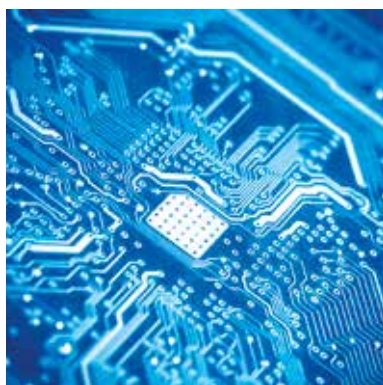




CATALOGUE 01 | 2020

DESIGN & CONSTRUCTION

AC/DC CONVERTER DC/DC CONVERTER
DC/AC CONVERTER CUSTOM DEVICES



1996-2020

ABB SpA
ACEA SpA
Aeronautica Militare Sardegna
Aeroporti Roma
Aeroporto Punta Raisi
Aeroporto Torino Caselle
ALSTOM Grid
Ansaldo SpA
Andritz Hydro S.r.l.
BANCA D'ITALIA - Roma
CEFLA SpA
Centro Oncologico Milano
CNR (MI)
Deutsche Bank - Milano
Eaton
Edison Energia SpA
EDYNA Spa
ENAV – Roma
ENEA Roma
ENEL Cuneo
ENEL Genova
ENEL Sicilia
ENEL Siena
GE-Roma
HYDRODOLOMITI Trento
Hydroenergia Srl
IVECO Spa Mantova
MANUTENCOOP
Ospedale Crema
Ospedale di Bergamo
Ospedali Padova
PLASTIPACK SpA
Policlinico Sant'Orsola - Malpighi (BO)
Raffineria IES Spa Mantova
RFI SpA
RFI – comp. EMILIA ROMAGNA
Saipem Indonesia
SIEMENS SpA (Imp. tecn. estero)
STE Energy SpA
Technosky Roma
Terna SpA
THYSSENKRUPP - Terni
TISCALI Sardegna



1996-2020



We founded our business in 1996 with the company **MULTISERVICE snc**, owner of the Trademark **MTS Elettronica**. **MULTISERVICE** designs and manufactures energy conversion devices, types AC/DC and DC/DC. These devices are used mainly in the industrial and tertiary sectors. Over the years, the trademark **MTS Elettronica** established in the domestic and international markets, so the three founders shareholders transformed the company in a limited liability company: **MTS Elettronica Srl**. The headquarter is in Mantua, near the tollgate junction of Northern Mantua (motorway A22 Modena - Brennero). Here we make the business, administrative, design and manufacturing activities. Our know-how, acquired during the years, allow us to offer technologically cutting edge products, equipped with consolidated technologies, which give the finished product a high level of reliability. The great flexibility of our production structure allows us to manufacture focused devices, satisfying more and more the real needs of the markets and designers.

MTS Elettronica Srl develops any activity concerning R&D of its devices, guaranteeing mastery of product, constant service, and an increasing growth of the quality of our devices. One of the main advantages of **MTS Elettronica Srl** is flexibility, allowing fast answers to the user and customized devices according to any need. Thanks to the company organisation and the know-how acquired over the years, we are able to manufacture **CUSTOMIZED** devices, which are the foundation of our know-how of constant growth.

APPLICATIONS FIELDS:

- Oil & Gas
- Electric Plant
- Hydroelectric Plant
- Transports
- Industrial Procedures
- Technological System
- Hospitals



INDEX

OUR PRODUCTION 04

DIRECT CORRENT DC

SINGLE BRANCH RECTIFIER IGBT TYPE COMPACT ECOLINE RCK5U 06

SINGLE BRANCH RECTIFIER IGBT TYPE COMPACT 1-3MCH ECOLINE 07

SINGLE BRANCH RECTIFIER SCR TYPE COMPACT 3M 08

SINGLE BRANCH RECTIFIER IGBT TYPE COMPACT 1-3M CH-PL 09

SINGLE BRANCH RECTIFIER SCR TYPE COMPACT 3M-PL..... 10

DOUBLE BRANCH RECTIFIER IGBT TYPE COMPACT 2R 1-3M CH 11

DOUBLE BRANCH RECTIFIER SCR TYPE COMPACT 2R 3M 12

DOUBLE BRANCH RECTIFIER IGBT TYPE COMPACT 2R 1-3M CH-PL..... 13

DOUBLE BRANCH RECTIFIER SCR TYPE COMPACT 2R 3M-PL 14

DC/DC CONVERTER DC1 15

SPECIAL PRODUCTS 16

ALTERNATING CURRENT AC

EMERGENCY POWER SUPPLY 400-3000VA SMI..... 17

EMERGENCY POWER SUPPLY 1-10KVA SMED..... 18

EMERGENCY POWER SUPPLY 1 - 10KW STA 20

UNINTERRUPTIBLE POWER SUPPLY UPS MM/TM 3÷14KVA..... 23

UNINTERRUPTIBLE POWER SUPPLY UPS M 600÷1.5KVA 24

UNINTERRUPTIBLE POWER SUPPLY UPS MKK 1÷10KVA 25

CONVERTER DC/AC AC-400 - 1PH AND 3PH OUTPUT..... 26

CONVERTER DC/AC MTS - INV 28

STATIC SWITCH FOR MTS - COM 29

ACCESSORIES

BATTERY MONITOR 30

REMOTE ALARM DEVICE 31

MANUAL BYPASS 32

CUSTOMER SERVICES 33

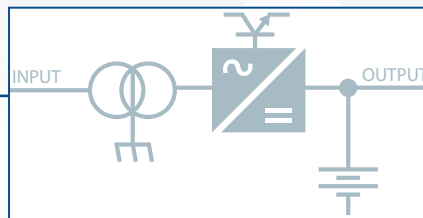
OUR PRODUCTION

R&D

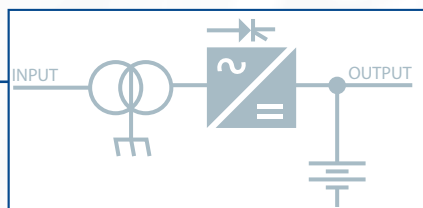
Production

Single branch rectifier

HF-STEPDOWN IGBT CONVERTER



Ving: 1Ph or 3Ph
Nominal Vout: 24 ÷
Iout : 10 ÷ 60 Amp 48÷110 Vdc
Iout : 70 ÷ 100 Amp (Ving : 3Ph)

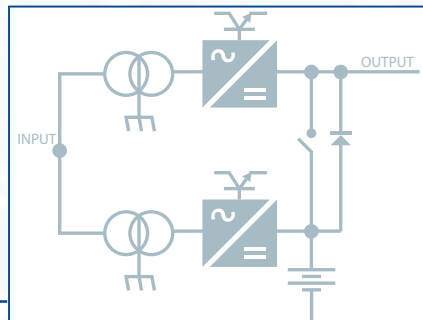


THYRISTOR CONVERTER

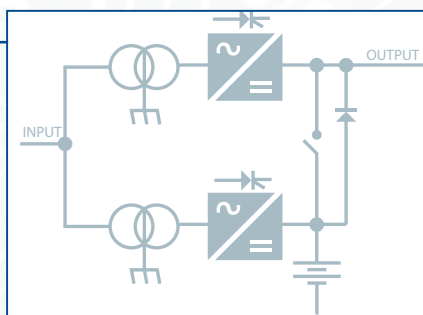
Ving: 3Ph
Nominal Vout: 24 ÷48÷110÷220 Vdc
Iout : 60 ÷ 500
Iout : 60 ÷ 250 Amp (220Vdc)

Double branch rectifier

HF-STEPDOWN IGBT CONVERTER



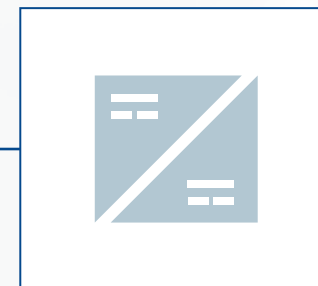
Ving: 1Ph or 3Ph
Nominal Vout :24 ÷ 48÷110 Vdc
Iout : 10 ÷ 60 Amp
Iout : 70 ÷ 100 Amp (Ving : 3Ph)



THYRISTOR CONVERTER

Ving: 3Ph
Vout nominale: 24÷48 110÷220 Vdc
Lout: 60 ÷ 500 Amp
Lout: 60 ÷ 250 Amp (220Vdc)

Not isolated DC/DC converter

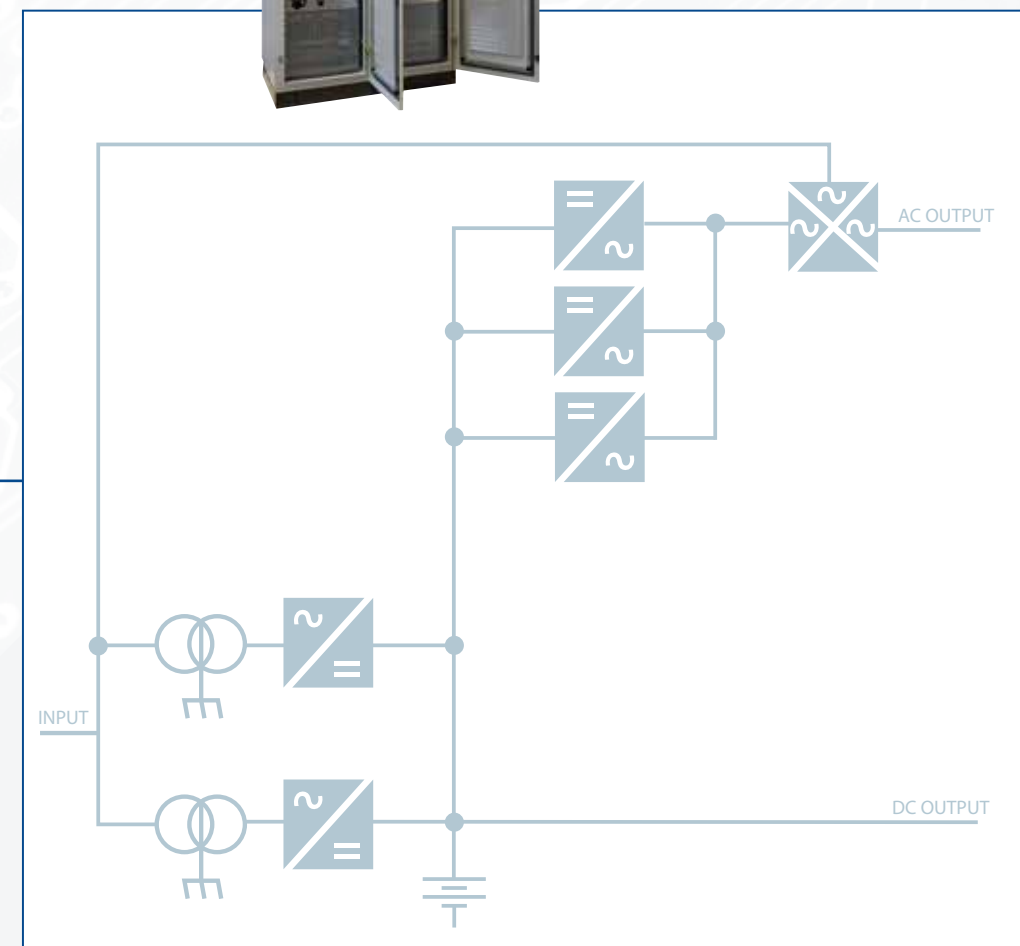


DC1 Series

Ving: to be defined
Nominal Vout: 24 ÷48÷110 Vdc
Iout: 10÷ 60 Amp



Custom AC and DC industrial modular systems



Uninterruptible Power Supply
UPS



ACCESSORIES

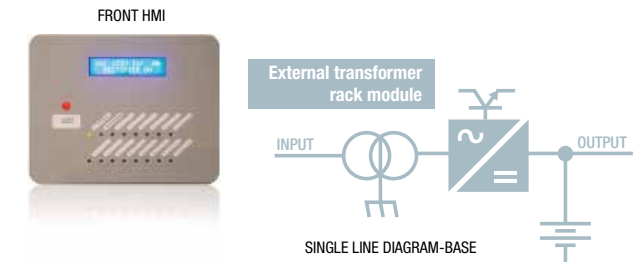
Static Switch
Manual Bypass
Remote Alarms device
Battery monitor



IGBT SINGLE BRANCH RECTIFIER
TYPE COMPACT ECOLINE RCK5U



- MAIN FEATURES**
- Power device conversion: IGBT
 - Control type: PWM HF
 - Incoming isolation transformer at mains frequency: OK
 - Electrostatic shield: OK
 - uP of supervision
 - LCD with backlit alphanumeric display and LED status
 - Charging curve for each battery type
 - High efficiency
 - High reliability
 - **Extractable 5U rack-format AC/DC module for quick and easy assistance thanks to polarized extractable connectors**
 - Easy maintenance with access from the front
 - Low output ripple
 - Extended frequency input range
 - Output overload indication
 - Acknowledgeable audible alarm
 - Accessed from the rear for I/O clamps and relay alarms card
- APPLICATION FIELDS**
- Oil & Gas
 - Energy
 - Process control
 - Trasport
 - Security

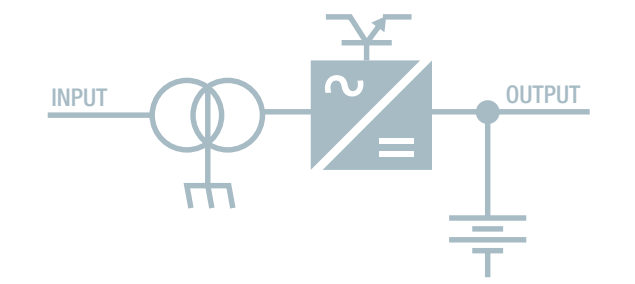


OPTIONS		
UP card for function AUT/MAN BATTERY TEST	UP card for function DC EARTHED PROBE (with polarity discrimination +/-)	
UP card for function BOOST & MANUAL CHARGE	COMMAND FOR EXTERNAL END DISCH.POWER CONTACTOR (LVBD)	
UP card for function TEMP. COMPENSATION		
External Temp. probe (3mt. cables max)		

IGBT SINGLE BRANCH RECTIFIER
TYPE COMPACT 1-3MCH - ECOLINE



- MAIN FEATURES**
- Power device conversion: IGBT
 - Control type: PWM HF
 - Incoming isolation transformer at mains frequency: OK
 - Electrostatic shield: OK
 - uP of supervision
 - LCD with backlit alphanumeric display and LED status
 - Charging curve for each battery type
 - High efficiency
 - High reliability
 - **Extractable 5U rack-format AC/DC module for quick and easy assistance thanks to polarized extractable connectors**
 - Easy maintenance with access from the front
 - Low output ripple
 - Extended frequency input range
 - Output overload indication
 - Acknowledgeable audible alarm
- APPLICATION FIELDS**
- Oil & Gas
 - Energy
 - Process control
 - Transport
 - Security



OPTIONS		
MCB: input ÷ output ÷ battery	Coil circuit breaker tripping	Battery reverse control (BRPCU)
UP card for function BOOST & MANUAL CHARGE	Aux circuit breaker contact (S/H)	E.P.O (Emergency Power Off)
UP card for function TEMP. COMPENSATION	End battery discharge power contactor	
End battery discharge power contactor	uP card for function: AUT/MAN.BATTERY TEST	

TYPE		COMPACT1-3MCH -ECOLINE		
OUTPUT	NOMINAL VOLTAGE with 1Ph supply	24	48	110
	CURRENT RANGE with 1Ph supply	10 ÷ 60A		
	CURRENT RANGE with 3Ph supply	10 ÷ 60A		
	RIPPLE NOISE (RMS)	≤ 0.5% Vn		
	ADJ. VOUT RANGE	+/- 5%		
	STABILITY	+/- 1%		
	ADJ. FOLLOWING THE CHANGE Vinp.	+/- 1%		
	ADJ. FOLLOWING THE CHANGE ILoad	+/- 1%		
	START-UP time	2 sec.		
INPUT	NOMINAL VOLTAGE	230 +/- 10% or 400 +/- 10% (1Ph or 3Ph)		
	FREQ.	50 ÷ 60 +/-7%		
	EFFICIENCY (Typ.)	≥ 90 %		
	ISOLATION I/O	4kV		
PROTECTION	OVERLOAD	2In x 5mS Shut down for 250mS - restart aut.		
	CURRENT TYPE	CONSTANT		
	OVP	+ 10% Vn		
	UVP	- 50% Vn		
	OVERTEMP.	Shut down. Restart aut.		
ALARMS SPDT 5Amp/250Vac	INCOMING MAINS FAILURE	LOW VOLTAGE BATTERIES		
	GENERAL FAILURE			
ENVIRONMENT	WORKING TEMP.	-10+40°C		
	WORKING HUMIDITY	2090% (NO COND.)		
	STORAGE TEMP.	-20+50°C		
STANDARDS	MARKING	CE		
	PROTECTION DEGREE	IEC 60529		
	EMC	EN 61000-6-2 EN 61000-6-4		
	STATIC CONVERTER	EN 60146-1-2		
PROTECTION DEGREE		IP30		
DIMENSIONS (W x D x H) mm		600 x 650 x 1600		
PAINT		RAL 7035		

DISPLAY STATE MESSAGES	LED STATUS
Rectifier ON	System ok (green)
Boost Charge ON (Optional)	System failure (red)
Manual Charge ON (Optional)	
Overload	ELECTRICAL MEASUREMENTS ON DISPLAY
Battery Mode	Output voltage
Low Volt. Batt.	Output current
End. Batt. Aut.	
Vout. Rect. Max	MULTIFUNCTION PUSH-BUTTON
	Acknowledgeable audible alarm

SCR SINGLE BRANCH RECTIFIER
COMPACT 3M

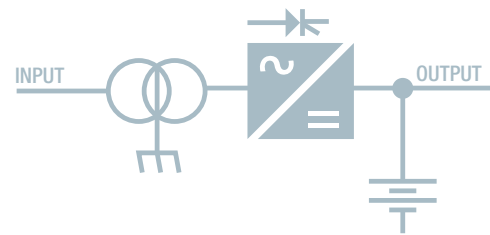


MAIN FEATURES

- Power device conversion: THYRISTOR
- Control type: control phase
- Incoming isolation transformer at mains frequency: OK
- Electrostatic shield: OK
- uP of supervision
- LCD with backlit alphanumeric display and LED status
- Charging curve for each battery type
- High efficiency
- High reliability
- Easy maintenance with access from the front
- Low output ripple
- Earthed polarity sensor with differentiated LED
- Output overload indication
- Acknowledgeable audible alarm

APPLICATION FIELDS

- Oil & Gas
- Energy
- Process control
- Transport
- Security



OPTIONS		
MCB: input ÷ output ÷ battery	Temp. probe	Battery reverse control (BRPCU)
UP card for function: BOOST & MANUAL CHARGE	Coil circuit breaker tripping	E.P.O (Emergency Power Off)
UP card for function: TEMP. COMPENSATION	Aux. circuit breaker contact (S/H)	LCD kit for measure current batt. recharge
End battery discharge power contactor	Field Bus Interface (only state no measure)	

IGBT SINGLE BRANCH RECTIFIER
COMPACT 1-3M CH-PL

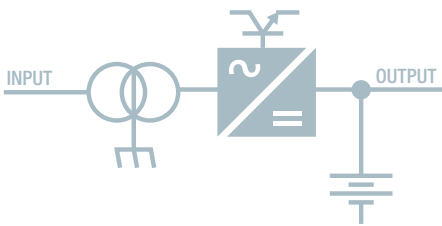


MAIN FEATURES

- Power device conversion: IGBT
- Control type: PWM HF
- Incoming isolation transformer at mains frequency : OK
- Electrostatic shield: OK
- uP of supervision + PLC
- Touch screen panel
- Charging curve for each battery type
- High efficiency
- High reliability
- Easy maintenance with access from the front
- Low output ripple
- Extended frequency input range
- Manual and automatic battery test
- Earthed polarity sensor with differentiated LED
- Output overload indication
- Acknowledgeable audible alarm

APPLICATION FIELDS

- Oil & Gas
- Energy
- Process control
- Transport
- Security



OPTIONS		
MCB: input ÷ output ÷ battery	Temp. probe	Battery reverse control (BRPCU)
UP card for function: BOOST & MANUAL CHARGE	Coil circuit breaker tripping	E.P.O (Emergency Power Off)
UP card for function: TEMP. COMPENSATION	Aux. circuit breaker contact (S/H)	Aut. and manual bat. test
End battery discharge power contactor	Touch screen 7÷10÷15"	Special alarms

SCR SINGLE BRANCH RECTIFIER
COMPACT 3M-PL

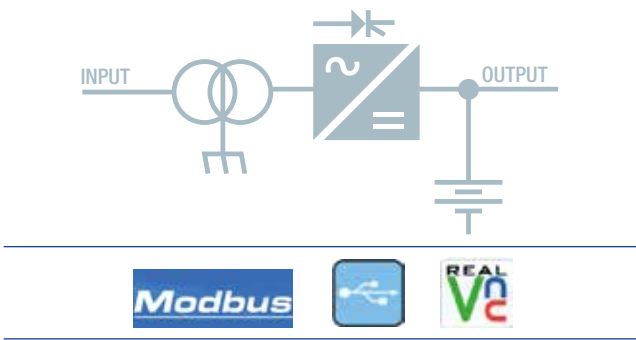


MAIN FEATURES

- Power device conversion: SCR
- Control type: control of phase
- Incoming isolation transformer at mains frequency: OK
- Electrostatic shield: OK
- UP of supervision + PLC
- Touch screen panel
- Charging curve for each battery type
- High efficiency
- High reliability
- Easy maintenance with access from the front
- Low output ripple
- Earthed polarity sensor with differentiated LED
- Output overload indication
- Acknowledgeable audible alarm

APPLICATION FIELDS

- Oil & Gas
- Energy
- Process control
- Transport
- Security



OPTIONS		
MCB: input ÷ output ÷ battery	Temp. probe	Battery reverse control (BRPCU)
UP card for function: BOOST & MANUAL CHARGE	Coil circuit breaker tripping	E.P.O (Emergency Power Off)
UP card for function: TEMP. COMPENSATION	Aux. circuit breaker contact (S/H)	Aut. and manual bat. test
End battery discharge power contactor	Touch screen da 7÷10÷15"	Special alarms

IGBT DOUBLE BRANCH RECTIFIER
COMPACT 2R 1-3M CH

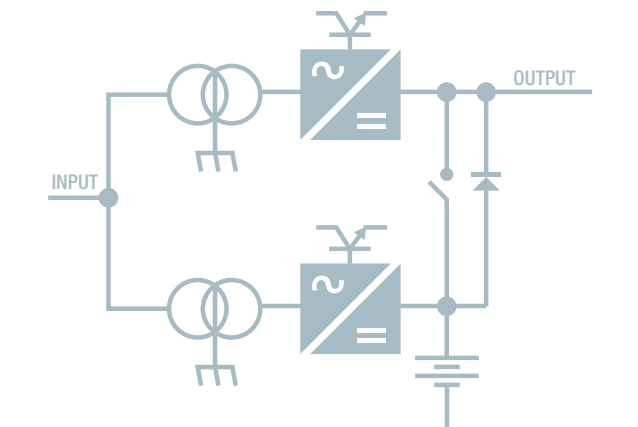


MAIN FEATURES

- Power device conversion: IGBT
- Control type: PWM HF
- Incoming isolation transformer at main frequency: OK
- Electrostatic shield: OK
- uP of supervision
- LCD with backlit alphanumeric display and LED status
- Charging curve for each battery type
- High efficiency
- High reliability
- Easy maintenance with access from the front
- Low output rippleExtended frequency input range
- Earthed polarity sensor with differentiated LED
- Output overload indication
- Acknowledgeable audible alarm

APPLICATION FIELDS

- Oil & Gas
- Energy
- Process control
- Transport
- Security



OPTIONS		
MCB: input ÷ output ÷ battery	Temp. probe	Battery reverse control (BRPCU)
UP card for function BOOST & MANUAL CHARGE	Coil circuit breaker tripping	E.P.O (Emergency Power Off)
UP card for function TEMP. COMPENSATION	Aux. circuit breaker contact (S/H)	LCD kit for measure current batt. recharge
End battery discharge power contactor	Field Bus Interface (only state no measure)	

TYPE		COMPACT2R1-3MCH			
OUTPUT	NOMINAL VOLTAGE	24	48	110	
	CURRENT RANGE con alim.1Ph	10 ÷ 60A			
	CURRENT RANGE con alim.3Ph	10 ÷ 100A			
	RIPPLE NOISE (RMS)	≤ 0.5% Vn			
	RANGE REGOL. Vout	+/- 5%			
	STABILITY	+/- 1%			
	ADJ. FOLLOWING THE CHANGE Vinp.	+/- 1%			
	ADJ. FOLLOWING THE CHANGE ILoad	+/- 1%			
	START-UP time	2 sec.			
INPUT	NOMINAL VOLTAGE	230 +/- 10%		400 +/-10%	
	FREQ.	50 ÷ 60 +/-7%			
	EFFICIENCY (Typ.)	≥ 90 %			
	ISOLATION I/O	4kV			
PROTECTION	OVERLOAD	2In x 5mS Shut down per 250mS - restart aut.			
	CURRENT TYPE	Constant			
	OVP	+ 10% Vn			
	UVP	- 50% Vn			
	OVERTEMP.	Shut down. Restart aut.			
ALARMS SPDT 8Amp/250Vac	Mains ok AC*	LOW VOLTAGE BATTERIES			
	GENERAL FAULT*	DC EARTH			
	OVERLOAD				
ENVIRONMENT	WORKING TEMP.	-10+40°C			
	WORKING HUMIDITY	2090% (NO COND.)			
	STORAGE TEMP.	-20+50°C			
STANDARDS	MARKING	CE			
	PROTECTION DEGREE	IEC 60529			
	EMC	EN 61000-6-2 EN 61000-6-4			
	STATIC CONVERTER	EN 60146			
PROTECTION DEGREE		IP30			
PAINT		RAL 7035			

* = Energized relay

LED STATUS	ELECTRICAL MEASUREMENTS ON DISPLAY
Mains ok	Output voltage RS
Rect. RS IN PROGRESS	Output current RS
Rect. RCB IN PROGRESS	Batteries voltage RCB
Boost charge on (opt.)	Batterie current recharge RCB
Manual charge on (opt.)	Acknowledgeable audible alarm
Rct RS Vout < and >	
Rct BC Vout < and >	
OVERLOAD	
DC EARTH	
BATTERY MODE	
LOW VOLTAGE BATTERIES	
END DISCHARGE VOLT. BAT.	
MAINTENANCE REQUEST	

MULTIFUNCTION AUDIBLE ALARM	SPECIAL FUNCTION ON BOARD
Alarms reset	DC EARTH WITH + / - POLARITY LEDS
Test led	OVERLOAD

SCR DOUBLE BRANCH RECTIFIER
COMPACT 2R 3M

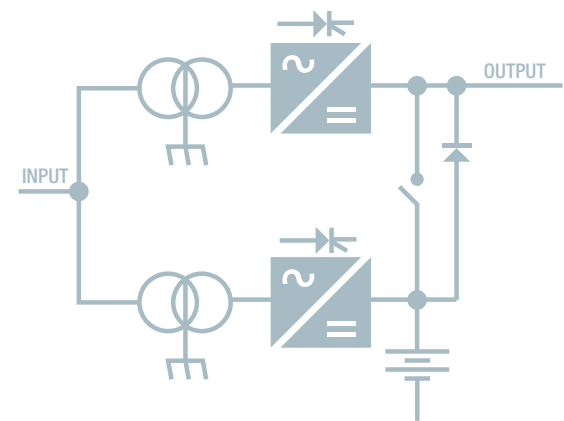


MAIN FEATURES

- Power device conversion: SCR
- Control type: control of phase
- Incoming isolation transformer at mains frequency: OK
- Electrostatic shield: OK
- uP of supervision
- LCD with backlit alphanumeric display and LED status
- Charging curve for each battery type
- High efficiency
- High reliability
- Easy maintenance with access from the front
- Low output rippleExtended frequency input range
- Earthed polarity sensor with differentiated LED
- Output overload indication
- Acknowledgeable audible alarm

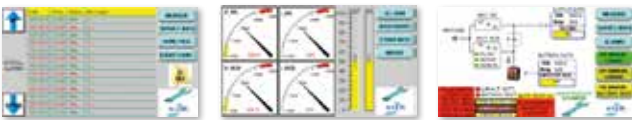
APPLICATION FIELDS

- Oil & Gas
- Energy
- Process control
- Transport
- Security



OPTIONS		
MCB: input ÷ output ÷ battery	Temp. probe	Battery reverse control (BRPCU)
UP card for function BOOST & MANUAL CHARGE	Coil circuit breaker tripping	E.P.O (Emergency Power Off)
UP card for function TEMP. COMPENSATION	Aux. circuit breaker contact (S/H)	LCD kit for measure current batteries recharge
End battery discharge power contactor	Field Bus Interface (only state no measure)	

IGBT DOUBLE BRANCH RECTIFIER
COMPACT 2R 1-3M CH-PL

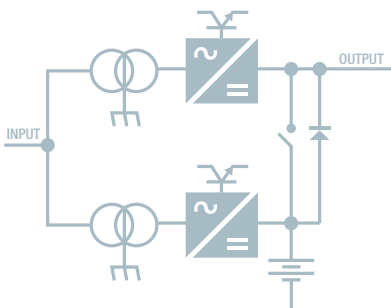


MAIN FEATURES

- Power device conversion: IGBT
- Control type: PWM HF
- Incoming isolation transformer at mains frequency: OK
- Electrostatic shield: OK
- uP of supervision + PLC
- Touch screen panel
- Charging curve for each battery type
- High efficiency
- High reliability
- Easy maintenance with access from the front
- Low output rippleExtended frequency input range
- Earthed polarity sensor with differentiated LED
- Output overload indication
- Acknowledgeable audible alarm

APPLICATION FIELDS

- Oil & Gas
- Energy
- Process control
- Transport
- Security



OPTIONS		
MCB: input ÷ output ÷ battery	Temp. probe	Battery reverse control (BRPCU)
UP card for function BOOST & MANUAL CHARGE	Coil circuit breaker tripping	E.P.O (Emergency Power Off)
UP card for function TEMP. COMPENSATION	Aux. circuit breaker contact (S/H)	Special alarms
End battery discharge power contactor	Touch screen from 7÷10÷15"	

TYPE		COMPACT2R1-3MCH-PL			
OUTPUT	NOMINAL VOLTAGE	24	48	110	
	CURRENT RANGE with 1Ph supply	10 ÷ 60A			
	CURRENT RANGE with 3Ph supply	10 ÷ 100A			
	RIPPLE NOISE (RMS)	≤ 0.5% Vn			
	RANGE REGOL. Vout	+/- 5%			
	STABILITY	+/- 1%			
	ADJ. FOLLOWING THE CHANGE Vinp.	+/- 1%			
	ADJ. FOLLOWING THE CHANGE ILoad	+/- 1%			
	START-UP time	2 sec.			
INPUT	NOMINAL VOLTAGE	230 +/- 10%		400 +/-10%	
	FREQ.	50 ÷ 60 +/-7%			
	EFFICIENCY (Typ.)	≥ 90 %			
	ISOLATION I/O	4kV			
PROTECTION	OVERLOAD	2In x 5mS Shut down for 250mS - restart aut.			
	CURRENT TYPE	CONSTANT			
	OVP	+ 10% Vn			
	UVP	- 50% Vn			
	OVERTEMP.	Shut down. Restart aut.			
ALARMS SPDT 6Amp 250VAC	GENERAL FAULT*				
	LOW VOLTAGE BATTERIES				
	Other on request				
ENVIRONMENT	WORKING TEMP.	-10+40°C			
	WORKING HUMIDITY	2090% (NO COND.)			
	STORAGE TEMP.	-20+50°C			
STANDARDS	MARKING	CE			
	PROTECTION DEGREE	IEC 60529			
	EMC	EN 61000-6-2 EN 61000-6-4			
	STATIC CONVERTER	EN 60146			
PROTECTION DEGREE		IP30			
PAINT		RAL 7035			

* = Energized relay

LED STATUS	TOUCHSCREEN MEASURES
Mains ok	OUTPUT voltage RS
Rect.SB ok	OUTPUT current RS
Rect.BC ok	Batt. current recharge
Boost charge on (opt.)	Output power (Watt)
Manual charge on (opt)	Perc. output current
Overload	Perc. batteries autonomy
DC earth	SPECIAL FUNCTION ON BOARD
Battery mode	
Low voltage batteries	
Maintenance request	
End discharge volt.bat.	DC EARTH CARD WITH + / - POLARITY LEDS



SCR DOUBLE BRANCH RECTIFIER
COMPACT 2R 3M-PL

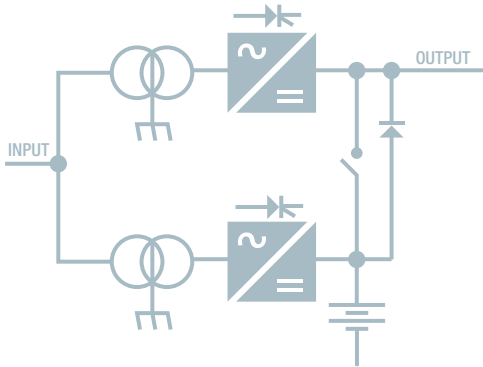


MAIN FEATURES

- Power device conversion: SCR
- Control type: control of phase
- Incoming isolation transformer at mains frequency: OK
- Electrostatic shield: OK
- uP of supervision + PLC
- Touch screen panel
- Charging curve for each battery type
- High efficiency
- High reliability
- Easy maintenance with access from the front
- Low output ripple
- Earthed polarity sensor with differentiated LED
- Output overload indication
- Acknowledgeable audible alarm

APPLICATION FIELDS

- Oil & Gas
- Energy
- Process control
- Transport
- Security



OPTIONS		
MCB: input ÷ output ÷ battery	Temp. probe	Battery reverse control (BRPCU)
UP card for function BOOST & MANUAL CHARGE	Coil circuit breaker tripping	E.P.O (Emergency Power Off)
UP card for function TEMP. COMPENSATION	Aux. circuit breaker contact (S/H)	Special alarms
End battery discharge power contactor	Touch screen from 7÷10÷15"	

TYPE	COMPACT2R3M-PL				
	NOMINAL VOLTAGE	24	48	110	220
OUTPUT	CURRENT RANGE	100 ÷ 500A		60 ÷ 250A	
	MAX POWER(W)	12000	24000	55000	55000
	RIPPLE NOISE(RMS)	≤ 1% Vn			
	RANGE REGOL. Vout	+/- 5%			
	STABILITY	+/- 1%			
	ADJ. FOLLOWING THE CHANGE Vinp.	+/- 1%			
	ADJ. FOLLOWING THE CHANGE ILoad	+/- 1%			
	START-UP time	10 sec.			
INPUT	NOMINAL VOLTAGE	400 +/-10%			
	FREQ.	50 ÷ 60 +/-5%			
	EFFICIENCY (Typ.)	≥ 90 %			
	ISOLATION I/O	4kV			
PROTECTION	SEQUENCE SENSE	Shut down. Restart aut.			
	INCOMING LOW VOLTAGE	Shut down if Vin<325Vac Restart auto if Vin>330Vac			
	CURRENT TYPE	CONSTANT			
	OVP	+ 10% Vn			
	UVP	- 50% Vn			
	OVERTEMP.	Shut down. Restart aut.			
ALARMS SPDT 6Amp-250VAC	GENERAL FAULT*				
	LOW VOLTAGE BATTERIES				
	Other on request				
ENVIRONMENT	WORKING TEMP.	-10+40°C			
	WORKING HUMIDITY	2090% (NO COND.)			
	STORAGE TEMP.	-20+50°C			
STANDARDS	MARKING	CE			
	PROTECTION DEGREE	IEC 60529			
	EMC	EN 61000-6-2 EN 61000-6-4			
	STATIC CONVERTER	EN 60146			
PROTECTION DEGREE		IP30			
PAINT		RAL 7035			

*Energized relay.

TOUCHSCREEN ALARMS

MAINS OK
RECT. SB OK
RECT. BC OK
RCT. RS VOUT < AND >
RCT. BC VOUT < AND >
OVERLOAD
DC EARTH
BATTERY MODE
LOW VOLTAGE BATTERIES
END DISCHARGE VOLT. BAT.

TOUCHSCREEN MEASURES

OUTPUT voltage RS
OUTPUT current RS
OUTPUT voltage RCB
OUTPUT current RCB
Output power (Watt)
Perc. output current
Perc. batteries autonomy
SPECIAL FUNCTION ON BOARD
MODBUS TCP/IP
VNC Viewer



DC/DC CONVERTER
DC1



MAIN FEATURES

- Static converter
- Configuration: STEP-DOWN
- Control type: PWM HF.
- Isolation I/O: NO
- Negative pole through
- Extractable 5U rack-format AC/DC module for quick and easy assistance thanks to polarized extractable connectors

APPLICATION FIELDS

These converters can be used to power utilities in DC with constant voltage, when it has a variable trend source such as the batteries that require charging curves to voltage values not always acceptable by the loads.



TYPE		DC1-12	DC1-24	DC1-48	DC1-110
OUTPUT	NOMINAL VOLTAGE*	12	24	48	110
	CURRENT RANGE	10÷60A			
	MAX POWER	720W	1440W	2880W	6600W
	RIPPLE NOISE(RMS)	≤ 0.3% Vn			
	RANGE REGOL.Vout	+/- 5%			
	STABILITY	+/- 1%			
	ADJ. FOLLOWING THE CHANGE Vinp.	+/- 1%			
	ADJ. FOLLOWING THE CHANGE ILoad	+/- 1%			
	START-UP time	2 sec.			
	CONFIG. PARALL. OF REDUNDANCY	POSSIBLE WITH BLOCK DIODE			
INPUT	VOLTAGE RANGE */**	18 ÷ 75		116 ÷ 170	
	EFFICIENCY (Typ.)	≥ 90 %			
	CURR.CONSUMPTION (NO LOAD)	~ 0.2 Amp			
	INRUSH CURRENT (Typ.)	~ 80Amp			
PROTECTION	OVERLOAD	2In x 5mS Shut down for 250mS - restart aut.			
	CURRENT TYPE	CONSTANT			
	OVP	+ 10% Vn			
	UVP	- 50% Vn			
	OVERTEMP.	Shut down. Restart aut.			
ALARMS	DC/DC OK	SPDT CONTACT (5Amp/230VAC)			
ENVIRONMENT	WORKING TEMP.	-10+40°C			
	WORKING HUMIDITY	2090% (NO COND.)			
	STORAGE TEMP.	-20+50°C			
STANDARDS	MARKING	CE			
	PROTECTION DEGREE	IEC 60529			
	EMC	EN 61000-6-2 EN 61000-6-4			
	STATIC CONVERTER	EN 60146			
VENTILATION		Iout= 5÷20Amp NATURAL Iout= 21÷60Amp FORCED			
DIMENSIONS (W x D x H) mm- with handle and rear clamps		5U rack type 482 x 485 X 221			
DIMENSIONS (W x D x H) mm- without handle and rear clamps		5U rack type 482 x 425 X 221			
PROTECTION DEGREE		IP20			
PAINT FRONT PANNEL - INDICATIVE WEIGHT		RAL 7035 - 15Kg			

OPTIONS	LCD CARD (Vout & Iout)
	BLOCK DIODE
LEDS ALARMS ON CONTROL CARD	VDC AUX1 OK
	VDC AUX 2 OK
	DRIVING IGBT OK
	UNDER VOLTAGE IN PROGRESS
	OVER VOLTAGE IN PROGRESS
	OVERTEMPERATURE IN PROGRESS
COMMANDS	MANUAL SELECTOR FOR ON/OFF CONVERTER
STATUS LED	GREEN LED FOR CONVERTER IN USE

*Others on request.

**With converter operating in regulation.



SPECIAL PRODUCTS

INDUSTRIAL UPS PRODUCTIONS WITH OUTPUT FOR DC AND AC LOADS

MAXIMUM RELIABILITY

Series of examples of **Industrial UPS with output for DC and AC loads**. Designed to guarantee maximum reliability, they provide DC-side redundancy with the use of two IGBT AC/DC modules, the same concept on 230VAC utilities where two hot-plug parallel inverters, static switch and manual by-pass are used of service.



PRODUCT LINE | ALTERNATING CURRENT

EMERGENCY POWER SYSTEM 400-3000VA SMI SERIES



MAIN FEATURES

- High frequency PWM Inverter
- Single-phase input
- Single-phase sinusoidal output
- Isolation transformer in the inverter output
- Efficiency DC/AC high
- Microprocessor control with 32 bit
- Leds for clear information about the status of the E.P.S.
- Short trasfer time, less than 10 msec (short break)
- Rescue operation (output always present)
- Internal battery - Nominal voltage 24Vdc (S.E.L.V.)
- Suitable for any type of safety utilization
- Specific for led lights, suitable for any other type of load (small pumps, motors power factor corrected lamps or lights, small refrigerators)
- Compact and small dimensions
- Easy wall installation
- **OPTIONS**
- Emergency Power Off (E.P.O.) for Inverter shutdown immediate
- Possibility of increasing autonomy with adequate charger
- Auto Off to load <3% with sensor presence load for start every 30 sec.
- Possibility of emergency operation
- Batteries 10 years expected life (according to EN50171)

TYPE

	SMI 04	SMI 06	SMI 10	SMI 15	SMI 20	SMI 25	SMI 30
P (VA)	400	600	1000	1500	2000	2500	3000
P (W)	350	550	1000	1500	2000	2500	3000
INPUT	VOLTAGE		230 Vac +10/-20%				
	FREQUENCY		50 Hz +/- 5% (60 Hz - option)				
OUTPUT	VOLTAGE		Line working: line. Battery working: 230Vac +/- 0,5%				
	FREQUENCY		50 Hz +/- 0,005%				
	OVERLOAD		110% per 60 sec. - 130% per 10 sec. - short circuit management				
	WAVEFORM		Pure sinewave				
	VOLTAGE DISTORTION (THD)		< 3% (linear load)				
	EFFICIENCY at full load		With line present > 99%; on battery working > 90%				
BATTERIES	RECHARGE TIME		6 - 10 for full autonomy				
GENERAL NOTES	NOISE (dbA at 1 meter)		< 40				
	TEMPERATURE		da 0 a 40 °C				
	RELATIVE HUMIDITY AT 35° C		90% non-condensing				
	UPS DIMENSIONS (L X P X H) mm		315 x 255 x 550				
	WEIGHT (KG) without batteries		In progress				
PROTECTION	COMPLIANCE		Safety EN 62040-1-2, EMC EN 62040-2, CSS EN 50171 (battery on request)				
	ELECTRONIC		Overload - short circuit - battery low				
	ELECTRIC		Input and output fuses and battery fuse (internal)				
ALARMS	MECHANICAL		IP20				
	OPTICAL		Functional E.P.S. - Overload - battery low - general alarm				
	ACOUSTIC		Line fails - battery low - overload - test battery				

ACCESSORIES

CODE	DESCRIPTION
7050	Communication port RS485
7011E	Emergency Power Off (E.P.O.) for Inverter shutdown immediate
7013E	Dry general alarm
7051E	Emergency operation

EMERGENCY POWER SUPPLY 1-10KVA
SMED SERIES



MAIN FEATURES

- High frequency PWM Inverter
- Single phase input
- Single phase sinewave output
- Isolation transformer on the inverter output
- High DC/AC efficiency
- Microprocessor management with Auto-Diagnostics
- LCD display for more clear information about the status
- Automatic on/off weekly timer
- Automatic and manual battery test (emergency version)
- Transfer time less than 200 msec
- Rescue or emergency operation (SA/SE) selectable
- Possibility of connection for any user normally destined for security

OPTIONAL

- Contact interface
- Communication interface (RS-232) and management software
- USB interface
- Kit Ethernet SNMP adapter and related software
- Remote synoptic LCD remote
- Relay alerts and status communication card
- Manual by-pass
- Emergency Power Off contact (E.P.O.) for immediate stop
- Possible starting even without input power
- Double out possibility SA+SE
- DC output
- Batteries Long Life 10 years expected (according to EN50171)

SMED TYPE		10	15	20	30	40	50	60	80	100
POWER	NOMINAL POWER (KVA)	1	1,5	2	3	4	5	6	8	10
	ACTIVE POWER (KW)	0,9	1,35	1,8	2,7	3,6	4,5	5,4	7,2	9
INPUT	VOLTAGE	230Vac +/-20%								
	FREQUENCY	50Hz +/-5%								
OUTPUT	VOLTAGE	Present mains: mains voltage On batteries: 230 Vac +/- 0,5%								
	FREQUENCY	Present mains: synchronized to mains On batteries: 50Hz +/- 0,005%								
	OVERLOAD	110% for 60 sec. - 130% for 10 sec. - short circuit management								
	WAVEFORM	Sine wave								
	VOLTAGE DISTORTION (THD)	< 3% (linear load)								
	EFFICIENCY at full load	Present mains > 98%; on batteries on> 91%								
BATTERIES	BACK-UP TIME	See the detailed tables								
	RECHARGE TIME	8h								
GENERAL NOTES	NOISE (dba at 1 meter)	< 40								
	TEMPERATURE	from 0 to 40 °C								
	RELATIVE HUMIDITY AT 35° C	To 90% non-condensing								
	UPS DIMENSIONS (L X P X H) mm	320 x 650 x 650 / 420 x 850 x 670 / 420 x 850 x 1050 (See the detailed tables)								
	PACKING DIMENSIONS (L X P X H) mm	420 x 740 x 850 / 530 x 920 x 760 / 530 x 920 x 1140 (See the detailed tables)								
	WEIGHT (KG) without batteries	See the detailed tables								
	COMPLIANCE	Safety EN 62040-1-2, EMC EN 62040-2, CSS EN 50171 (batteries excluded)								
PROTECTION	ELECTRONIC	Overload - short circuit - battery low								
	ELECTRIC	Input and batteries fuses – circuit breaker output								
	MECHANICAL	IP20								
ALARMS	OPTICAL	Functional emergency power system status - overload - low battery								
	SOUNDS ALERT	Mains fail - low batteries - overload - test battery								

POWER	TYPE	CODE	AUT. (min.)	OVERALL (LxPxH) (mm)	BATTERIES	WEIGHT (Kg)
1000VA 900W	SMED10-10	4M1000-10	10'	320 x 650 x 650	n.4 12V-9Ah	68
	SMED10-30	4M1000-30	30'	320 x 650 x 650	n.12 12V-7Ah	82
	SMED10-60	4M1000-60	60'	320 x 650 x 650	n.20 12V-7Ah	108
1500VA 1350W	SMED15-10	4M1500-10	10'	320 x 650 x 650	n.8 12V-7Ah	74
	SMED15-30	4M1500-30	30'	320 x 650 x 650	n.20 12V-7Ah	108
	SMED15-60	4M1500-60	60'	320 x 650 x 650	n.24 12V-9Ah	122
2000VA 1800W	SMED20-10	4M2000-10	10'	320 x 650 x 650	n.8 12V-9Ah	91
	SMED20-30	4M2000-30	30'	320 x 650 x 650	n.20 12V-9Ah	128
	SMED20-60	4M2000-60	60'	320 x 650 x 650	n.32 12V-9Ah	157
3000VA 2700W	SMED30-10	4M3000-10	10'	320 x 650 x 650	n.12 12V-9Ah	103
	SMED30-30	4M3000-30	30'	320 x 650 x 650	n.24 12V-9Ah	141
	SMED30-60	4M3000-60	60'	420 x 850 x 1050	n.48 12V-9Ah	224
4000VA 3600W	SMED40-10	4M4000-10	10'	320 x 650 x 650	n.16 12V-9Ah	118
	SMED40-30	4M4000-30	30'	320 x 650 x 650	n.32 12V-9Ah	170
	SMED40-60	4M4000-60	60'	420 x 850 x 1050	n.60 12V-9Ah	268
5000VA 4500W	SMED50-10	4M5000-10	10'	320 x 650 x 650	n.20 12V-9Ah	138
	SMED50-30	4M5000-30	30'	320 x 650 x 650	n.40 12V-9Ah	201
	SMED50-60	4M5000-60	60'	420 x 850 x 1050	n.80 12V-9Ah	318
6000VA 5400W	SMED60-10	4M6000-10	10'	320 x 650 x 650	n.20 12V-9Ah	151
	SMED60-30	4M6000-30	30'	320 x 650 x 650	n.60 12V-9Ah	270
	SMED60-60	4M6000-60	60'	420 x 850 x 1050	n.120 12V-7Ah	403
8000VA 7200W	SMED80-10	4M8000-10	10'	420 x 850 x 670	n.40 12V-7Ah	187
	SMED80-30	4M8000-30	30'	420 x 850 x 1050	n.80 12V-9Ah	328
	SMED80-60	4M8000-60	60'	420 x 850 x 670 + 540 x 715 x 1250	n.40 12V-26Ah	95 + 415
10000VA 9000W	SMED100-10	4M10000-10	10'	420 x 850 x 670	n.40 12V-9Ah	214
	SMED100-30	4M10000-30	30'	420 x 850 x 1050	n.80 12V-9Ah	343
	SMED100-60	4M10000-60	60'	420 x 850 x 670 + 540 x 715 x 1250	n.40 12V-42Ah	105 + 620

ACCESSORIES

CODE	DESCRIPTION		
7001	Remote synoptic with 15mt cable		
7002-IN	Relay alarm communication card inside the E.P.S. (when ordering)		
7002	External relay alarm communication board (requires the addition of accessory 7012)		
7003	External SNMP Ethernet interface (requires the addition of the 7007R accessory)		
7006-70	Manual bypass for SMED 10-50		
7006-140	Manual bypass for SMED 60-100		
7007R	RS232 communication interface		
7011M	Contact for emergency button (E.P.O.) for immediate inverter stop		
7012	Contacts interface		
7018	USB interface		
GSC026040S	Box with 2x20 batteries 12V-26Ah and safety breaker	Overall 540 x 715 x 1250 mm	415 Kg
GSC042040S	Box with 2x20 batteries 12V-42h and safety breaker	Overall 540 x 715 x 1250 mm	620 Kg
7030	Battery Start button		
70SS-30D	Possibility of double output SA + SE for SMED 10-30		
70SS-100D	Possibility of double output SA + SE for SMED 40-100		

UNINTERRUPTIBLE POWER SUPPLY – UPS
MTS MM/TM 3÷14KVA SERIES



MTS 30/40/55/70 available in rack version

MAIN FEATURES

- Technology On-Line double conversion with transformer - VFI-SS-111
- Single or three phase input
- Single phase output
- High AC/DC efficiency
- PFC circuit on the input
- Microprocessor control with Self-Diagnostics
- Automatic by-pass standard
- LCD display for more clear information about UPS status
- Turn on and turn off by weekly timer
- Communication port RS232

OPTIONS

- SNMP adapter and software
- Communication board and relay alarms (AS400)
- Possibility of starting also from batteries
- Available as voltage and/or frequency convert



SNMP Ext.

MTS SERIES		30	40	55	70	100	140
POWER	POWER (KVA)	3	4	5,5	7	10	14
	POWER (KW)	2,1	3	4	5	7,5	10
INPUT	SINGLE PHASE	230 Vac +10/-20%					
	FREQUENCY	50 Hz +/- 5%					
	POWER FACTOR	> 0,98					
OUTPUT	RATED VOLTAGE	230 Vac +/- 0,5%					
	FREQUENCY	Line working: synchronized to line - Battery working: 50Hz +/- 0,005%					
	OVERLOAD	110% for 60 sec. - 130% for 10 sec. – short circuit management					
	WAVEFORM	Pure wave					
	VOLTAGE DISTORSION THD	< 3% (with linear load)					
	EFFICIENCY at full load	91% - on ECO Mode >98%					
BATTERIES	TYPE	12 V - 7 Ah				12 V - 12 Ah	
	NUMBER	10	12	16	20		
	TYPICAL AUTONOMY	10'				13'	10'
	RECHARGE TIME	8h					
GENERAL NOTES	AUDIBLE NOISE (db at 1 mt.)	40 to 60					
	OPERATING TEMPERATURE	0 to 40° C					
	RELATIVE HUMIDITY AT 35°C	< 90% non-condensing					
	UPS DIMENSIONS (LxPxH) mm	320x650x650			420x850x670		
	UPS RACK DIMENSIONS (LxPxH) mm	630x570x710			-		
	WEIGHT (KG)	90	95	113	132	180	195
	COMPLIANCE	Safety EN 62040-1-2 / EMC EN 62040-2 / EN 62040-3					
PROTECTION	ELECTRONIC	Overload / short circuit / low battery					
	ELECTRIC	Input and battery fuses - automatic switch on output					
	MECHANICAL	IP20					
ALARMS	OPTICAL	Function UPS status - overload - low battery					
	ACOUSTIC	Line failure - low battery - overload - battery test - inverter off					

UNINTERRUPTIBLE POWER SUPPLY – UPS
M 600÷1.5KVA SERIES



MAIN FEATURES

- Technology line interactive –VI-Sy-222
- AVR Stabi
- Microprocessor management
- Response time < 4mS
- Self-Diagnostic
- Self-learnig
- LCD display for more clear information about UPS status
- RS232 and/or USB communication port
- Control and management software
- Telephone line and modem protection with RJ11
- Computer network protection with RJ45



M SERIES		M600	M800	M1000	M1500
POWER	NOMINAL POWER (VA)	600	800	1000	1500
	ACTIVE POWER (W)	360	480	600	900
	VOLTAGE	230 Vac ±25%			
	FREQUENCY	50 o 60 Hz ± 10% (autosensing)			
OUTPUT	VOLTAGE	Line working: 230 Vac ± 9% (AVR) - Battery working: 230 Vac ± 10%			
	FREQUENCY	Line working: synchronized to line - Battery working: 50Hz o 60Hz ± 1Hz			
	WAVEFORM	Pure wave			
	N° OF OUTPUT SOCKET	4			6
BATTERIES	TYPE	12V - 7Ah	12V - 9Ah	12V - 7Ah	12V - 9Ah
	NUMBER	1	1	2	2
	TYPICAL AUTONOMY	from 10' - to 20'			
	RECHARGE TIME	6 - 8h			
GENERAL NOTES	AUDIBLE NOISE (db at 1 mt.)	< 30			
	OPERATING TEMPERATURE	from 0 to 40 °C			
	RELATIVE HUMIDITY AT 35° C	90% non-condensing			
	UPS DIMENSIONS (LxPxH) mm	101 x 298 x 142		149 x 338 x 162	158 x 380 x 198
	UPS RACK DIMENSIONS (LxPxH) mm	140 x 350 x 210		195 x 405 x 235	220 x 445 x 285
	WEIGHT (Kg) without batteries	4,25	4,9	7,8	11,1
	COMPLIANCE	Security EN 62040-1-2 / EMC EN 62040-2 / EN 62040-3			
PROTECTION	ELECTRONIC	Overload / short circuit / low battery			
	ELECTRIC	Input and battery fuses			
	MECHANICAL	IP20			
	MODEM PROTECTION	yes			
ALARMS	OPTICAL	Mains ok / battery mode / overload			
	ACOUSTIC	Line failure - low battery - overload			

UNINTERRUPTIBLE POWER SUPPLY – UPS
MKK 1÷10KVA SERIES



MAIN FEATURES MKK 1000÷3000

- Microprocessor control with Self-Diagnostic
- Automatic by-pass as standard
- LCD display
- Batt. level
- Load level
- RS232 and USB interface
- Control software
- Contact for emergency button (EPO) on the PLUS series

OPTIONS

- SNMP adapter and related software
- Communication board relay alarm (AS400)

MAIN FEATURES MKK 6000÷10000

- Technology "on-line" double conversion transformer less VFI-SS-111
- Input and output sinle phase (pure sinewave)
- High efficiency
- PFC circuit input
- Microprocessor control with Self-Diagnostic
- Automatic and manual by-pass as standard
- LCD display
- Batt. level
- Load level
- RS232 and USB interface
- Control software

OPTIONS

- SNMP adapter and related software
- Communication board relay alarm (AS400)
- Parallel mode

SAT-KE SERIES		MKK		MKK-PLUS		MKK		MKK-PLUS		MKK	
POWER	POWER (VA)	1000		2000		3000		6000	10000		
	POWER (W)	800	900	1600	1800	2400	2700	4200	7000		
INPUT	SINGLE PHASE VOLTAGE	200/295 Vac at full load							220/230Vac +20/-25%		
	FREQUENCY	40-55 a 50Hz / 55-65Hz (autosensing)							50/60Hz +/- 5%		
	POWER FACTOR	> 0,98									
OUTPUT	SINGLE PHASE VOLTAGE	208/220/230/240 (selectable) +/-2%							230 +/- 3%		
	OUTPUT FREQUENCY (Hz) on battery working	50/60 +/-0,2%							50/60Hz (sel. auto) +/- 5%		
	OUTPUT FREQUENCY (Hz) with power on	Synchronized to line									
	OVERLOAD	108%±5%< load≤150%±5% >30s 150%±5%< load< 200%±5%> 300ms		loss of the load connected and alarm loss of the load connected and alarm				110% for 10 min; 130% for 1 min			
	WAVEFORM	Pure sinewave									
	TOTAL HARMONIC DISTORSION (THD)	< 3% (linear load)									
	EFFICIENCY at full load	With power on >90% (PLUS version: >91%) on Eco mode >98%									
	N. OF OUTPUT SOCKET	3 IEC 10A	1+2 IEC 10A	4 IEC 10A	4+4 IEC 10A	4 IEC 10A	4+4 IEC 10A +1 IEC 16A	Clamps			
	BYPASS	AUTOMATIC	Switching without disconnect (100%) from UPS to BYPASS and return								
BATTERIES	TYPE	12V-9Ah	12V-7Ah	12V-9Ah	12V-7Ah	12V-9Ah	12V-9Ah	12 V - 7,2Ah	12V - 9Ah		
	NUMBER	2	3	4	6			20			
	AUTONOMY	From 8 to 15 minutes, load-dependent									
	RECHARGE TIME	6 - 8h									
GENERAL NOTES	AUDIBLE NOISE (dba at 1 m.)	< 55dBA							< 45dBA		
	OPERATING TEMPERATURE	0 to 40 °C									
	RELATIVE HUMIDITY AT 35° C	< 90% non-condensing									
	UPS TOWER DIMENSIONS (WxDxH) mm	144x361x215	144x409x215	191x428x337	191x466x337	191x428x337	191x466x337	270x570x720			
	UPS PACKING DIMENSIONS (WxDxH) mm	215x455x300	215x503x300	310x535x445	310x573x445	310x535x445	310x573x445	370x670x940			
	UPS RACK PACKING DIMENSIONS (WxDxH) mm	440x380x86,5 (2U)	-	440x520x131 (3U)	-	440x520x131 (3U)	-	-			
	UPS RACK (WxDxH) mm	610x515x180	-	610x660x215	-	610x660x215	-	-			
	UPS TOWER WEIGHT (Kg)	11	13	21	24	26	-	95	98		
	UPS RACK WEIGHT (Kg)	11	-	21	-	26	-				
	COMPLIANCE	Safety EN 62040-1-2, EMC EN 62040-2, EN 62040-3									

DC/AC INVERTER
MTS - INV SERIES



The new MTS-INV series inverters are the result of careful studies to develop a high efficiency and high performance product, all made in a compact box. These DC / AC conversion systems take energy from direct voltage sources such as rectifiers and buffer batteries, guaranteeing power and continuity even when the AC power sources are no longer available.

Thanks to the numerous versions available as input voltage and power, the uses can be different and therefore ideal for supplying quality power and continuity to the equipment, for example ruter etc. or in some electrical transformer substations for the 110Vdc versions. Optional interfaces allow remote monitoring even if installed in unmanned environments.

MAIN FEATURES

- Inverter MOSFET with low loss at high frequency with high efficiency
- Wide DC input range
- Output 230Vac, single phase, pure sinewave
- Isolating transformer on the inverter output
- Limit inrush current at power start
- DSP microprocessor for inverter control and management user interfaces
- Display and leds for greater information on the status of the inverter
- Self-diagnosis of faults

OPTIONS

- Pulse input (TTL)
- E.P.O. (Emergency Power Off)
- Alarms on dry contact
- Internal static bypass switch
- Communication interface RS232 and software for monitoring and management
- SNMP adapter with software

MTS - INV TYPE		1000		1500		2000**		3000**		4000**		5000**		6000**	
POWER	POWER (W)	1000		1500		2000		3000		4000		5000		6000	
INPUT	DC INPUT VOLTAGE	24 / 48 / 60 / 110 / 220 / 250 Vdc (ask on the order)													
OUTPUT	VOLTAGE	230 Vac +/-3%													
	FREQUENCY	50Hz +/- 0,05%													
	OVERLOAD	110% per 60sec - 130% per 10sec - short circuit management													
	WAVEFORM	sinewave													
	VOLTAGE DISTORTION (THD)	< 2% with full linear load													
	EFFICIENCY AT FULL LOAD	92%													
	CONNECTIONS	clamps													
GENERAL NOTES	NOISE (dba at 1meter)	< 40													
	OPERATING TEMPERATURE	da 0 a 40 °C													
	RELATIVE HUMIDITY AT 35° C	fino al 90% non-condensing													
	DIMENSIONS (W x D x H) mm*	483 x 355 x 95 (2U)						483 x 475 x 133 (3U)		483 x 475 x 222 (5U)					
	PACKING DIMENSIONS (L x P x H) mm	630 x 570 x 220						630 x 570 x 270		650 x 570 x 440 (5U)					
	WEIGHT (Kg)	18		20		24		27		35		37			
	COMPLIANCE	Safety EN 62040-1, EMC EN 62040-2, efficiency EN 62040-3													
	PROTECTIONS	ELECTRONIC	Overload - short circuit - min/max input voltage - output low voltage												
ELECTRIC		input fuse													
MECHANICAL		IP20													
SIGNALLING		OPTICAL	Status of the inverter - overload - alarms												
	ACOUSTIC	Overload - short circuit - min/max input voltage - output low voltage													

* With options the dimensions can be different. Possibility of others power size, with custom solutions.

** Models with 24 VDC power supply are excluded.

STATIC SWITCH
MTS - COM SERIES



The Static Switch of the MTS-COM series they allow the switching of the users connected to it, from a Priority input line (selectable), to the Reserve input line, in automatic and / or Manual mode.

Switching takes place in time 0 (less than 1 m sec.) with synchronous inputs in frequency, while in the case of asynchronous inputs, switching takes place with a delay of only 7/8 m sec.

MAIN FEATURES

- Two input (N in common, fix in and out)
- A first line selectable
- One output
- Microprocessor control
- Easy to use
- Leds to inform on the status
- Neutral cable passing between in and out

TYPE		MTS - COM 5	MTS - COM 10	MTS - COM 20
POWER	NOMINAL POWER	5 5KVA 22A	10 10KVA 44A	20 20KVA 88A
INPUT	VOLTAGE	2 x 230 Vac +/- 15% (neutral in common)		
	FREQUENCY	50Hz		
OUTPUT	VOLTAGE	The same of input		
	FREQUENCY	50Hz		
	OVERLOAD	110% for 60 sec. - 130% for 10 sec.		
	WAVEFORM	Sinewave		
	EFFICIENCY	99%		
	CONNECTIONS	clamps		
GENERAL NOTES	NOISE (dbA at 1 meter)	< 40		
	OPERATING TEMPERATURE	0 to 40° C		
	HUMIDITY	< 90% non-condensing		
	RACK DIMENSIONS (WxDxH) mm	483 x 334 x 90 (2U)		
	PACKING RACK DIMENSIONS (WxDxH) mm	540 x 410 x 165		
	SWITCH BOX DIMENSIONS (WxDxH) mm	325 x 180 x 425		
	SWITCH BOX ACKING RACK DIMENSIONS (WxDxH) mm	340 x 200 x 480		
	WEIGHT (kg)	10	11	
	COMPLIANCE	safety EN 62310 - 1, EMC EN 62340-2		
PROTECTIONS	ELECTRIC	Magnetic breakers or fuse		
	MECHANICAL	IP20		
SIGNALLING	OPTICAL	INPUT LINE - OUTPUT LINE		

BATTERY MONITORING UNIT



Single module BM1



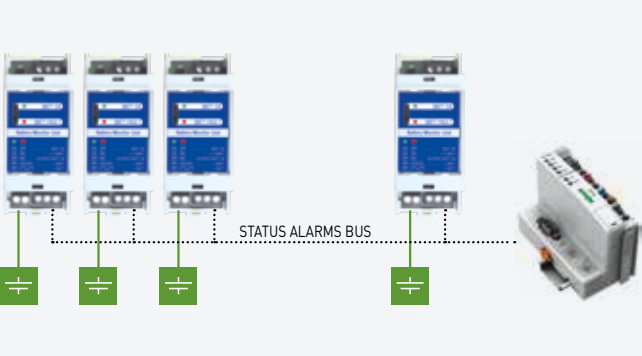
Detail of the front panel



Optional communication device for remotely reporting battery status (no electrical measurements).



TYPICAL OF CONNECTION
WITH POSSIBLE REMOTE ALARM REPORT



Easy to install with extremely small dimensions, it also allows the less experienced person to immediately establish the status of the batteries by identifying the faulty ones.

The growing demand for systems that guarantee ever greater continuity of service, powered by direct current, consequently leads to the development of equipment monitoring systems in order to make the system even more reliable, avoiding unexpected and unexpected failures. The most vulnerable point of the system has been identified in the dc power source, formed by batteries, and therefore a device has been developed capable of controlling the operating status of both the entire bench and each individual battery.

The BM1 device is equipped with LED indicator lights to immediately identify the battery with irregular operation and free voltage contacts prepared for remote alarms. Made in a practical 2-module DIN rail case, it can be easily installed above the accumulator itself or in a common electrical switchboard. The BM1 devices can be connected to optional interface modules to be able to send the operating status of the batteries to which it is connected remotely and / or on a computer network.

In this way it is possible to program maintenance operations well in advance, avoiding a sudden failure and compromising the continuity of the service. The device is suitable for 12 V batteries and having the same electrical characteristics.

TECHNICAL DATASHEET

INPUT NOMINAL VOLTAGE	12 VDC
INPUT RANGE VOLTAGE	8 ÷ 16 VDC
CURRENT CONSUMPTION	19 ÷ 50 mA
POWER SUPPLY	From battery
OPERATING TEMPERATURE	0 ÷ 40 °C
RELATIVE HUMIDITY	< 90 % non-condensing
PROTECTION DEGREE	IP20
ELECTRICAL PROTECTIONS	Autoreset fuses
REVERSE POLARITY PROTECTION	Yes
ALARMS SETUP	12 VDC Vmax*: SET = 14.5 RESET = 13.5 VDC Vmin: SET = 9.5 RESET = 12.5 VDC Vric/rech** SET = 11.5 RESET = 13.0 VDC
INTERNAL RELAY DATASHEET	Max. voltage: 125 VAC 30 VDC Max. current: 1 Amp
DIMENSIONS (WxDxH)	TYPE device BM1: 36*58*90mm 2M standard DIN 43880

* The alarm status is activated after 2 minutes from which the battery is within the indicated range.

** If the battery remains in this condition for 8 hours the alarm is activated.

REMOTE ALARM DEVICE



Table Version - Cod. RA-09



DIN rail version - Cod. RA-09-DIN

This device can manage up to four inputs with signals coming from voltage-free contacts (relays) associated with as many LED indications. The selection of the type of input contact, (it is possible to manage types of contact both Normally Open and Normally Closed) occurs through internal dip-switches available in single form for each channel, moreover, each input is provided with the excitation delay function adjustable by trimmer, in a range between 0 ÷ 300 sec. giving the device a feature of unparalleled flexibility in use.

On the front panel there are six LEDs and a button, namely:

- n° 4 red color for input channels status
- n° 1 green color for regular operation status
- n° 1 red color for general failure status
- n° 1 pbutton with acoustic alarm silencing function and LED test

The contacts (COM-NO-NC) of a relay associated with the general fault function are also made available on the terminal board so as to signal the status also to other external devices. The connections to the four input channels are available through a modular terminal block and / or via an RJ45 connector for a Cat.5 twisted cable (only in the RA-09 version)

The RA-09 device requires a 12 VDC power supply guaranteed by an external 230 VAC input power supply unit supplied as standard.

DESCRIPTION	RA - 09	RA - 09 - DIN
SUPPLY VOLTAGE	VAC	230 VAC
	VDC	12 VAC ¹ 230 VAC ²
		12 VDC ¹
		24 VDC ¹
		48 VDC ²
		110 VDC ²
INPUTS NR.	4	4
INPUTS TYPE	N.O and N.C.	N.O and N.C.
DELAY ON ACTIVATION (Adj)	0 ÷ 300 sec.	0 ÷ 300 sec.
DELAY AT OFF	5 sec. - fix	5 sec. - fix
SETUP DEVICE	LED test button and buzzer silencing Configuration dip-switch	LED test button e Acknowledgeable audible alarm Configuration dip-switch
OUTPUT ALARMS	LED + buzzer + cumulative relay	LED + buzzer + cumulative relay
CUMULATIVE RELAY CONFIGURABLE IN POSIT./NEGAT LOGIC.	Yes	Yes
I/O CONNECTIONS TYPE	Clamps PCB	Clamps PCB
BOX DIMENSIONS	168*138*48 (p)mm	DIN 4M
PROTECTION DEGREE	IP30	IP20 - box / IP50 - front
BOX TYPE	Metallic	Plastic / Self-extinguishing
INTERNAL RELAY DATASHEET	CONTACT N.O-C-NC / 1 Amp - 24VDC / 0.5 Amp - 110VAC	CONTACT N.O-C-NC / 1 Amp - 24VDC / 0.5 Amp - 110VAC
WEIGHT	450g	120g
SUPPLIED AUXILIARY FEEDER OF SERIES	Yes	NO

¹ Accepts direct power supply.

² Requires external adapter (optional)

MANUAL BYPASS

MTS - BYPASS allows to exclude UPS in case of maintenance or malfunction, without causing power loss. Easy to install, it comes in handy wall panel.



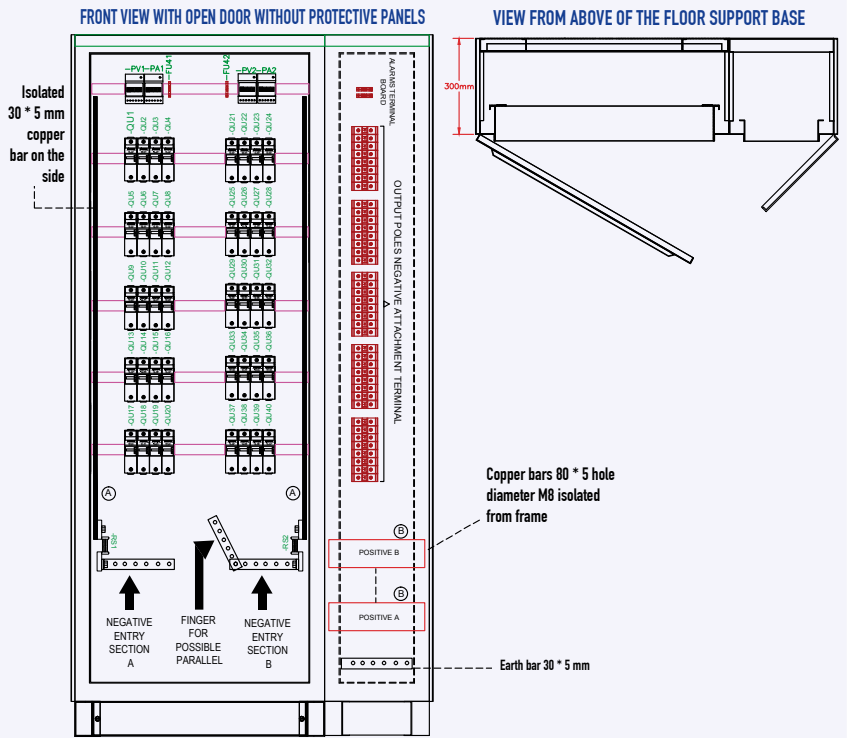
TECHNICAL DATA	MM	TM	TT	TTmax
INPUT				
ELECTRICAL SETUP	Ph+N	3Ph+N	3Ph+N	3Ph+N
NOMINAL VOLTAGE	230 VAC	400 VAC	400 VAC	400 VAC
FREQUENCY	50 – 60Hz			
MAXIMUM CURRENT	63 Amp	100 Amp	100 Amp	125 ÷ 400
OUTPUT				
NOMINAL VOLTAGE	230 VAC	230 VAC	400 VAC	400 VAC
SETUP				
OPERATING TEMPERATURE	0°c ÷ 40°c			
RELATIVE HUMIDITY	0 ÷ 90% non-condensing			
DIMENSIONS (WxDxH) mm	395*125*395			**
WEIGHT (kg)	4	4.5	5.5	**
PROTECTION DEGREE	IP20			

**= To be defined based on the current required.

Realization of battery cabinets
complete with monitoring system



Realization of electrical panels for D.C. distribution



COMMISSIONING PROCEDURE

The commissioning procedure ensures proper operation of the system. If you have chosen an MTS Elettronica system solution, we will guide you all along the way from the moment you place your order. From design and production, through testing and delivery, to installation and on-time and precise commissioning.

PREPARING FOR COMMISSIONING

- The equipment must be positioned and the electrical installation completed
- Plan the technical intervention with MTS Elettronica at least 2 weeks in advance on site needs

WHAT DOES COMMISSIONING INVOLVE?

Our technicians carry out a series of checks to ensure correct installation and operation of the system in accordance with specifications:

- Visual inspection of the installation site
- Visual inspection of equipment and batteries to identify damage
- Check of conformity of the installation conditions
- Equipment inspection
- Battery array wiring inspection
- Check of compliance with current safety regulations
- Inspection of the upstream and downstream protection devices of the systems and battery array
- Check of the VAC supply line
- System start-up with checkup of all main electrical parameters
- Tests with real load applied to the system
- Simulation of power failure and checkup of the battery array
- Tests on systems for interfacing and communicating with the outside world

Check of installation

- Inspection of the entire equipment and control of cabling
- Inspection of battery connections
- Compliance with local security standards and regulations
- Dimensioning of protective equipment
- Check of neutral line and star centre

INSTRUMENTAL SURVEYS AND CHECKS

- Technical checks carried out with certified instruments
- Operation test of the entire system

Why choose commissioning by MTS Elettronica:

- Certainty of correct operation of the equipment
- Technical training of its staff
- Longer service life of the system
- Ad-hoc parameterizations for each type of use
- Specific technical advice
- Possibility of warranty extension

COMMITMENT TO BATTERIES

Replacing batteries is a matter of security and is a crucial investment to protect a system. The battery is a main component of the system. It can only be replaced by the manufacturer. Thanks to MTS Elettronica's battery replacement programme, you can be sure that only batteries that have been tested and approved for your system will be used.

MTS Elettronica offers durable and reliable batteries at the best price. Building on the experience gained from the numerous systems installed and through collaborations with leading companies in the sector, we ensure your security and that of your investments in technology.

OUR SERVICES

Battery replacement

This includes replacing the batteries on site and putting them back into service. This service ensures compliance with the relevant technical and environmental specifications.

Consulting

Analysis during an inspection, followed by a project that takes into account your requests. This includes a diagnosis and inspection of the batteries. Let our team of technicians advise you. They have extensive experience in the field of batteries and the equipment connected to them.

QUALITY AT THE FOREFRONT

MTS Elettronica uses specific batteries for each system, with a 12-month warranty. We offer you complete installation and replacement of your old battery system, including professional removal and disposal. This spares you unplanned investments and ensures the highest possible performance from your system.

AFTER-SALES SERVICE

MTS Elettronica offers various types of service able to satisfy additional requests both in technical and economic terms. Our contracts offer the most effective protection for your installations. In addition, unnecessary costs from unplanned failures and downtime are avoided. MTS Elettronica service contracts include prompt and professional telephone support, a preliminary inspection and response time tailored to your requirements, as well as material costs and working hours in the event of malfunctions depending on your critical applications and investment plan.

FOCUS

- Service contracts for installed rectifiers and UPSs
- Joint planning of intervention dates
- Contracts even at the end of the warranty period
- Service contracts tailored to individual needs

SOLUTIONS

	BASE	MIDDLE	PROFESSIONAL
Years	1 year	3 years	5 years
Periodic checks Annual	1	1	1
Corrective actions			●
ELECTRONIC spare parts		●	●
Software updates	●	●	●
Spare parts priority	●	●	●
Priority technical assistance	●	●	●

ADVANTAGES

- Guaranteed response times
- Optimised working time
- Reduced downtime costs and cost-optimized support
- Efficient on-site support by qualified personnel
- System historical data recording
- Technical service reports
- Guaranteed exclusive use of original spare parts
- Use of certified measuring instruments

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MTS Elettronica Srl

Via Bachelet, 70/72 - 46047 Bancole di Porto Mantovano MANTOVA (Italy)

Tel. +39 0376 392608 - Skype: MTS ELETTRONICA - info@multiservice-mn.it - www.mtselettronica.it

