

SIL 3 modular power supply system for installation in Zone 2 24Vdc, up to 3600 W redundant

Product presentation



# Market Requirements



- Zone 2 Installation
- More power in less space
- Continuous operation
- Easy maintenance
- Easy Troubleshooting
- Flexible Installation
- Lower and efficient consumption
- Operating in difficult environmental condition (temperature, vibration, etc.)
- Suitable for Safety Related Application (up to SIL 3)

## Features

### UNIQUE ADVANTAGES



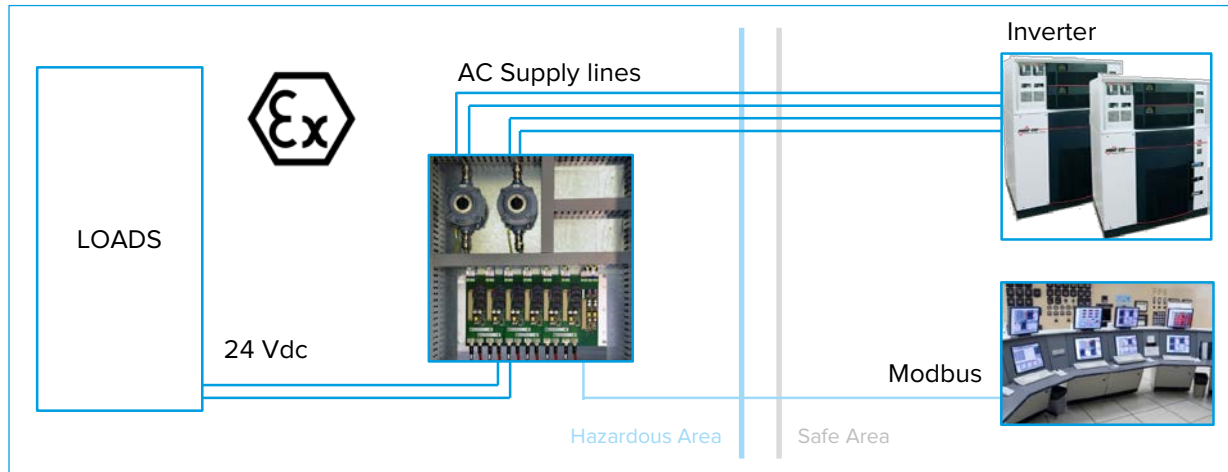
#### PSx1200 SERIES STRENGTHS

- **Smaller Foot Print:** Very compact design
- **Flexibility:** Wall/Rack/Din Rail Types
- **Environmental condition:** Extended temperature range (-40°C ÷ +70°C), G3 Coating, tested for Marine application (EMC, Vibration, etc.)
- **Zone 2 installation:** Reduced Cable Distance
- **Improved Safety, Integrity and Reliability:** SIL 3 certified by Third Party
- **High efficiency - Reduced Bulk Power & Dissipation :** In-built intelligent load sharing
- **Easier Installation :** No external OR-ing diodes needed for redundancy
- **Zero Downtime:** In-built Redundancy, operation under output short-circuit condition, Automatic load sharing of 2 or more modules
- **Reduced Maintenance Cost:** Hot swapping, also in Zone 2 (PSS1250)
- **Guaranteed Fault Isolation:** Short Circuit Protection
- **Easier Troubleshooting :** Local and Remote (Optional Modbus) diagnostic

## Zone 2 installation

### HOT SWAPPING (VALID FOR PSS1250)

- Power supply is close to the load, in Hazardous Area
- Less cables, lower voltage drop, lower costs
- Connection and Disconnection under power without interrupting operations (Certified)



# Certified up to SIL 3 operation

## CERTIFIED FOR NE/ND OPERATION

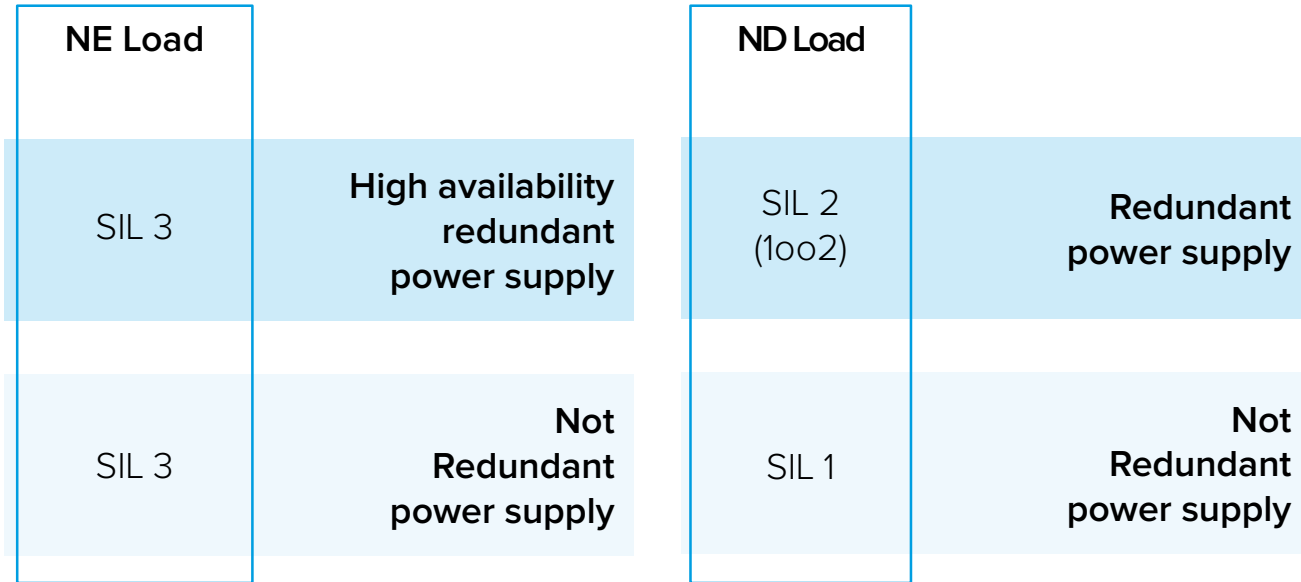
Designed with functional safety criteria to reduce significantly the dangerous failures.

### Safety Function

- Keep the output power within the safe range from 20Vdc to 30Vdc.
- Prevent abnormal and dangerous conditions like:
  - $2Vdc < \text{Output Power} < 20Vdc$
  - $\text{Output Power} > 30Vdc$



## High integrity (up to SIL 3)



SIL levels according IEC EN 61508:2010

# High efficiency in-built intelligent load sharing

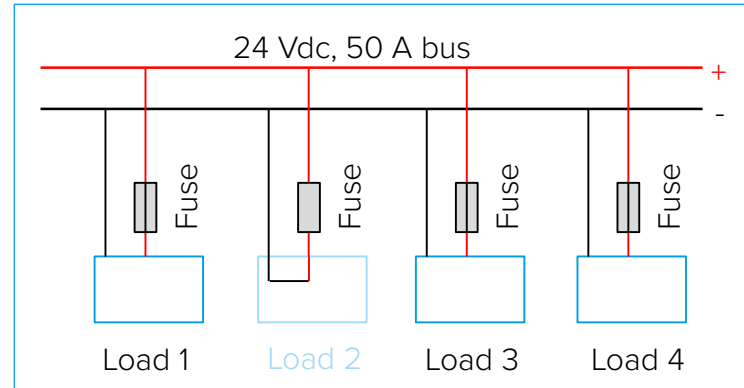
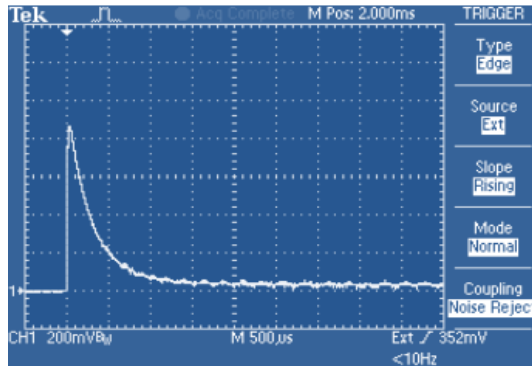
Paralleling Diodes	Schottky Diode	Active Ideal Diode (AID)
Equivalent resistance	16 mΩ	1.2 mΩ
Voltage drop at 50 A	0.8 V	0.06 V
Power dissipation at 50 A	40 W	3 W
Efficiency at 1200 W	96.77 %	99.75 %
Heat sink	Large	None
Voltage switchovers	With oscillations	Smooth, no oscillations

Note: AID Current sharing control for Output load balancing

## Short Circuit Proof

In case of external short circuit, PSS1250 system delivers a very high peak current (800 A) for a duration of 0.5 ms to guarantee the instant opening of the protective fuse or circuit breaker to avoid PS shut-down.

Other equipment connected to the load are not affected by the failure event and continue to operate without interruption.

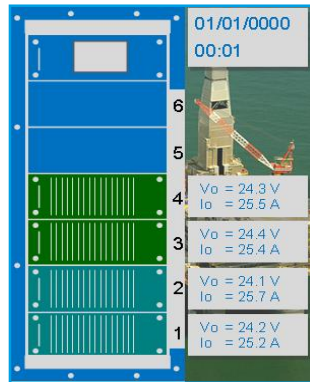




## Local and Remote (Modbus) Diagnostics



Fault contact



PSO1250 Overview module with LCD color touchscreen display with Modbus RTU communication.

### Monitored Parameters

- AC line voltage, current, power and frequency
- DC output voltage, current, power
- Current sharing % of each PSM1250
- Current sharing group identity for each PSM1250
- PSM1250 internal temperature
- Fault conditions of each PSM1250:  
under - or over - voltage, AC off, PFC/PWM stage off, high temperature, fans malfunctioning
- Fault logging with date and time

# PSx1200 Power Supply Series

**PSS1250:** Wall Mounted; 7"/9"/19" Rack; Up to n° 6 Modules: 24 Vdc - 50 Amps each

**PSW1250:** Wall Mounted; 24 Vdc - 50 Amps

**PSD1220:** Din Rail; 24 Vdc - 20 Amps

**Redundancy:** n+n, n+1, etc. are possible



PSS1250 19" rack



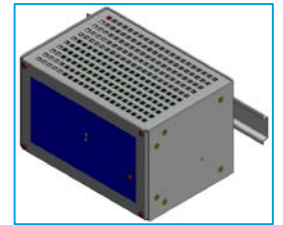
PSS1250 9" rack



PSS1250 7" rack



PSW1250



PSD1220

# Technical features and product overview

## PSS1250 Series



# PSS1250

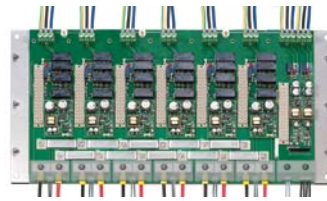
## WALL MOUNTED IN 19" RACK

- **Nominal Input:** 110 ÷ 240 Vac ±10% (48 ÷ 62 Hz)
- **Adjustable Output:** 21 ÷ 28 Vdc
- **Max peak:** 300 Amps at 24Vdc
  - Nominally 200 Amps per Rack
  - 24 Vdc/300 A = 7200W (3'600W x2)
- **Diagnostic:** optional PSO1250 Module
- **Redundant Fan with speed control:** speed driven by temperature and output power
- **Dimensions:**
  - Wall mounting panel is 19" Wide, 4U High
  - Rack + WMP is 360 mm deep



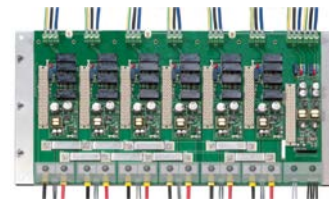
## Application Examples

**PSS1250-HS-7-1-D**



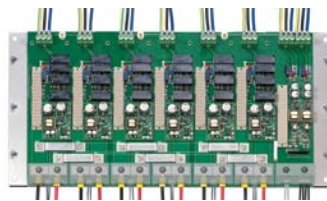
150 A + 150 A  
redundant

**PSS1250-HS-7-2-D**



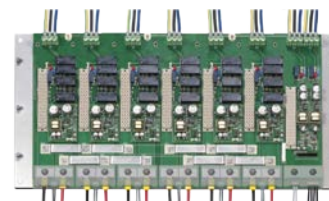
100A+100A    50A+50A  
redundant    redundant

**PSS1250-HS-7-3-D**



50A+50A    50A+50A    50A+50A  
redundant    redundant    redundant

**PSS1250-HS-7-4-D**



100A+50A    100A+50A  
redundant    redundant

# PSS1250

## WALL MOUNTED IN 9" RACK

- **Nominal Input:** 110 ÷ 240 Vac ±10% (48 ÷ 62 Hz)
- **Adjustable Output:** 21 ÷ 28 Vdc
- **Max peak:** 100 Amps at 24Vdc
  - Nominally 50 Amps per Rack
  - 24 Vdc/100 A = 2'400W (1'200W x2)
- **Diagnostic:** PSO1250 Module
- **Redundant Fan with speed control:** speed driven by temperature and output power
- **Dimensions:**
  - Wall mounting panel is 9" Wide, 4U High
  - Rack + WMP is 360 mm deep



# PSS1250

## WALL MOUNTED IN 7" RACK

- **Nominal Input:** 110 ÷ 240 Vac ±10% (48 ÷ 62 Hz)
- **Adjustable Output:** 21 ÷ 28 Vdc
- **Max peak:** 100 Amps at 24Vdc
  - Nominally 50 Amps per Rack
  - 24 Vdc/100 A = 2400W (1200W x2)
- **Redundant Fan with speed control:** speed driven by temperature and output power
- **Dimensions:**
  - Wall mounting panel is 7" Wide, 4U High
  - Rack + WMP is 360 mm deep



# Technical features and product overview

PSW1250





# PSW1250

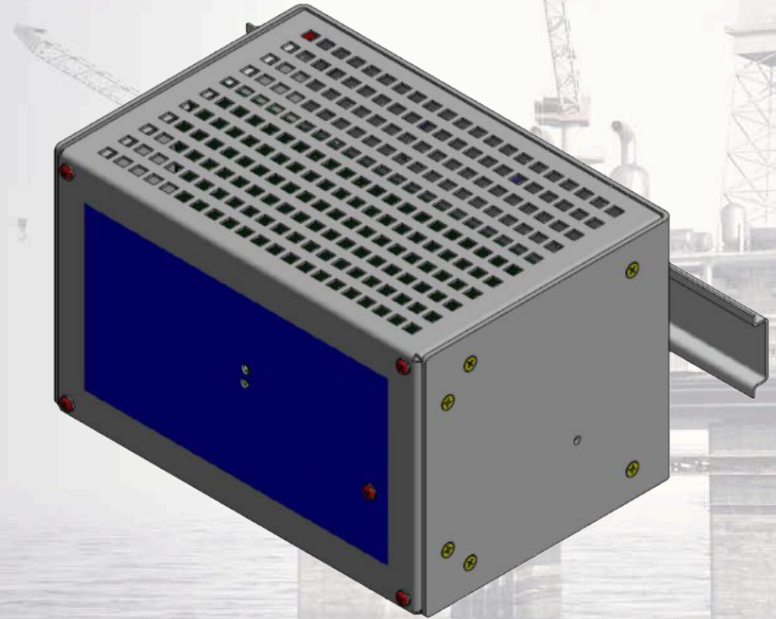
## WALL MOUNTED

- **Nominal Input:** 110 ÷ 240 Vac  $\pm$ 10% (48 ÷ 62 Hz)
- **Adjustable Output:** 21 ÷ 28 Vdc
- **Current Output:** 24 Vdc/50 A = 1200W
- **Up to 10 modules** with paralleled outputs
  
- **Redundant Fan with speed control:** speed driven by temperature and output power
  
- **Dimensions:**
  - Wall mounting: 95 mm Wide, 282 mm High, 363 mm Deep



# Technical features and product overview

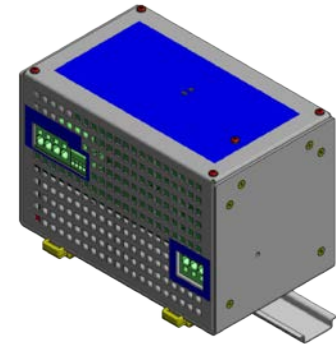
PSD1220



# PSD1220

## DIN-RAIL MOUNTED

- **Nominal Input:** 110 ÷ 240 Vac  $\pm$ 10% (48 ÷ 62 Hz)
- **Adjustable Output:** 24 ÷ 26 Vdc
- **Current Output:** 24 Vdc/20 A = 480W
- **Efficiency (full load):**  $\geq$  93% @230Vac,  $\geq$  91% @115Vac
- **Up to 10 modules** with paralleled outputs
- **Extended temperature range** (-40°C ÷ +60°C)
  
- **Dimensions:**
  - **Din Rail mounting:** 183 mm Wide, 111 mm High, 132 mm Deep



# Safety, performance and reliability

## OUR PRODUCTS, OUR COMMITMENT

GM International designs, engineers and manufactures a complete range of **Intrinsically Safe and SIL Certified Devices**.

For automation packages, DCS - ESD - FGS - BMS - HIPPS - PLC - SCADA - MARINE, in several industrial sectors: Oil and Gas, Petrochemical, Pharmaceutical, Fertilizer, Mining, Food.

- **40 years of Experience**

founded in 1993,  
former Elcon Instruments

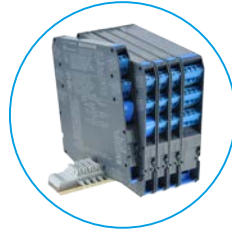
- **100% Internal Production**

in State-of-the-Art facilities  
near Milan, Italy

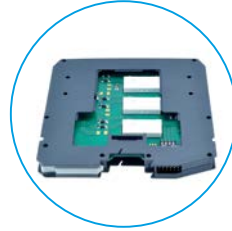
- **Global Player**

with presence in 5 continents

# GMI Safety Solutions



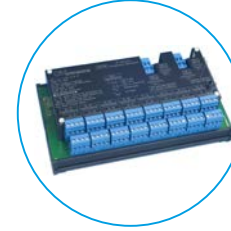
IS barriers



Safety Relays



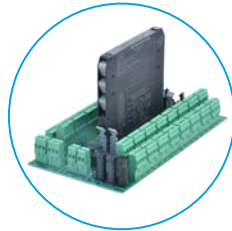
Power supplies



Multiplexers



Isolators



HART Multiplexers



Surge protectors



Loop indicators



FS Training  
and Services

# Quality and innovation

## OUR GOALS

### We guarantee the highest standard of quality

- All products that conform to the most severe specifications worldwide. Products Tested & Certified by over 15 independent Agencies & Laboratories TÜV certified Functional Safety Management, SIL3 Systematic Capabilities (SC).
- Over 15% of our employees dedicated to research and development for innovating products.
- 10% of turnover is re-invested in R&D
- 5 years warranty provided

