

# SOLUTIONS FOR MINING APPLICATIONS



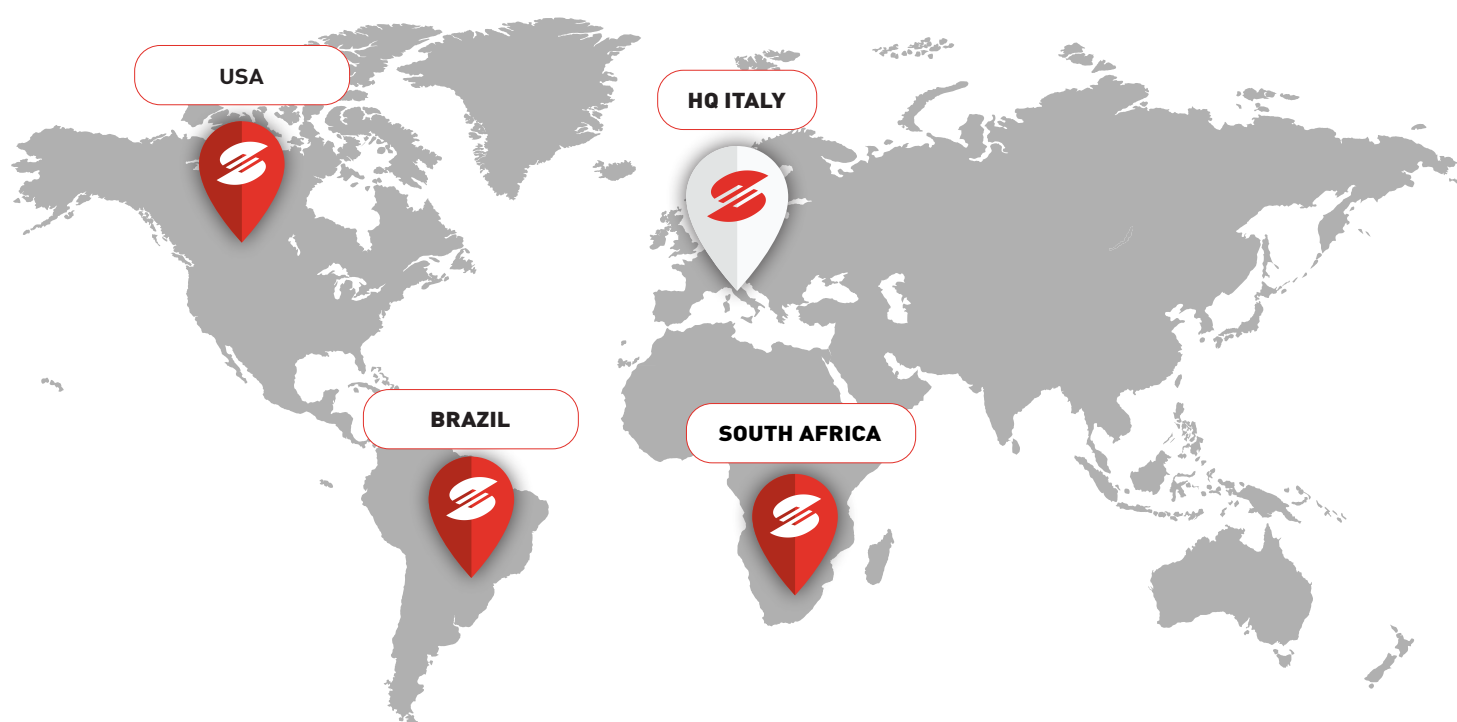
ENERTRONICA

**SANTERNO**



# ENERTRONICA SANTERNO S.P.A.

For over 50 years (founded in 1970), Enertronica Santerno S.p.A. has been a leading company in the production of converters for industrial automation. Headquartered in Italy, with subsidiaries and commercial offices in Brazil, South Africa, and the USA, Santerno has a global sales network with over 50 distributors and technical assistance centers. Over the past 50 years, Santerno inverters have been installed in over 100 countries worldwide.



**HQ**



**BRANCHES**

**+500.000**

**INDUSTRIAL  
INVERTERS  
INSTALLED**



## ENERTRONICA SANTERNO AND THE MINING SECTOR

Mining is a driver of technological and economic development, providing essential resources for industry, infrastructure and innovation. Enertronica Santerno enhances this sector through advanced power electronics, automation and energy management solutions, improving efficiency, operational continuity and energy performance. With its intelligent systems, Enertronica Santerno supports the extraction of key materials for the energy transition and digitalization—such as copper, lithium, and rare earths—promoting a modern, reliable, and technologically advanced approach.





**Sustainability**



**Quality and  
durability**



**Safe products**



**Made in Italy**

# SINUS H

AC MOTOR DRIVE FOR MINING APPLICATIONS FEATURING  
DEGREE OF PROTECTION UP TO IP66



## Main data

✓ V/f, Vector Sensorless for Asynchronous Motors, Vector Sensorless for Synchronous Motors

✓ IP66

### Voltage Class and Power Range

|                   |               |
|-------------------|---------------|
| 2S (1x 200-240 V) | 0.4 ~ 3.7 kW  |
| 2T (3x 200-240 V) | 0.4 ~ 18,5 kW |
| 4T (3x 380-480 V) | 0.4 ~ 37 kW   |



# APPLICATIONS

SINUS H



**PUMP**



**VENTILATION**



**CONVEYOR BELT**



**COMPRESSOR**

## **Key selling points**

- ✓ Degree of Protection: IP20 and IP66 versions\*
- ✓ Disconnecter included in the IP66 product version
- ✓ SIL 2 – PL “d” Built-in Safety Function
- ✓ Built-in DC Inductor (available on certain models only)
- ✓ Low Noise Level
- ✓ No fans: maintenance reduced to a minimum

\* up to 22 kW in IP66



# SINUS PENTA AND SINUS PENTA REGENERATIVE

AC MOTOR DRIVE and REGENERATIVE  
AC SUPPLY (AFE – ACTIVE FRONT END) FOR MINING APPLICATIONS



## Main data

- ✓ AC motor drive: V/f, Vector Sensorless and Sensored for Asynchronous Motors, Vector Sensorless and Sensored for Synchronous Motors
- ✓ Regenerative AC Supply: full bi-directional, sinusoidal current (very low harmonics) with a unitary power factor

### Voltage Class and Power Range

|                   |               |
|-------------------|---------------|
| 2T (3x 200-240 V) | 3 ~ 260 kW    |
| 4T (3x 380-500 V) | 4.5 ~ 2100 kW |
| 5T (3x 500-600 V) | 4 ~ 2500 kW   |
| 6T (3x 575-690 V) | 3 ~ 3000 kW   |





# APPLICATIONS

## SINUS PENTA and SINUS PENTA REGENERATIVE



**PUMP**



**COMPRESSOR**



**FAN**

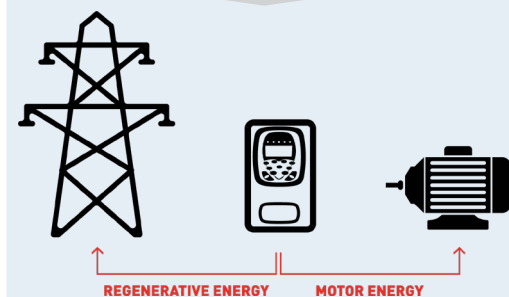


**WINCH**

### REGENERATIVE



**HOIST**



### REGENERATIVE



**CONVEYOR BELT**

### Key selling points

- ✓ Degree of Protection: IP00, IP20 and IP54 versions\*
- ✓ SIL 3 – PL “d” Built-in Safety Function
- ✓ Regenerative: certified according UL 1741
- ✓ Remote Monitoring & Programming\*\*

\*up to 132 kW (4T) and 220 kW (6T) in IP54

\*\*via Bridge Mini

# IRIS BLUE PLUS

AC MOTOR DRIVE FOR MINING APPLICATIONS



## Main data

- ✓ Dry-run Control
- ✓ Pipe Fill Control
- ✓ Fire Mode
- ✓ Pump Cleanup
- ✓ Speed Search
- ✓ Pressure Loss Control
- ✓ Sleep & Wakeup Control

### Voltage Class and Power Range

|                   |              |
|-------------------|--------------|
| 2T (3x 200-240 V) | 3 ~ 132 kW   |
| 4T (3x 380-480 V) | 4.5 ~ 300 kW |



# APPLICATIONS

## IRIS BLUE PLUS



**PUMP**



**COMPRESSOR**



**FAN**

### **Key selling points**

- ✓ Degree of Protection up to IP54
- ✓ Multi-pump Application Control
- ✓ Start / Stop Timer\*
- ✓ Remote Monitoring & Programming\*\*

\* via option board

\*\* via Bridge Mini



# DCREG

DC MOTOR and ELECTROMAGNET AC/DC CONVERTER FOR MINING APPLICATIONS



## Main data

✓ 2-quadrant and 4-quadrant AC/DC converter for DC motors and DC loads (electromagnets or electric brakes)

### Voltage Class and Current Range

3x 440 V, 10 to 1200 A

3x 500 V, 10 to 4500 A

3x 600 V, 10 to 4500 A

3x 690 V, 10 to 4500 A



# APPLICATIONS

DCREG



**CONVEYOR BELT**



**WINCH**



**ELECTROMAGNET**



**ELECTRIC BRAKE**

## **Key selling points**

- ✓ Degree of Protection IP00 and IP20
- ✓ Parallel configuration
- ✓ 12 pulses
- ✓ Remote Monitoring & Programming\*

\* via Bridge Mini

# ASA 4.0

## SOFT STARTER FOR LOW VOLTAGE APPLICATIONS FOR MINING APPLICATIONS



### Main data

- ✓ Star Connection (3-wire) or Inside Delta Connection (6-wire)
- ✓ Start / Stop (RTC)
- ✓ Automatic Programming
- ✓ Pump Cleanup Function
- ✓ Jog (Forward / Backward)
- ✓ SCR Fail Power Through Operation
- ✓ Option card specific to water treatment applications

#### Voltage Class and Current Range

3x 200 to 525 V, 16 to 1620 A (2430 A, 6-wire)

3x 380 to 690 V, 16 to 1620 A (2430 A, 6-wire)



### LV AND MV APPLICATIONS



FAN



PUMP



# ASAMV-X

## SOFT STARTER FOR MEDIUM VOLTAGE APPLICATIONS FOR MINING APPLICATIONS



### Main data

- ✓ 3 motor start-up modes: constant current, current ramp, torque control
- ✓ Controlled stop to reduce current peaks and mechanical wear
- ✓ Integrated protections: overload, short-circuit, current unbalance
- ✓ Local control via LCD interface and remote control via RemoteDrive software
- ✓ IP54 protection degree
- ✓ Operating temperature from  $-10\text{ }^{\circ}\text{C}$  to  $+60\text{ }^{\circ}\text{C}$
- ✓ Advanced communication options available

#### Voltage Class and Current Range

3 x 2300 V, 70 ÷ 1700 A  
3x 3300 V, 70 ÷ 1700 A  
3x 4160 V, 70 ÷ 1700 A  
3x 6600 V, 70 ÷ 1700 A  
3x 11000 V, 70 ÷ 1700 A  
3x 13800 V, 70 ÷ 1700 A

#### Configurations

|    |                                                    |
|----|----------------------------------------------------|
| E1 | Soft Starter + Bypass                              |
| E2 | Soft Starter + Bypass + Line Device                |
| E3 | Soft Starter + Bypass + Line Device + Disconnecter |

### LV AND MV APPLICATIONS



FAN



PUMP

# SINUS MV-X

## MEDIUM VOLTAGE MULTI-LEVEL INVERTER FOR MINING APPLICATIONS



### Main data

- ✓ Built in dry-type transformer
- ✓ Input power factor: 0.96 or better
- ✓ Harmonics reflected on grid very low (<5% total current at full load)
- ✓ High efficiency >96%, including input transformer
- ✓ Momentary interruption (Grid power loss up to 1000 ms) tolerated
- ✓ Communication: ModBus RTU (built-in) or Profibus DP (option), Industrial Ethernet (option), Modbus TCP (option)

### Voltage Class and Current Range

3.3 kV: 35 ÷ 258 A

4.16 kV: 35 ÷ 258 A

6 kV: 32 ÷ 818 A (606 ÷ 2000 A water cooled)

6.6 kV: 35 ÷ 243 A

10 kV: 25 ÷ 768 A (1800 ÷ 2000 A water cooled)

11 kV: 35 ÷ 243 A





# APPLICATIONS

SINUS MV-X



**FAN**



**PUMP**



**CONVEYOR BELT**



**MILLS&CRUSHERS**

## **Key selling points**

- ✓ Cell-bypass function for continuous operation (option)
- ✓ Regenerative drive option for energy recovery



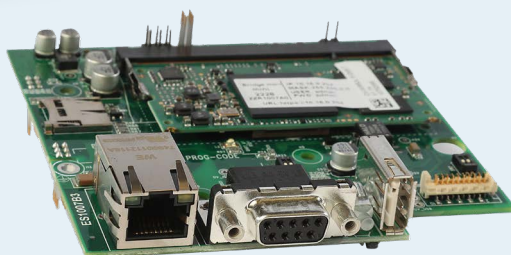
# BRIDGE MINI

IOT AND REMOTE CONTROL FOR INDUSTRIAL AUTOMATION APPLICATIONS



**Bridge Mini to be installed inside or outside the converter**

- ✓ Option board
- ✓ Operating variables logging
- ✓ Connection and control features with devices such as PPC and SCADA (even remotely)
- ✓ Possibility of monitoring 1 to 62 drives







[WWW.ENERTRONICASANTERNO.IT](http://WWW.ENERTRONICASANTERNO.IT)

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