



S E R V I C E



**Tailored solutions for your needs**

# Power destined to last tomorrow

PROVIDING SUPPORT FOR A LIFETIME

We help you taking care of your Rectifier System over the time, with perseverance and efficiency.

Our offering follows the entire rectifier's system life and is completely customizable. Choose the service that matches with your needs:

01

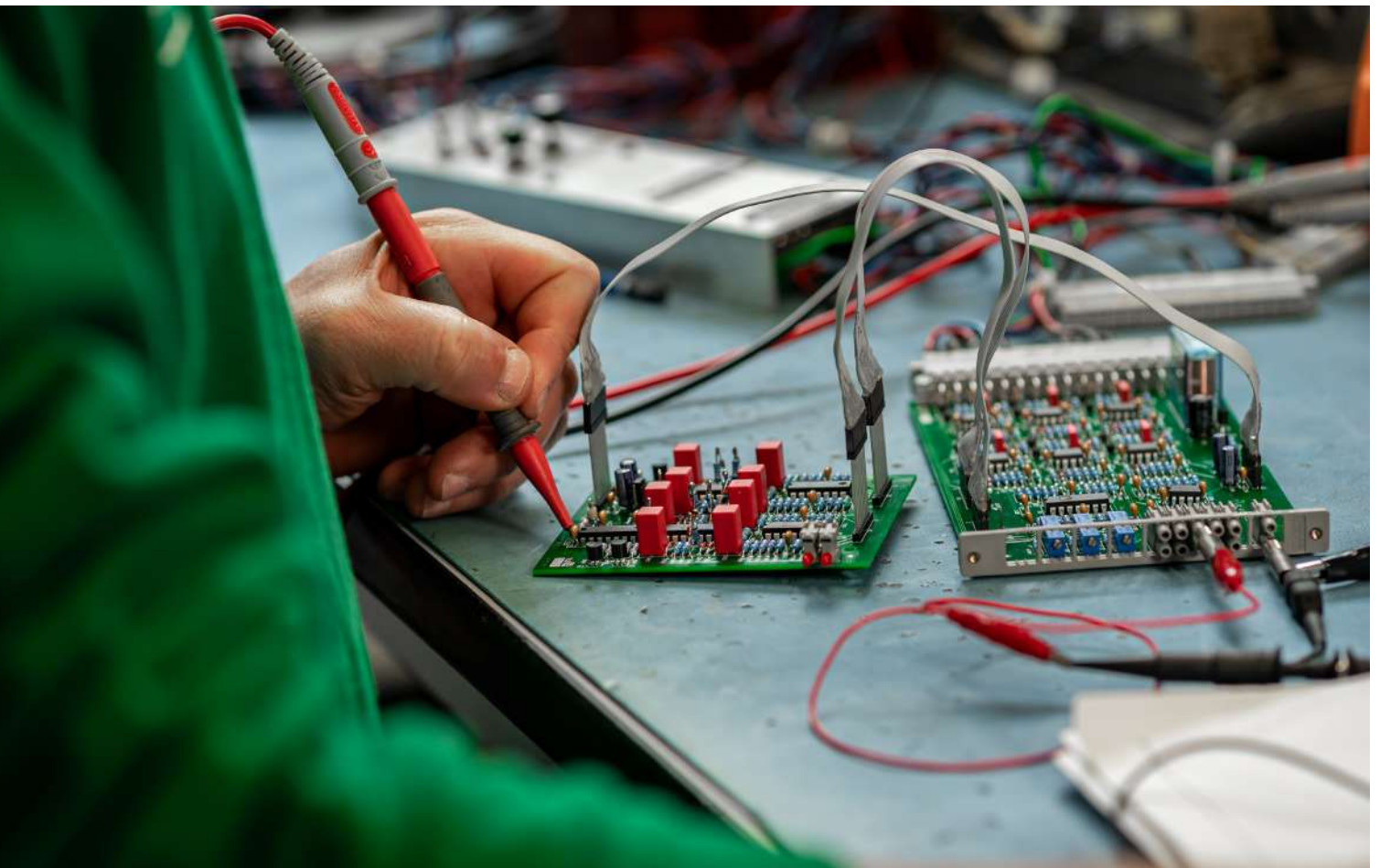
ONSITE TECHNICAL SUPPORT | Wherever you are, we are

02

REMOTE ASSISTANCE | A direct link to FRIEM headquarter

03

UPGRADE AND TRAINING | Sharing experience and knowledges



# Onsite technical support

WHEREVER YOU ARE, WE ARE

We plan with you the right onsite support you need after the equipment's delivery and, in case of emergency, we can reach you immediately thanks to our extensive network of service local partners.

Choose and combine the service that matches with your needs:

## Erection supervision

Our installation supervisor can coordinate the installation company to minimize time losses and suggest the most effective courses of action.

With our supervisor you can:

- have a professional site project management
- benefit of an efficient site erection team coordination
- avoid construction errors



## Commissioning and start-up services

FRIEM' skilled technicians provide commissioning and start-up services of each equipment all over the world.

Our team is highly specialized and equipped with first class tools. Our wide range of expertise allows FRIEM to support you on electrical tasks, PLC programming and scada interface.



## Maintenance Contract

The best way to ensure the most rapid response and to extend the lifetime of your equipment is to subscribe a service maintenance contract.

With our yearly maintenance contract, you can:

- benefit of a fixed daily fee
- schedule maintenance activities according to programmed shutdowns
- prevent failure: thanks to an annual check-up, our experts suggest how to extend your equipment lifetime
- monitor your spare parts stock
- benefit of a dedicated training to your personnel

## OPTIONAL SERVICES

### 1. FRIEM Gold Maintenance

As an option you can add the FRIEM Gold Maintenance, by using a current sharing and analysis monitoring system you can benefit of:

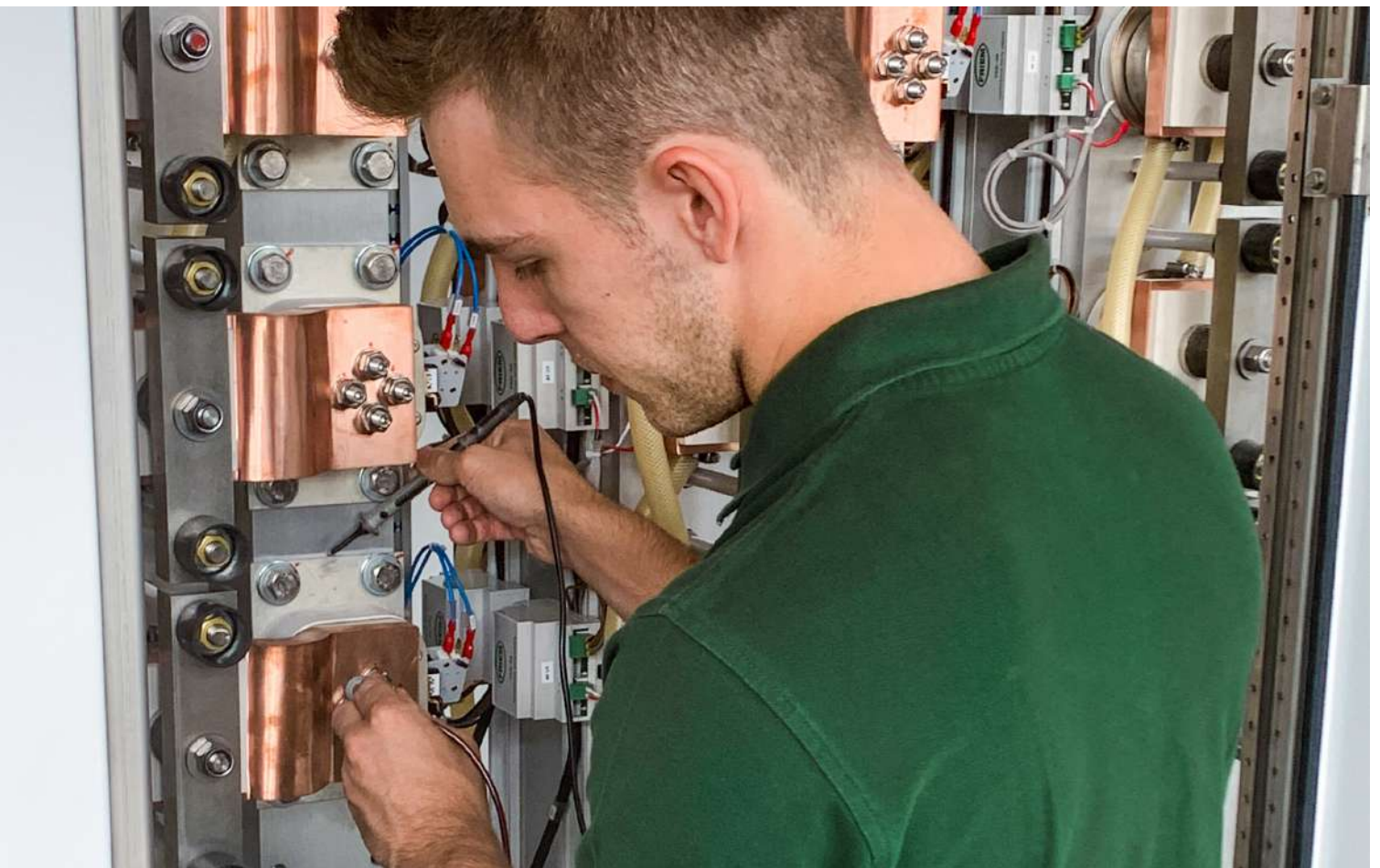
- a high-technology instrument to analyse the real current sharing in the rectifier
- accurately schedule preventative maintenance by monitoring and trending balance of individual currents among parallel rectifying devices

### 2. Conversion system efficiency assessment

If your priority is to evaluate how to improve your rectifier's efficiency, you can choose our conversion system efficiency assessment.

Our specialized technicians can take care of:

- evaluating your current conversion system' efficiency with proper high accuracy metering devices
- suggesting you how to improve its performances.



# Remote assistance

## A DIRECT LINK TO FRIEM HEADQUARTER

We provide remote support that guarantee fast response in all salutations. You can choose the remote assistance solution that fit your specific needs among three level of services:

### **Standard remote service (FIRS)**

The FIRS is a direct link between FRIEM headquarter and the control panel of the rectifier. Our experienced service engineers can connect to the control panel of the transformer rectifier unit, and analyse immediately the parameters to provide live fast professional support.

Signing a FIRS yearly contract, you can benefit of:

- trilingual specialist engineer (Italian – English – Spanish)
- priority channel with FRIEM's experienced engineers to solve faults and problems immediately
- periodical checks to increase the reliability of the equipment and relevant lifetime
- online digital regulator setting and firmware updating, in case of replacing with a new one
- basic PLC software modifications such as additions of DI/DO or AI/AO
- cost saving: annual cost predictability

### **On call service**

A top-class service assistance with a dedicated phone line. A 24/7 phone availability with minimized reaction time. This top priority intervention guarantees a fast and flexible response:

Requirements to subscribe to the on call service:

- speaking language: Spanish and English
- set of spare parts available onsite
- laptop with software FRIEM (free) installed
- stable internet connection

24h for Europe and countries covered by local service assistance (Europe, Asia, USA, Brazil, Peru, Chile), and in 48h for all other countries.

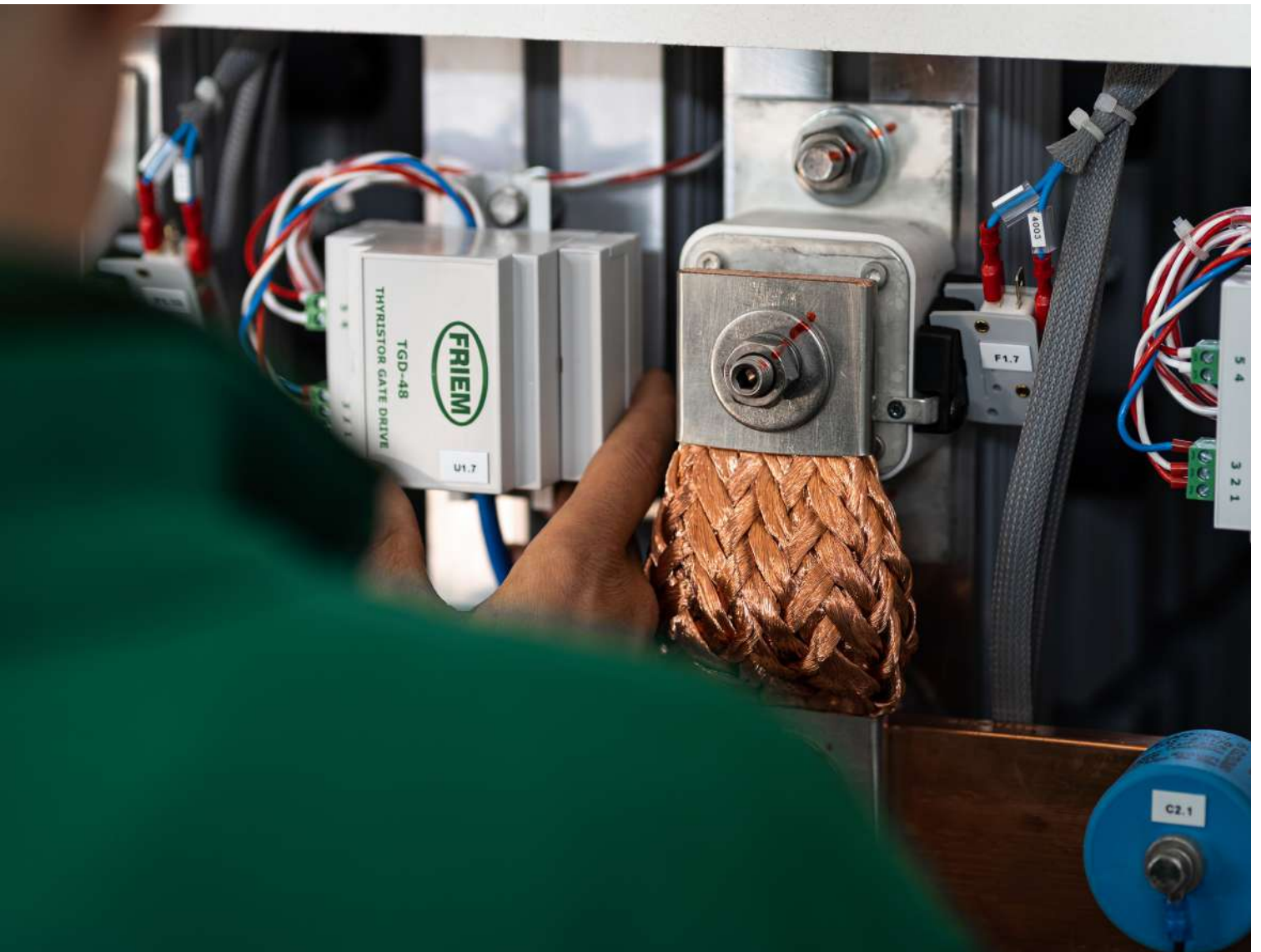


## Augmented reality remote assistance

The virtual augmented reality (VAR) system allows our specialist to be at your side live and guide you to operate immediately on your equipment.

Thanks to its 90 grams of weight, it's extremely comfortable and could be wore the whole day.

VAR is the one and only augmented reality safety glasses with EN166, EN170, EN172 and ANSI Z87.1+ certifications, it could also be intended as PPE (Personal Protective Equipment).



# Technologies and Features



## ERGONOMICS

Wraparound polycarbonate lens with integrated side shields.



## COMFORT

A terminal designed for the maximum comfort and the total stability.

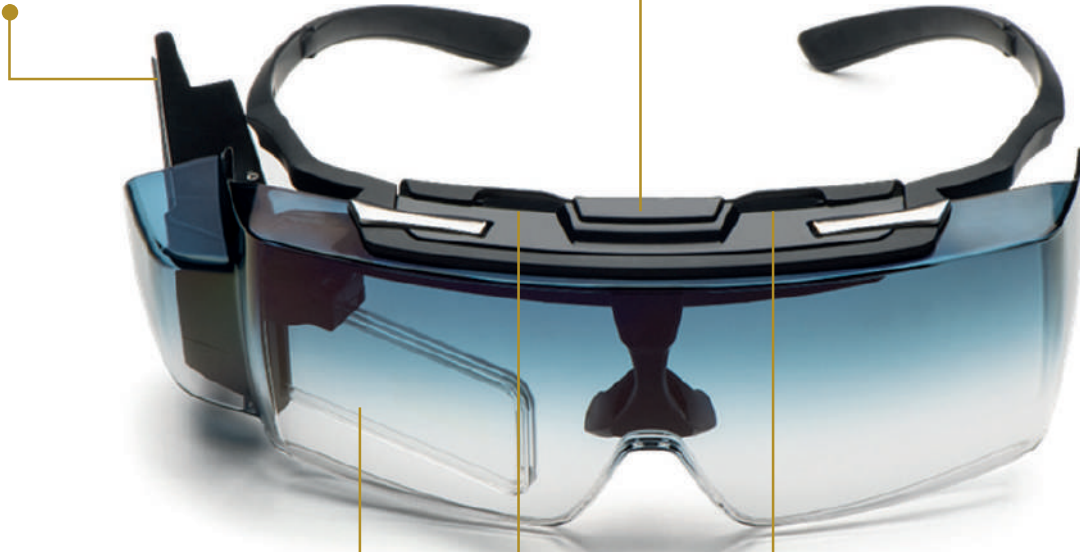


## FITTING

Panoramic can be perfectly worn over prescription glasses.

CAPACITIVE TOUCH

CAMERA SLOT



A.R. OPTICAL MODULE

HAPTIC FEEDBACK & RGB LED

INERTIAL MEASUREMENT UNIT

# Upgrade and Training

SHARING EXPERIENCE AND KNOWLEDGES

## Revamping and Upgrade

If you need to minimize the risk of shutdown due to the obsolescence of the equipment, our experts can suggest you the best technical solution to improve your system with new technologies. FRIEM's revamping services include:

- power section analysis and replacement of thyristors, fuses, snubber and overvoltage protection
- cooling system analysis and replacement of pumps, plate heat exchangers, hoses and sensors with analog output signals
- control and regulation analysis and installation of new digital regulation system and PLC

FRIEM's revamping process ends with installation commissioning and starting up and test of the equipment.

## Training

Our experienced Service Department provides accurate training to your company's personnel, to ensure a rapid and efficient respond in any situation. Each program is studied to meet your specific demands and can includes courses on:

- working principles of the rectifier system
- use and maintaining a complete conversion system
- PLC and digital regulator functioning
- preventive maintenance
- detention, identification and solution of common failures

The training can be provided directly onsite or at FRIEM's facilities.





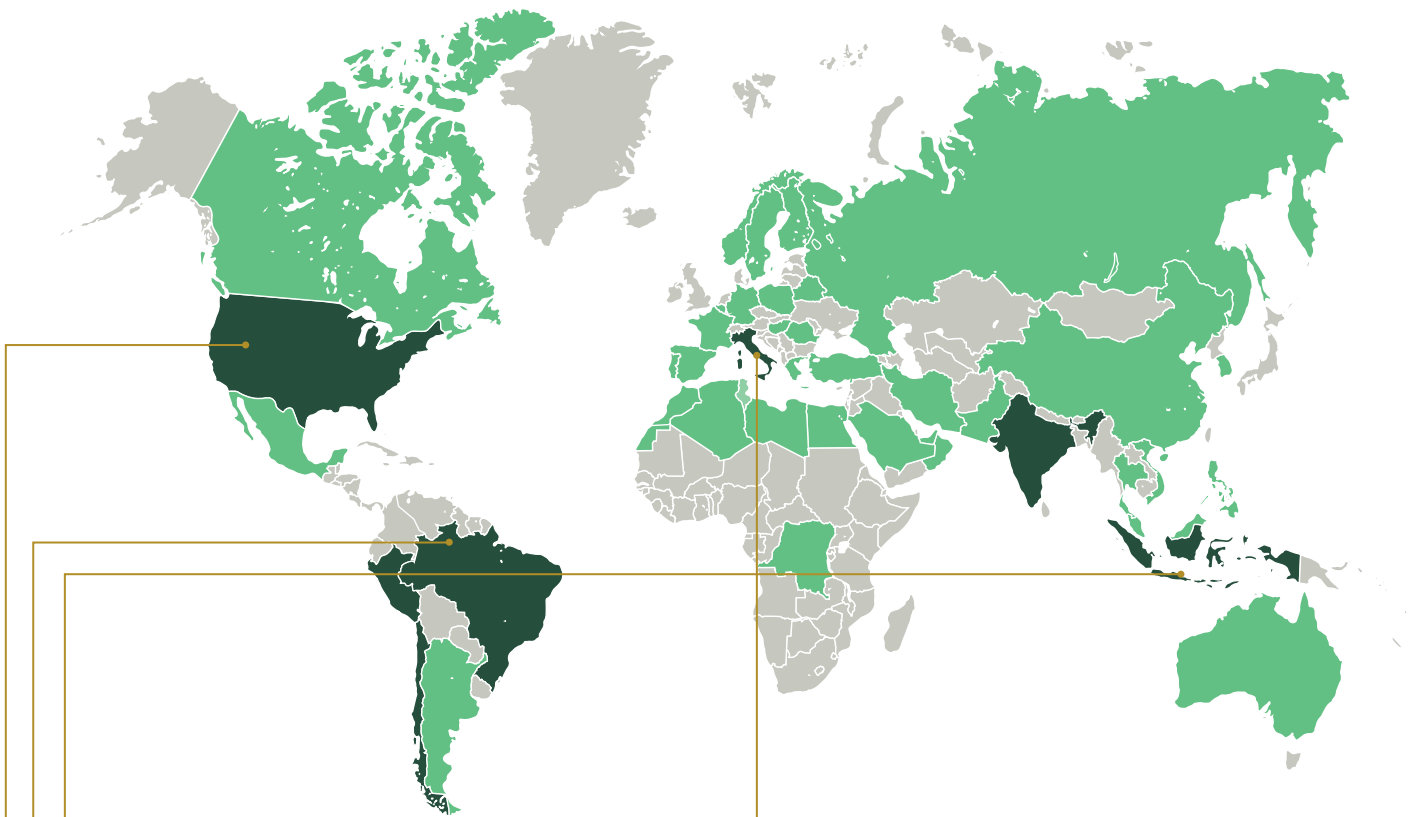
# Worldwide Presence Of FRIEM



Local Service Center



Installed "serviced" industrial rectifiers



## #3 SUBSIDIARIES

- FRIEM America, Chicago, US
- FRIEM Conversores, San Paulo, Brazil
- FRIEM Asia, Jakarta, Indonesia

## #1 HEADQUARTER

- FRIEM Milan, Italy

## #7 SERVICE CENTRE

- FRIEM (Milan, Italy)
- FRIEM America (Chicago, US)
- FRIEM LATAM (San Paulo, Brazil)
- FRIEM Asia (Jakarta, Indonesia)
- FRIEM India (New Dehli, India)
- FRIEM Peru (Lima, Perú)
- FRIEM Chile (Santiago, Chile)



**FRIEM S.P.A.**

**Power Converters Since 1950**

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