working temperature -20 ÷ +60°C
- Stocking temperature –30 ÷ +80°C
- Supply range 9÷33Vcc
- Triphase voltage input range 50÷620Vac
- Frequency range 45 ÷ 65Hz
- Board front ambient protection IP64
- Measures accuracy +/- 1% +/- 1 digit
- True RMS measures (TRMS)

Sample drawing



TEM6

Manual control panels for generating set

This panels allows to order all instruments to check and control a generator on a single code.
4 versions are available: 2 are analogic type while 2 are digital ones.

ANALOGIC –TEM6AE

- 1-Alluminium panel with polycarbonate silk-screen. Dimensions170x308
- 1-voltmeter
- 1-amperemeter
- 1-frequency meter with RPM scale
- 1-hour meter
- 1-starting key
- 2-fuses
- 1-emergency button
- 1-buzzer

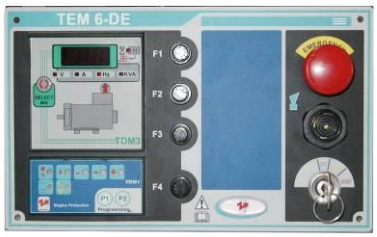
ANALOGIC –TEM6A

- 1-Alluminium panel with polycarbonate silk-screen. Dimensions 254x370
- 1-voltmeter
- 1-voltmetric switch
- 3-amperemeter
- frequency meter with RPM scale
- 1-hour meter
- 1-starting key
- 4-fuses
- 1-emergency button
- 1-buzzer

DIGITAL-TEM6DE

- 1-Panel in aluminium with label in polycarbonate, dimensions: 184x304
- 1-starting key
- 4-fuses
- 1-emergency button
- 1-buzzer
- 1-TDM3 instrument(It is a measurement instrument whose box dimensions are 96x96 to lay the following measurements:

Volt (V)
Ampere (A)
Frequency (Hz)
KVA, working hours (H)



DIGITAL-TEM6D

1-Alluminium panel with polycarbonate silk-screen. Dimensions 184x304
1-starting key
4-fuses
1-emergency button
1-buzzer
1-digital instrument TDM2 to
visualize measures of:

- Phase, linked and system voltage
- Phase current (3measures)
- Active, total and phase apparent power
- frequency
- total hour meter
- partila hour meter
- high and low maximal and minimal instantaneous values for each voltage and current phase, total active power (W) and total apparent power (VA)

Inluded in all models:1-PDM1 engine protection with indications and alarms for:

- battery charge alternator
- low oil pressure
- fuel reserve
- high engine temperature
- engine over speed and low speed rate
- Remote starting and stopping functions with 5 starting attempts and adjustable cooling period
- Programmable stop for solenoid valve and electromagnet

Reference norms

- IEC/EN 50082-1 ,
- IEC/EN61000-6-2,
- IEC/EN61000-4-2
- IEC/EN 61000-4-3,
- IEC/EN61000-4-4,
- IEC/EN61000-4-5
- IEC/EN 61000-4-6
- 89/336/CEE ,
- 72/23/CEE

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(2009) 1/1-TEM6-EN

TE804L

1571810C-Standard version with RS232 output
1571810D-Standard version with RS232 output + RA output for 11 alarm relay board SRA

Electronic board for command and protection of generators with changeover switch control

IP64

Description: Compact, powerful, easy, secure; approved UL-Csa

44 Alarms for maximum safety

- Engine temperature warning (Analogic sensor)
- High engine temperature (Analogic sensor)
- Temperature analogic sensor fault
- High engine temperature (digital sensor)
- Oil pressure warning (analogic sensor)
- Low oil pressure (analogic sensor)
- Pressure analogic sensor fault
- Low oil pressure (digital sensor)
- Pressure digital sensor fault
- Fuel level warning (analogic sensor)
- Low fuel level (analogic sensor)
- Fuel level analogic sensor fault
- Low fuel level (digital sensor)
- High battery voltage
- Low battery voltage
- Inefficient battery
- battery charger alternator failure
- "W" signal failure
- Low engine rpm
- High engine rpm
- Starting failure
- Emergency stop
- Unexpected stop
- Engine stop failure
- Low generator frequency
- High generator frequency
- Low generator voltage
- High generator voltage
- Generator asymmetry
- Generator short-circuit
- Generator overload
- External generator protection switch tripped
- Incorrect generator phase sequence
- Incorrect mains phase sequence
- Wrong system frequency setting
- Generator contactor failure
- Mains contactor failure
- Maintenance request (several steps)
- System error
- Fuel transfer tank empty
- Fuel transfer tank too full
- Rent hours exausted
- Low radiator liquid level
- 8 User alarms

Big display with backlight for clear reading and complete informations.
Keyboard.with buttons and leds integrated for a long duration and easy use

LCD Graphic Display 192x64 pixel, 95X45 mm with backlight

5 languages included (other languages available by software)

4 OPERATION MODE BUTTONS WITH LEDS

TEST - AUT - MAN - RESET

6 MEASURES AND SETUP BUTTONS

ENTER - EXIT - MEASURE SCOLLING ▲▼ - VALUES INCREASE AND DECREASE

INDICATOR LEDS

- Engine running status and alarm enable
- Generator voltage presence
- Mains voltage presence
- Mains contactor closed
- Generator contactor closed
- Help message
- Test mode selected
- Automatic mode pressed
- Manual mode pressed
- Reset mode selected

HELP BUTTON WITH LED

In case of alarm by Help button the board shows to the operator all the informations about the alarm, possible causes and type of intervention.

SERIAL PORT RS232

To program and/or remote control menagement by own protocol or Modbus RTU

All the mains and generator electrical measures and engine measures are available on the display and in remote, for a complete system monitoring

- Battery voltage
- Triphase mains and generator voltage, line and system
- Triphase current measurement
- Active, reactive and apperent powers, triphase and total
- Energymeters.
- Power factor
- Frequency
- Oil pressure instrument (working with all the sensor types; measure available in BAR o PSI)
- Engine temperature instrument (working with all the sensor types; measure available in °C o °F)
- Fuel level instrument (working with all the sensor types; measure available in %, Litres, Gallon)
- Engine RPM
- Number of start attempts and percent of good starting attemps.
- Total working hours (resettable)
- Partial working hours (resettable)
- Service hourcounter (several steps available)
- Internal total hourcounter (un-resettable.)

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Special functions included

- **Remote stat and stop**
  Function enable only in automatic mode: it permits to start and stop generator by a remote signal also with mains presence.
  Changeover switch works only in case of mains failure.

- **SCR**
  Function enable only in automatic mode. It permits to start and stop the generator by a remote signal; it permits to swtch the load on generator side by another remote signal also with mains presence. By same contacts, you can switch again on mains side and stop the generator.

- **EJP / EJP-T**
  Specific function for French market; it can works in 2 different way:
  EJP: generator can start by a delayed remote signal (normally 25 minutes) Another remote signal permits to switch the changeover on generator side.
  EJP/T: generator can start by a delayed remote signal (normally 25 minutes) and after another programmable delay (normally 5 minutes) the changeover switches on the generator side.

- ***Generator Start/Stop on high mains consuption***
  It permit to set a maximum and minimum mains power consuption to automatically starts and stops the generator with changeover switching.

- ***Dummy load function***
  It permit to manage an output for a supplementary charge; this operation prevent generator's damages during low power consuption working. Is possible to set different steps, different start/stop values in kW, different ON/OFF cicles.

- ***Rental hours function***
  It permits to set a working period; after the programmed working hours, generator stops and the board shows Rental message.

- ***Automatic and Test mode block function***
  If the generator is used only in manual mode, to prevent operator mistakes, Test and Automatic button can be disabled.

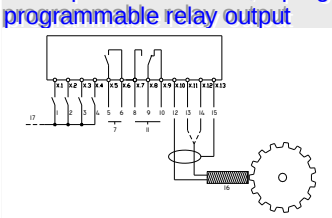
- ***Generator starting by Mains contactor fault***
  If the board detects a failure on the mains contactor, also with mains voltage presence, the generator start and changeover switches on generator side.

- ***Function mode output***
  You can set an output to change the status during a specific function mode (AUT, MAN, TES, RESET)

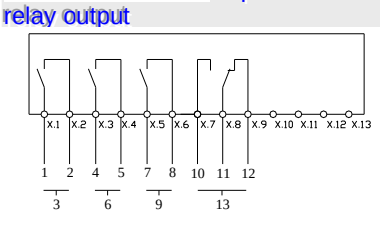
- ***Remote control***
  By PC, analogic modem, GSM modem, ethernet &TCP/IP, GPRS system.

Optional board available for rear mounting in slot A e B

Code 1571813B: expansion board with:
Pick-up RPM detection, 4 programmable digital input, 2 programmable relay output

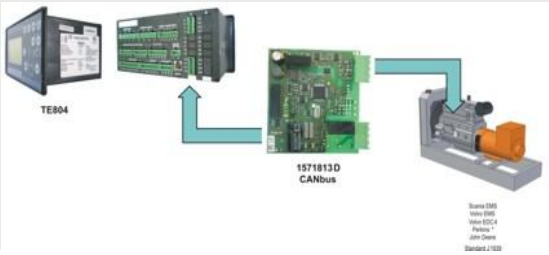


Codice 1571813C: expansion board with 4 programmable relay output



Codice:1571813D: CAN-bus comunication board

- Scania EMS
- Volvo EMS / EMS2
- Volvo EDC4
- Perkins 2300/2800 series
- John Deere
- Deutz EMR2
- Standard J1939



Tecnhical data

- Working temperature –20 ÷ +60°C
- Stocking temperature –30 ÷ +80°C
- Supply range 9 ÷ 33Vdc
- Triphage voltage input range 50 ÷ 620Vac
- Frequency range 45 ÷ 65Hz
- Frontal ambient protection IP64
- Measures accuracy +/- 1% +/- 1 digit RMS

Packaging

The board package includes:

- Packing box
- Intruction manual Italian/English
- Semplify user's instruction
- Terminal boards

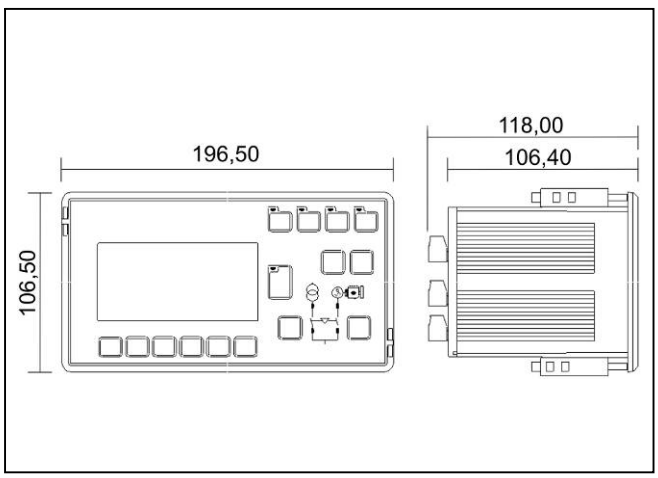
Warranty

Warranty - 24 MONTHS from delivery data.

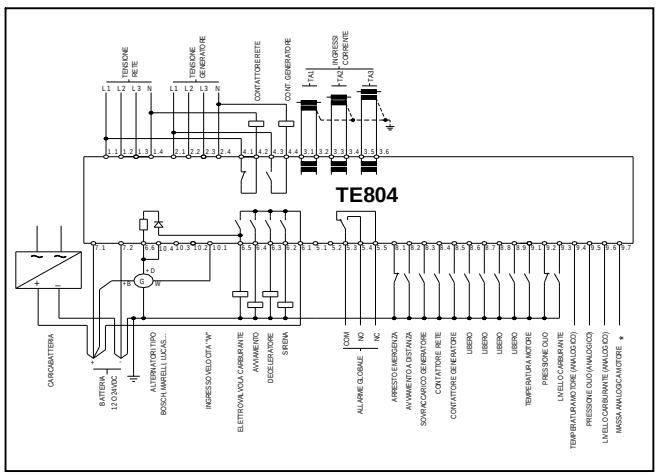
Reference normes

- IEC/EN 60255-6 , IEC/EN 60664-1
- IEC/EN 61000-4-5 , IEC/EN 61000-4-4,
- IEC/EN 61000-4-3 , IEC/EN 61000-4-6
- IEC/EN 60255-22-2 , IEC/EN 55011
- IEC/EN 60255-21-2 , IEC/EN 60068-2-6(LLOYD)
- IEC/EN 60068-2-52 (RINA)
- IEC/EN 60028-2-61 , IEC/EN 61010-1

Dimension



Sample connection drawing



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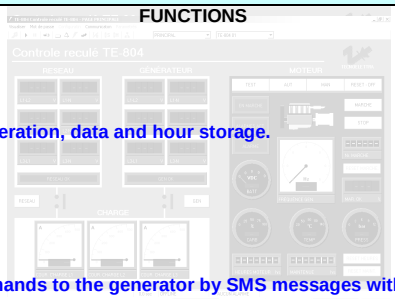
SOFTWARE:1571812

FUNCTIONS



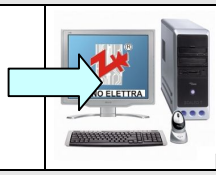
- Calling from board in case of alarm
- Calling for service maintenace
- Complete command from PC
- Input and output status monitoring
- Monitoring of last 255 events, with type of operation, data and hour storage.
- Alarms monitoring
- Automatic test setting
- Programmation setting

GSM system permits also:

- Receiving informations and/or sending commands to the generator by SMS messages with mobile phones.
- Receiving calling and informations (like alarms) to 3 different mobile phones by SMS messages
- Sending an e-mail in case of alarm
- Receiving a phone calling to a PC, connected by modem to a phone line; by the PC's software you can manage all the functions.

TE804-TE805 > PC

nection cable
code: 1571807
Max distance: 15mt



pc not included

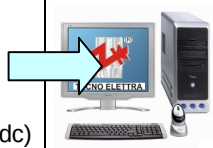
TE804-TE805 > MODEM > PC

Modem code: 1571806

pc not included

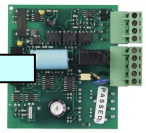
TE804-TE805 > MODEM GSM > PC or MOBILE PHONES GSM

GSM modem codes:**1571806D12**(12Vdc)
1571806D24(24Vdc)



pc not included

TE804+RS485 > RS232/485 Converter > PC

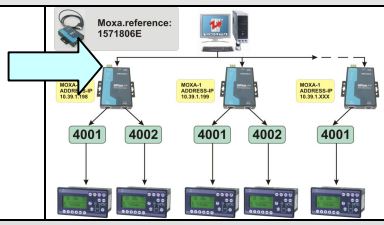


1571813

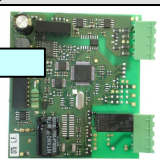
Coverter code: 1571805

TE804-TE805 connection to PC by MOXA and TCP-IP protocol (LAN network)

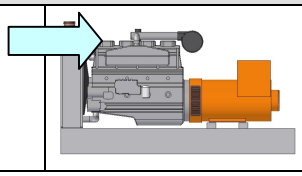
1571806E



TE804 Can Bus Comunication to Engines



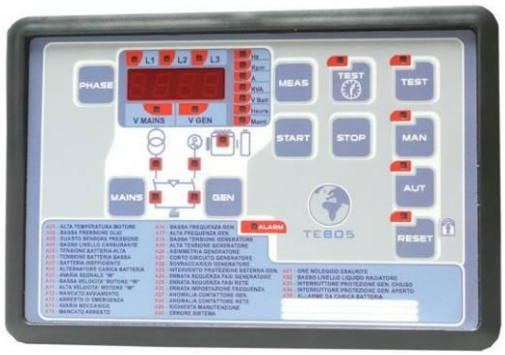
1571813D



TE805

1571827 - Standard version with RS232 output
1571827B - Standard version with RS232 output + RA output for 11 alarm relay board SRA

Electronic board for command and protection of generators with changeover switch control



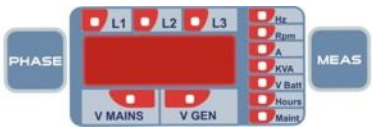
Description

The TE805 board control and protect in automatic or manual mode generators and command the changeover switch. It's a powerfull, reliable and simple board. All the controls and commands are indicated by leds and by clear graphic design. Box project assures an IP65 protection and by high quality components, it permits a secure working also in critical ambient conditions. RS232 port (included) permits a PC connection for parametes setting; it permits also to connect several device like modems or converters for a complete remote control. To help users, the software of the TE805 and TE804 boards is the same.

36 Alarms for maximum safety

- High engine temperature (digital sensor)
- Low oil pressure (digital sensor)
- Pressure digital sensor fault
- Low fuel level (digital sensor)
- High battery voltage
- Low battery voltage
- Inefficient battery
- battery charger alternator failure
- "W" signal failure
- Low engine rpm
- High engine rpm
- Starting failure
- Emergency stop
- Unexpected stop
- Engine stop failure
- Low generator frequency
- High generator frequency
- Low generator voltage
- High generator voltage
- Generator asymmetry
- Generator short-circuit
- Generator overload
- External generator protection switch tripped
- Incorrect generator phase sequence
- Incorrect mains phase sequence
- Wrong system frequency setting
- Generator contactor failure
- Mains contactor failure
- Maintenance request (several steps)
- System error
- Rent hours exausted
- Low radiator liquid level
- 4 User alarms

Display 4 digits, 7 segment led, to show alarm codes and messages, electrical measures and programmation parameters.



- Hz (frequency)
- Rpm (engine speed)
- A (current)
- KVA (power)
- V.Batt (battery voltage)
- Hours (working hour)
- Maint (left hours to service)

5 FUNCTION MODE BUTTONS WITH LEDS:

- Test / automatic weekly test mode
- Automatic mode
- Manuale mode
- Reset mode

6 FUNCTION MODE BUTTONS:

- Button MEAS for display electrical measures selection
- Button PHASE for display phase measure selection L1-L2-L3
- Button START to start in manual mode
- Button STOP to stop in manual mode
- Button GEN to close changeover switch on generator side in manual mode
- Button MAINS to close changeover switch on mains side in manual mode

Alarm codes list in several languages

Weekly test for periodical generator starting

Ergonomic buttons with clear indication leds.

23 indications and status leds

- **Test mode selected**
- **Weekly test enable**
- **Manual mode selected**
- **Automatic mode selected**
- **Reset mode selected**
- **Frequency measure selected on the display**
- **RPM measure selected on the display**
- **Current measure selected on the display**
- **KVA measure selected on the display**
- **Battery voltage measure selected on the display**
- **Total hourcounter selected on the display**
- **Service hours selected on the display**
- **Genset voltage measure selected on the display**
- **Mains voltage measure selected on the display**
- **Phase L1 measure selected on the display**
- **Phase L2 measure selected on the display**
- **Phase L3 measure selected on the display**
- **Engine running status**
- **Mains voltage presence**
- **Generator voltage presence**
- **Mains contactor closed**
- **Generator contactor closed**
- **General alarm active**

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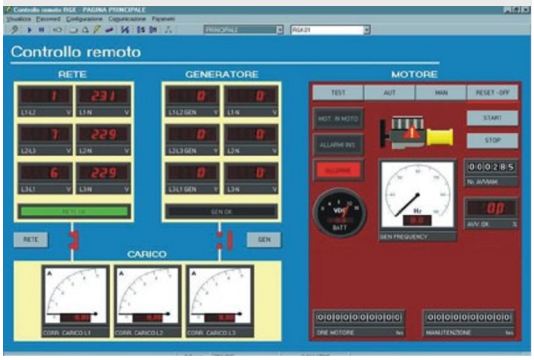
Internet:www.tecnoelettra.it E-mail:info@tecnoelettra.it

Special functions

- **Remote start**
- **Remote stop**
- **SCR**
- **EJP – EJP/T**
- ***Genset start/stop on mains kW threshold consuption***
- ***Dummy load control***
- ***Rent hours function***
- ***Automatic and Test modes block***
- ***Engine start in case of mains contactor failure***
- ***Function mode status output***
- ***Remote control***

Remote control software

- ***Remote control:***
- ***By PC***
- ***By GSM system***
- ***By modem***
- ***By Ethernet and TCP/IP***
- ***By GPRS***



Reference normes

IEC/EN 50082-1 , IEC/EN61000-6-2,
IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4,
IEC/EN61000-4-5
IEC/EN 61000-4-6

Technical data

- Working temperature -20 ÷ +50°C
- Stocking temperature -30 ÷ +80°C
- Supply range 9 ÷17Vcc
- Frequency range 45 ÷ 65Hz
- Measures accuracy +/- 1% +/- 1 digit
- Ambient protection IP65

Packaging

The board package incudes:

- Packing box
- Intruction manual Italian/English
- Semplify user's instruction
- Terminal boards

Warranty - 24 months from delivery data

Keyboard description

Leds about selected measure:
Hz (frequency)
Rpm (giri motore)
A (current)
KVA (power)
Vdc (battery voltage)
Hours (hourcounter)
Maint (service hours)

MEAS permits to change the measure on the display. Selected measure is indicated by correspective led.

START and STOP buttons to start and stop generator during manual operation mode.

TEST button to enable Automatic Test

PHASE- it permits to select the phase measured on the display

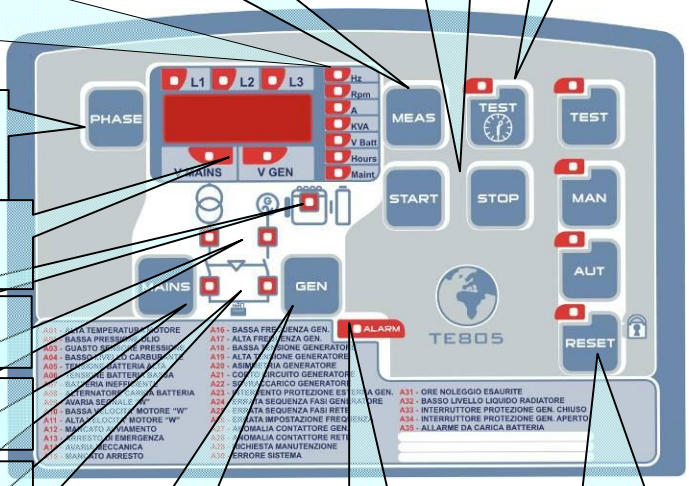
Leds to indicates if the display voltage measure is from mains or generator

Led about engine running status

Leds to show mains or generator voltage presence

Button that permits to close mains contactor during manual mode operation

Leds to show mains or generator contactor closed

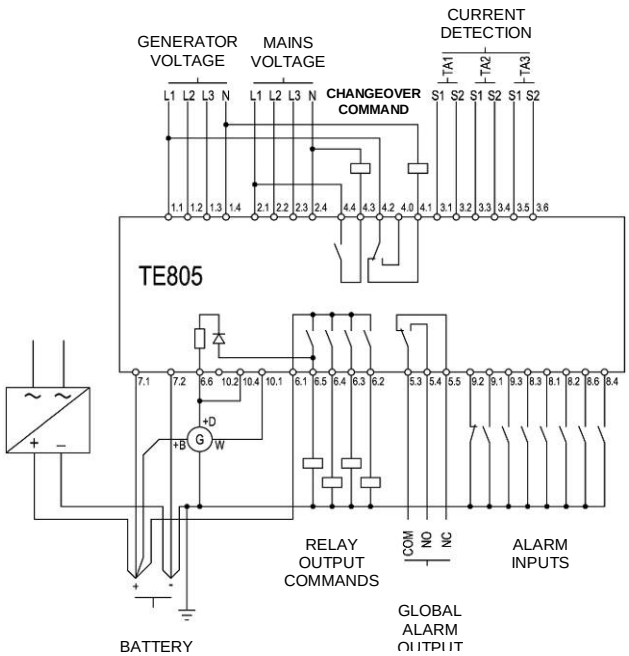


Button that permits to close generator contactor during manual mode operation

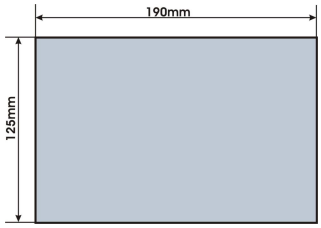
Led shows presence of one or more active alarms.

Buttons about operation mode:
MAN-manual: start and stop by START and STOP buttons
AUT-automatic mode
RESET- to cancel an alarm message and to block the operating functions of the board.

Sample connection drawing



Drilling template



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TE806

(cod. 1571826 - 12Vcc)

Electronic board for command and protection of generators with changeover switch control

Description

The TE805 board control and protect in automatic or manual mode generators and command the changeover switch. It's a reliable and very simple board. All the controls and commands are indicated by leds and by clear graphic design. Box project assures an IP65 protection and by high quality components, it permits a secure working also in critical ambient conditions. RS232 port (included on the board) permits a quick board setup by an optional programmation key (1571824). By a software you can prepare and save different configurations then you can download them from PC to the key; later you can use this key alone to transmit your setup inside the TE806 board.

15 Alarms for maximum safety

Allarms

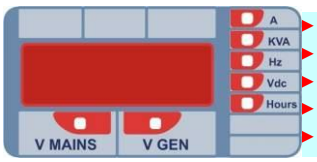
- High engine temperature (digital sensor)
- Low oil pressure (digital sensor)
- Low fuel level (digital sensor)
- High Battery voltage
- Low battery voltage
- Batterycharger alternator fault
- Mechanical fault
- Low engine speed / low generator frequency
- High engine speed / high generator frequency
- Starting failure
- Emergency stop
- Low generator voltage
- Gigh generator voltage
- Remote stop active
- Generator overload
- n.1 programmable user alarm

Alarm codes list in several languages

Weekly test for periodical generator starting

Ergonomic buttons with clear indication leds.

Display 4 digits, 7 segment led, to show alarm codes and messages, electrical measures and programmation parameters.



- A (current)
- kVA (power, estimated with cos fi 0,8)
- Vac (Mains and generator voltage)
- Vdc (Battery voltage)
- Hours (Hourcounter, resettable only by password)

4 FUNCTION MODE BUTTONS WITH LEDS:

- Automatic weekly test enable
- Automatic mode
- Manuale mode
- Reset mode

5 FUNCTION MODE BUTTONS:

- Button MEAS for display electrical measures selection
- Button START to start in manual mode
- Button STOP to stop in manual mode
- Button GEN to close changeover switch on generator side in manual mode
- Button MAINS to close changeover switch on mains side in manual mode

17 indication and status leds:

- Weekly test enable
- Manual mode selected
- Automatic mode selected
- Reset mode selected
- Frequency measure selected on the display
- Current measure selected on the display
- KVA measure selected on the display
- Battery voltage measure selected on the display
- Hourcounter selected on the display
- Genset voltage measure selected on the display
- Mains voltage measure selected on the display
- Engine running status
- Mains voltage presence
- Generator voltage presence
- Mains contactor closed
- Generator contactor closed
- General alarm active

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Special functions

- **Remote Start**
- **Remote Stop**

Function enable only in automatic mode; it permits to stop the generator by an external signal, also during a mains failure. A sample of this function, is when you want to start the generator automatically after a mains failure but only if an external level sensor confirm presence of water in a tank or in a garage.

- **EJP/T**

Specific function for French market: generator starting is by a remote signal and the changeover switch is after a programmable time max 30'.

- **SCR**

Function enable only in automatic mode; it permits to start the generator and make the changeover switch on the load by a remote signal also with mains presence. It permits also the stop of the generator and the changeover switch on mains side when this signal disappear.

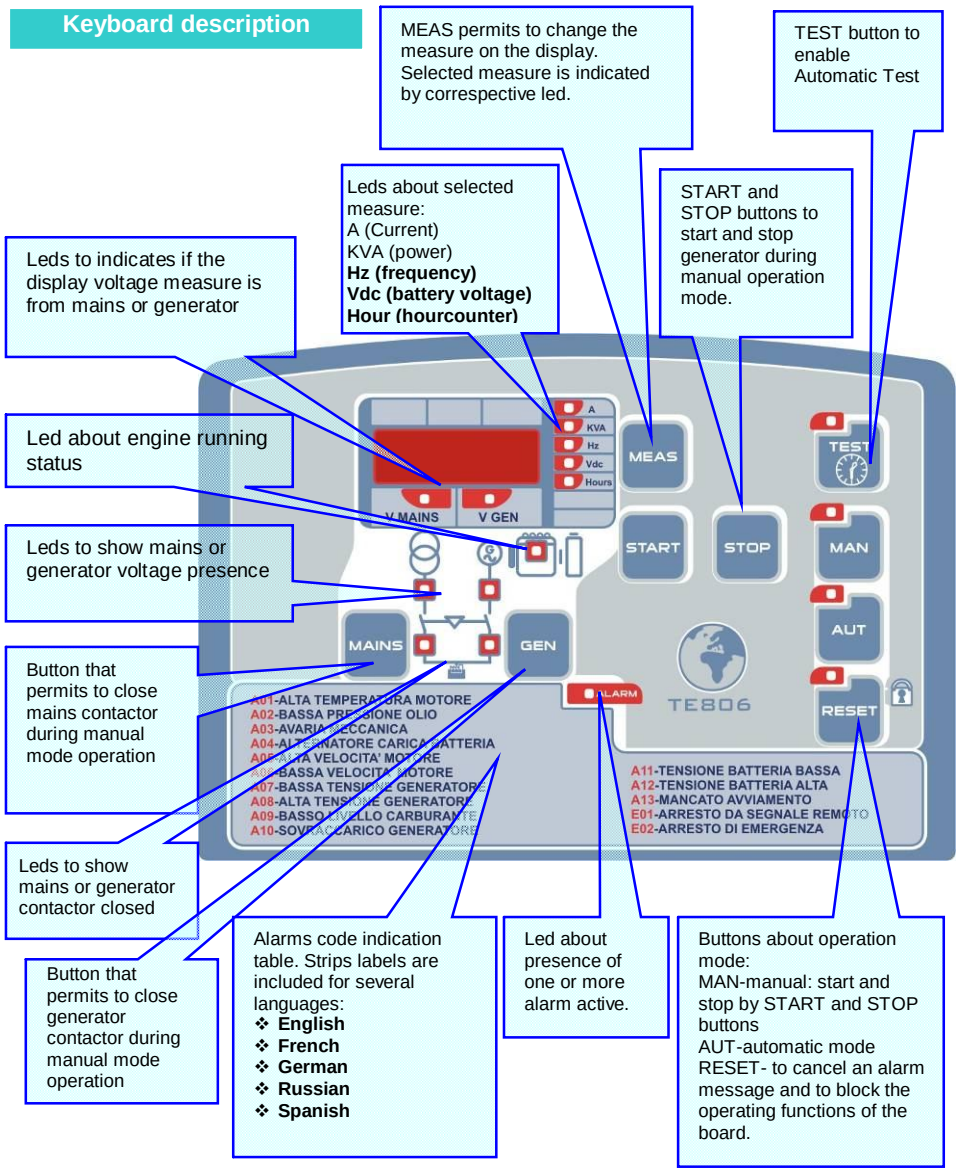
Reference normes

IEC/EN 50082-1 , IEC/EN61000-6-2,
IEC/EN61000-4-2
IEC/EN 61000-4-3, IEC/EN61000-4-4,
IEC/EN61000-4-5
IEC/EN 61000-4-6

Technical data

- Working temperature -20 ÷ +50°C
- Stocking temperature -30 ÷ +80°C
- Supply range 9÷17Vcc
- Frequency range 45 ÷ 65Hz
- Measures accuracy +/- 5% +/- 1 digit
- Ambient protection IP65

Keyboard description



Programmation kit with key -1571824

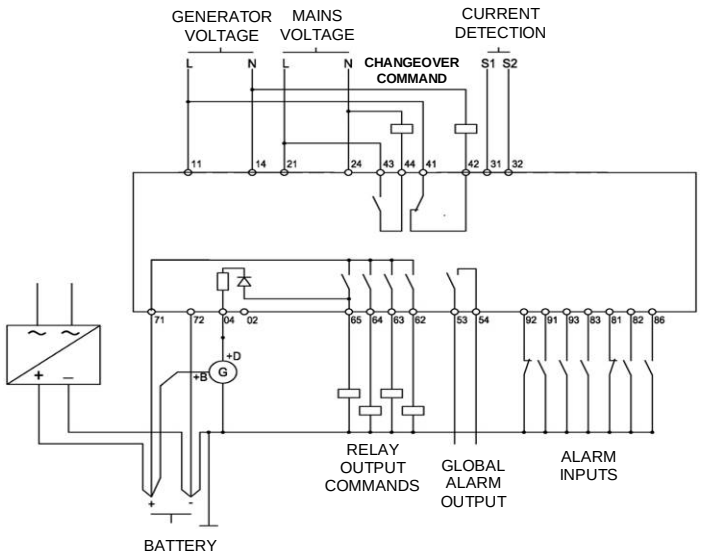
Package

The board package incudes:

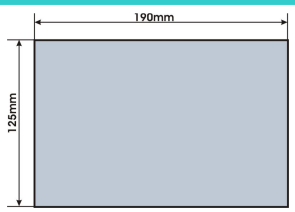
- Packing box
- Intruction manual Italian/English
- Semplify user's instruction
- Terminal boards

Warranty - 24 months from delivery data

Sample connection drawing



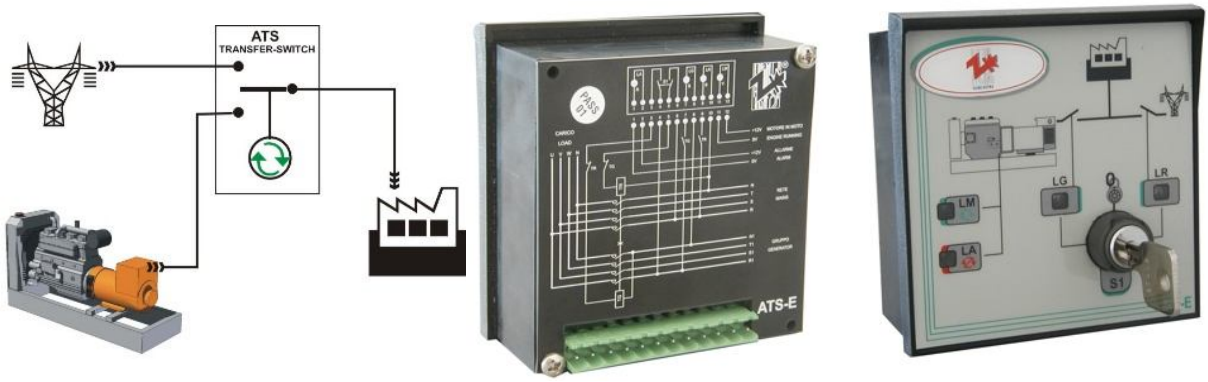
Drilling template



ATS-E

(cod. 1571019)

Modul for manual command of mains/generator changeover switch + leds indication



Description

This module permits to command a changeover switch from MAINS-GENERATOR sources, both by remote signal and manual key selector switch.
Changeover position it showed by the light of respective leds (LR for mains side and LG for generator side).
On this module there are also two indications by leds from remote generator control panel:
LM: shows the engine running status
LA: shows the generator alarm status

Technical constructive data

- ABS case dimensions 96x96x40mm
- Key selector switch for manual commad of mains and generator changeover
- Indication leds for:
- Changeover on mains position (LR)
- Changeover on generator position (LG)
- Engine running status
- Generator alarm status
- Connection terminal board

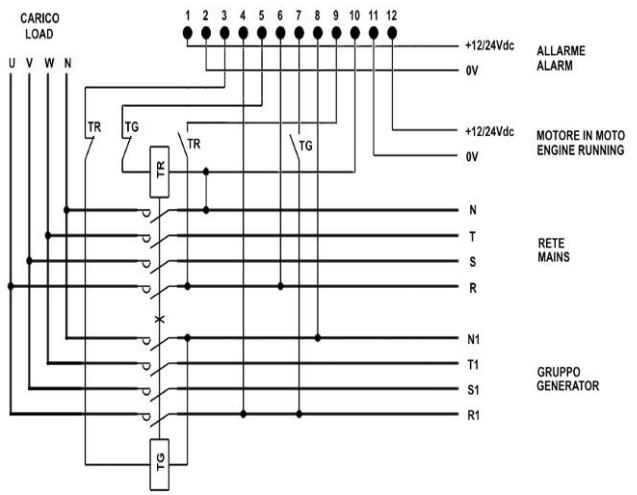
Electrical characteristics

- IP20 protection
- Key selector switch contact 4Amp 230Vac
- Inputs for mains led (LR) and generator led (LG) are 230-400Vac
- Inputs for engine running led (LM) and alarm status led (LA) are 12-24Vdc

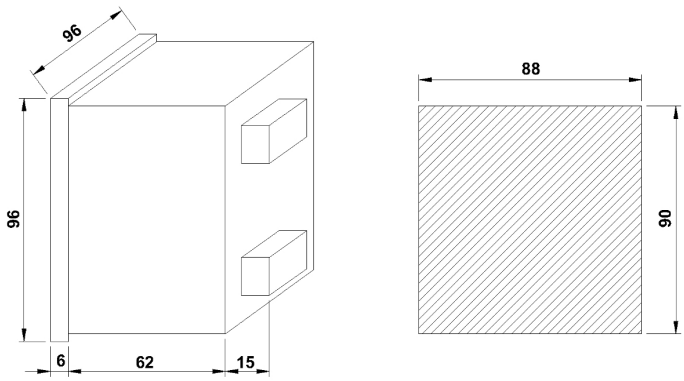
Reference normes

IEC/EN 50082-1, IEC/EN61000-6-2, IEC/EN61000-4-2-IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5-IEC/EN 61000-4-6

Sample connectin drawing



Dimensions and drilling template



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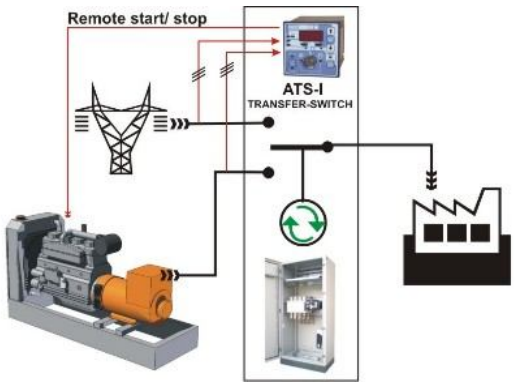
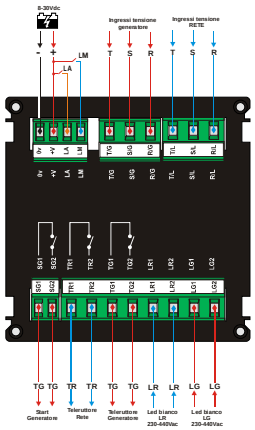
ATS-I

(cod. 1571822)

Modul for automatic and manual control of mains/generator changeover switch + generator starts signal



Collegamenti ATS-I



Description

ATS-I power unit enables the teleswitching control in Manual or Automatic mode. In manual mode operation it is possible to send, through a proper button, a stop and start remote signal to the generator.
Genset/Mains teleswitching is manually managed through the key selector.
In automatic mode operation the power unit controls the net through the thresholds of operation for minimum, maximum voltage or phase failure.
In case of operation, a contact for the generator remote start control is closed. When the power unit receives the signal of started generator, after having checked that the frequency and voltage are within the right values, it controls the closing of the group contactor. When the net voltage is returned within the limits, the power unit makes the Mains/Genset switching, and successively, after an adjustable time, it sends a stop signal to the generator.Voltage values on L1-L2-L3 (L1/N) phases are showed on the display.

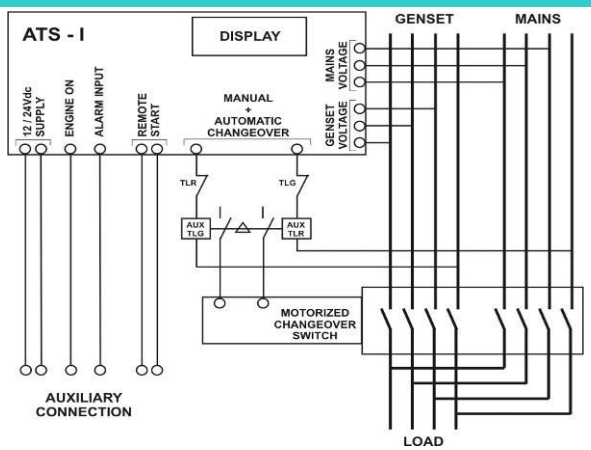
Parameters

► P01-nominal system voltage (Vn)	230.-230-400-440
► P02-nominal system frequency (Hz)	50-60
► P03-mains minimum voltage	Vn….-20%
► P04-mains maximum voltage	Vn… +20%
► P05-generator minimum voltage	Vn….-20%
► P06-generator maximum voltage	Vn… +20%
► P07-generator starting delay	1…600s
► P08-generator voltage validation delay	0….600s
► P09-generator/line changeover delay	1…240s
► P10-line/generator changeover delay	1…240s
► P11-generator switching off delay (cooling)	1…240s
► P12-frequency tollerance limit	1…5 Hz
► P13-startup in manual or automatic mode	0=manual 1=automatic
► P14-“lock” modality	1=unlocked 0=locked
► P15-alarms enable delay	0…10sec

Front description

Abs box 96x96x70mm (drilling 91x91), weight 200g
- ► 3 digit display with 7 segments leds
- ► selector key for manual changeover switch on mains/generator side
- ► 5 buttons:
  - ► Operation mode automatic / manual
  - ► Generator starting in manual mode
  - ► Selection measures
  - ► program parameters up/down scrolling and increase/decrease values
- ► Led reporting:
  - ► switch network closed
  - ► switch closed group
  - ► engine in motion
  - ► engine alarm
  - ► manual / automatic mode
  - ► presence of start generator signal
  - ► associated with the phase measurement
  - ► source associated with the measures (mains or generator)
- ► connection terminal blocks

Sample connection drawing



Electrical characteristics

► Supply voltage (electrically isolated)	8 - 30Vdc
► Types of measurable selection able voltages	230 1ph 230 3ph 400 3ph 440 3ph
► Rated frequency	45-65 Hz
► Voltage range measured on the generator side	0 - 500 Vac
► Voltage range measured on the network side	0 - 500 Vac
► Accuracy of measurements	+ - 2%
► White LG Led	0 - 440Vac
► White LR Led	0 - 440Vac
► Green LM Led Started Motor	10 - 30Vdc
► Red LA Led Motor alarm	10 - 30Vdc
► Sg1 Sg2 Generator starting contact	5A 10 - 30Vdc
► TR1 - TR2 Network remote control switch contact	5A 230Vac
► TG1 - TG2 Generator remote control switch contac	5A 230Vac

Reference Normes

IEC/EN 50082-1 , IEC/EN61000-6-2, IEC/EN61000-4-2, IEC/EN 61000-4-3, IEC/EN61000-4-4, IEC/EN61000-4-5, IEC/EN 61000-4-6

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Quadri di Parallello tra generatori costruiti in armadio

I quadri in armadio vengono normalmente costruiti secondo le specifiche richieste del cliente e per questa ragione non sono inseriti a listino.
Le quotazioni vengono fatte solo dopo analisi tecnica della richiesta del cliente

Alcune immagini riferite a prodotti costruiti custom

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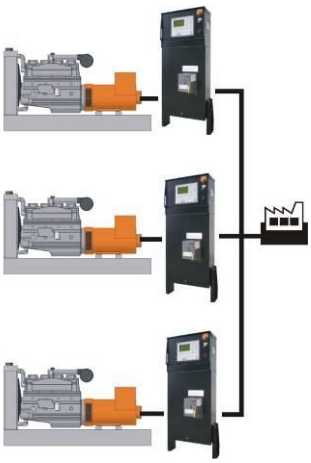
QP8
Modular panels for generators synchronizing from 83 to 436kVA



Description

Planning

Synchronizing panels QP8 type, are designed for an easily mounting on the genset baseframe. By this solution, the generating set can works stand-alone or in synchro working with other gensets.

Standard composition

- Metal box IP20 painted by epoxy powder
- Fuses for auxiliary circuits protection
- 1 Buzzer for acoustic alarm
- 1 Emergency button
- 2 Multipoles metal connectors for engine auxialiry connection
- 2 serial port connectors for modular comunication bridges
- 1 motorized magnetothermic switch with tripping coil
- 2 fixing brackets
- 1 nickel-plated copper bars for cables power connection to generator
- 1 nickel-plated bars for user's connection
- 1 GENSYS electronic board

Metal box with Gensys electronic board, protection fuses, battery charger, emergency button, alarm buzzer, generator enable selector. Fixing brackets are included

Magnetothermic switch 4 poles with motorized drive; bus bars for generator and user connection are included.

N°2 metal multipoles connector with plugs for engine auxiliary connections.

N°2 serial connectors for comunication bridges between max 16 generators

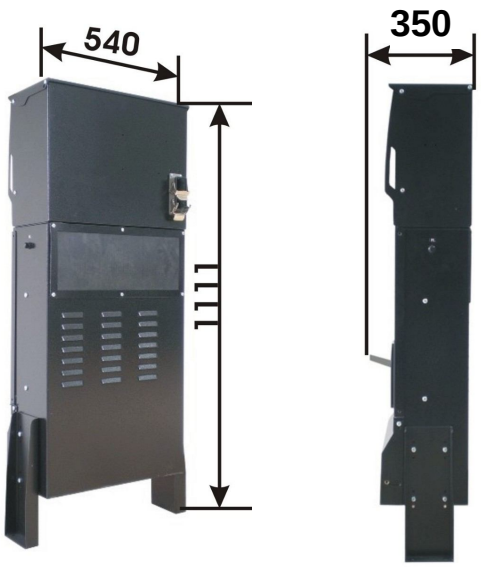
GENSYS electronic board description

GENSYS electronic board permits automatic and manual function of the generator.
All main electrical and engine measures are showed in a big LCD dysplay.

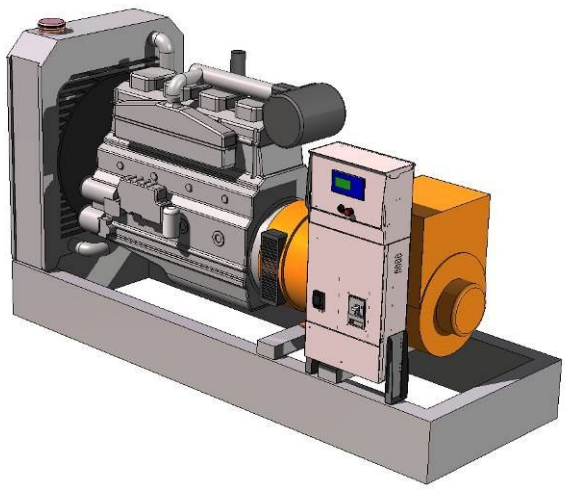
This board includes also all the status indications, the alarms, the working conditions and commands; it manages all the synchronization logics for working and for charge partition.

The board in different panels comunicates togheter all the informations about synchro status, charge partition, etc.. by can bus comunication or DB9 serial comunication

Dimension



Baseframe mounting sample



Order table

CODE	kVA MAX	Vdc	Amp max	Hz	N° poles	L (mm)	H (mm)	P (mm)
QP84111	111	24	160	50	4	540	1111	350
QP84138	138	24	200	50	4	540	1111	350
QP84173	173	24	250	50	4	540	1111	350
QP84277	277	24	400	50	4	540	1111	350
QP84346	346	24	500	50	4	540	1111	350
QP84436	436	24	630	50	4	540	1111	350