

## DC POWER SUPPLY SYSTEMS

single branch Rectifier - IGBT type

# TITANIUM 1R-CH PLUS SERIES



TITANIUM 1R-CH PLUS rectifier series belongs to the Single Branch category thus provided with a single AC / DC converter that powers the direct current loads and simultaneously charges a battery. Cabinet and open frame versions are available, combined with vented/sealed Lead Acid and Ni/Cd batteries. An input insulation transformer is present while the AC / DC power converter is of the removable type and made with Chopper IGBT technology, step down, in order to improve the efficiency and contain the ripple at the output. In this way the MTBF is high and MTTR extremely low.

### APPLICATIONS:

Oil & Gas  
Energy production and distribution  
Process controls  
Transportation  
Safety  
Telecommunications  
Tertiary

### PRODUCT PLUS:

- An input insulation transformer at power frequency, with an electrostatic shield
- Bridge rectifier Chopper IGBT **ON REMOVABLE UNITS** with connector
- Control type: High Frequency PWM
- Digital control Microprocessor + PLC
- Charge curve for each type of battery
- Digital control panel with touchscreen display
- High efficiency and reliability
- Easy maintenance with access from the front and removable power units
- Extended frequency range accepted as input
- Low residual ripple as output and on batteries (RIPPLE)
- Automatic and manual battery test (performing a true discharge battery test)
- Earth fault sensor with LED indications
- MODBUS TCP/IP communication
- Parallel connection ability for redundancy (optional)

## DATA SHEET

### MODEL

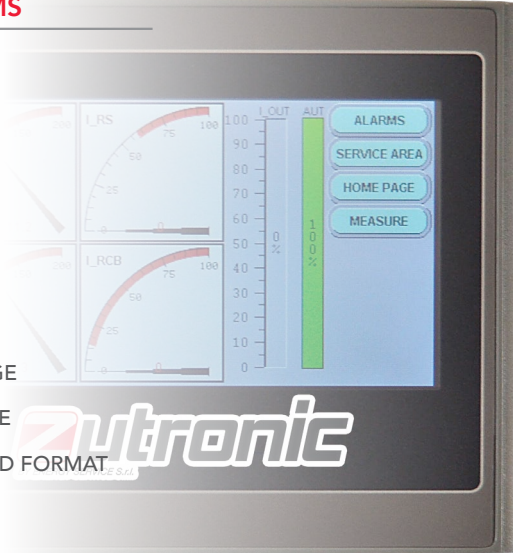
### TITANIUM 1R-CH PLUS

GENERAL	BATTERY TYPE	Suitable for Sealed (VRLA) Lead Acid - Vented Lead Acid - Ni/Cd		
	CHARGING CHARACTERISTICS	IU (according to DIN 41773)		
OUTPUT	NOMINAL VOLTAGE (V)	24	48	110
	CURRENT RANGE	10 ÷ 100A		
	MAXIMUM POWER (W)	2400	4800	11000
	RIPPLE NOISE (RMS)	≤ 0.5% Vn		
	Vout SETTING RANGE	+/- 5%		
	STABILITY	+/- 1%		
	Vin VARIATION SETTING	+/- 1%		
	LOAD VARIATION SETTING	+/- 1%		
	START-UP TIME	2 sec.		
INPUT	VOLTAGE RANGE	Single-phase 230 Vac +/- 10% or three-phase 400Vac +/- 10%		
	INPUT FREQUENCY	50 ÷ 60 +/-7%		
	EFFICIENCY ( Typ.)	≥ 90 %		
	I/O INSULATION	4kV BY TRANSFORMER		
PROTECTIONS	INPUT	Fuse switch		
	BATTERY	Fuses		
	OUTPUT	Switch		
	OVERLOAD	2In x 5mS, Shut down duration: 250ms - automatic restart		
	CURRENT CURVE	CONSTANT		
	OVERVOLTAGE	+ 10% Vn		
	UNDERVOLTAGE	- 50% Vn		
	OVERTEMPERATURE	Shut down; automatic restart after temperature reset		
SPDT ALARMS	CUMULATIVE SYSTEM FAILURE *			
	BATTERY TEST FAILURE			
	OTHER OPTIONS AVAILABLE UPON REQUEST			
ENVIRONMENTAL DATA	OPERATING TEMPERATURE	-10 .....+40°C		
	OPERATING HUMIDITY	20 .....90% ( NO COND.)		
	STORAGE TEMPERATURE	-20 .....+50°C		
STANDARDS	MARKING	CE		
	DEGREE OF PROTECTION	IEC 60529		
	EMC	EN 61000-6-2 EN 61000-6-4		
	STATIC CONVERTERS	EN 60146		
DEGREE OF PROTECTION		IP30		
COLOUR		RAL 7035		

\* = Relay normally operating in positive safety

## TOUCH SCREEN ALARMS

NETWORK POWER OFF  
RECTIFIER FAILURE  
BATTERY OPERATION  
BATTERY LOW VOLTAGE  
END OF BATTERY  
BATTERY TEST FAILURE  
OVERLOAD  
RECTIFIER MAXIMUM VOLTAGE  
RECTIFIER MINIMUM VOLTAGE  
ALARMS AVAILABLE ON WORD FORMAT

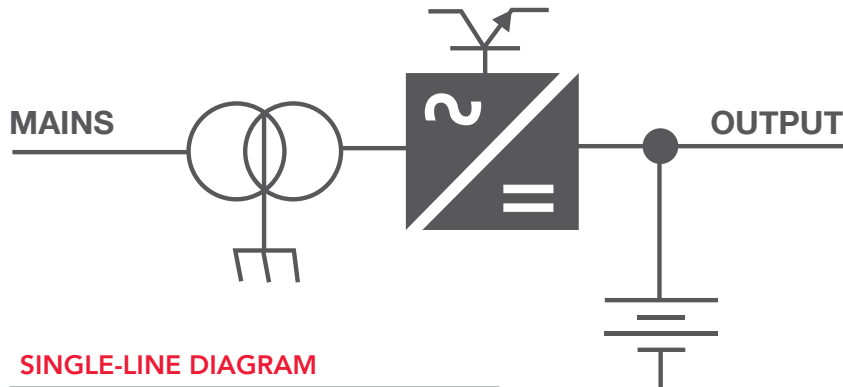


## TOUCH SCREEN ELECTRICAL MEASURES

OUTPUT VOLTAGE  
OUTPUT CURRENT  
BATTERY RECHARGING CURRENT  
OUTPUT POWER  
% OUTPUT CURRENT USED  
% REMAINING CHARGE

## SPECIAL FUNCTIONS AVAILABLE

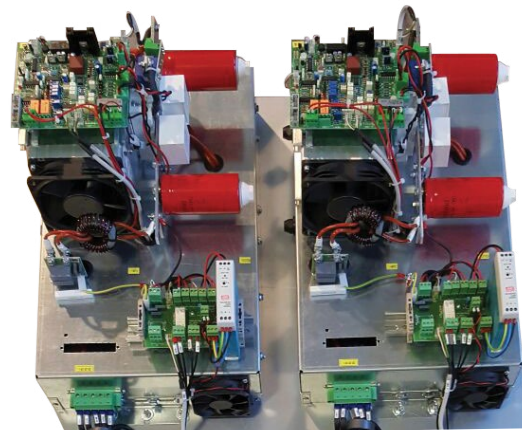
AUTOMATIC AND MANUAL BATTERY TEST  
EARTH FAULT SENSOR WITH DISCRIMINATED POLARITY  
OVERLOAD INDICATION  
MODBUS TCP/IP AND VNC VIEWER COMMUNICATION



**SINGLE-LINE DIAGRAM**

## REMOVABLE AC/DC CONVERTERS

REMOVABLE AC/DC CONVERTERS USING POLARIZED CONNECTORS IN ORDER TO SIMPLIFY THE REPLACEMENT IN CASE OF FAILURE (VERY SHORT MTTR)



#### AVAILABLE ACCESSORIES (OPTIONAL):

- Automatic circuit breaker on input, output and battery (with or without auxiliary contact and/or opening coil)
- UP board for BOOST CHARGE and MANUAL functions
- UP board for Compensation in temperature function automatically adjusting the charging voltage to the battery temperature
- Temperature probe
- BRPCU device; protection against reverse battery polarity. It may be associated with an automatic battery circuit breaker with automatic opening
- Disconnection device for battery discharge end; disconnects the load from the battery to prevent a battery deep discharge and makes the equipment compliant with CEI 0-16 standard
- E.P.O. Device (Emergency Power Off)
- Relay alarms customization
- Battery monitoring system to check single mono blocks or "channels" with failure alarm
- Field Bus communication interface available with different protocols allowing the status transmission
- Voltage drop cell; It contains the voltage loads within acceptable limits
- Special cabinets with seismic certification or with high degree of protection
- Distribution; circuit breakers for output line protection



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