BROCHURE

SACE EMAX 3
SOLVING WHAT'S NEXT

Anticipate change. Protect your future.

- Secure
- Reliable
- Adaptable

ENGINEERED
TO OUTRUN

SACE EMAX 3. SOLVING WHAT'S NEXT IN POWER DISTRIBUTION

The ABB SACE Emax 3 is the ultimate evolution in circuit breaker technology, building upon ABB's trusted Emax family with advanced adaptability, security, and reliability features. It meets the demands of modern systems with innovative technology, designed to evolve with your infrastructure and safeguard both assets and people.

ADAPTIVE
Seamlessly integrates with current systems and scales as your needs evolve, supporting continuous improvements to meet future challenges.

SECURE
Emax 3 brings an outstanding level of cybersecurity, safeguarding data and protecting personnel and assets.

RELIABLE
Advanced sensing and power management ensure uninterrupted system performance.

SACE EMAX 3 - ANTICIPATE CHANGE. PROTECT YOUR FUTURE.

Discover how the Emax 3 offers unparalleled next-generation protection.

SACE EMAX 3 IS ADAPTIVE

Seamlessly integrates and evolves with your system for scalable, future-ready solution.

Emax 3 is engineered to integrate seamlessly with existing infrastructure, evolving with your changing needs. With features that support backward compatibility, easy upgrades, enhanced connectivity, and improved system interaction, Emax 3 provides scalable solutions that empower you to meet future challenges with confidence.

Key adaptive features include:

FIELD UPGRADEABILITY WITH EKIP AWARE

The next-generation Ekip Aware trip unit enables on-site customization, making it easy to upgrade measurement, protection, and communication functions as system requirements evolve - minimizing downtime and maximizing flexibility.

DIGITALLY SIMPLIFIED INTERACTION

The redesigned HMI, which offers faster access through a simplified menu structure, ensures efficient interaction with the breaker.
In combination with EPiC mobile app and Ekip Connect software, allowing for complete monitoring, control, and data analysis from a smartphone or a laptop.

ADVANCED COMMUNICATION ARCHITECTURE

Emax 3 supports a robust digital environment with high-speed Ethernet, Ekip Supply EVO Modbus TCP, and daisy-chain networking. Wireless connectivity through Bluetooth Low Energy (BLE) and Near-Field Communication (NFC) allows for secure, on-the-spot access to breaker data while maintaining operational safety. Communication is available in 7 different protocols including IEC 61850 and Profinet.

ENHANCED LOCKS AND INTERLOCK MECHANISMS

Additional keylocks an padlocks, as well as improved mechanical interlocks provide best operational safety and control, thanks to a simplified design to reduce installation time and guarantee performances over time.

BACKWARD COMPATIBILITY

Emax 3 retains the same overall dimensions, fixing points, connection terminations, and electrical performances as his widely known precursor Emax 2, allowing straightforward migration without the need for system redesign.

SACE EMAX 3 IS SECURE

Delivers industry-leading cybersecurity to protect both data and people.

In today's environment, security is paramount.
Emax 3 meets the highest cybersecurity standards to protect your data, while maximizing the safety.

ADVANCED CYBERSECURITY

Emax 3 is designed according to the stringent IEC 62443-4-2 cybersecurity standard, covering embedded devices, software, and components, and ensuring product development and technical security compliance. Security features include:

- **Secure Firmware Update:** Digitally signed FW with Anti roll-back features.
- **Secure Storage:** Anti tampering of device parameters.
- **Dedicated module portfolio:** Ensure that circuit breaker communicate only with original modules thanks to security artifacts. Anti spoofing and anti tampering features.
- **Secure USB and BLE**: Ensure that circuit breaker communicate only with original ABB tools thanks to security artifacts.
- **Role based access ABB account management** will allow role-based access (Owner, Admin, Engineer, Operator, Viewer).

For maximum security, also wireless communication via Bluetooth and NFC requires user authentication for activation, ensuring only authorized personnel access.

EXPANDED PROTECTION

Emax 3 offers additional, comprehensive protection for people and assets across various scenarios. Key safety highlights:

- **Rapid Arc Flash detection:** can be integrated an active protection against arc-flash, with faster detection time and up to 12 sensors per circuit breaker.
- **Remote Racking Device (RRD):** Allows safe breaker racking without exposing personnel to hazardous arc flash risks. Additionally, the embedded racking option ensures safe operation by only engaging when the breaker is off.
- **Enhanced Safety Measures:** Includes temperature protection, new key locks and padlocks, and Reduced Energy Let-Through (RELT) protection to improve operator safety during maintenance.

SACE EMAX 3 IS RELIABLE

Maximizes service continuity through comprehensive sensing and power management.

Designed to maximize uptime, Emax 3 employs advanced power management, high-accuracy power quality measurement, and intelligent asset management strategies to ensure that critical operations remain uninterrupted and costly shutdowns are avoided.

POWER MANAGEMENT STRATEGIES

Emax 3 actively maintains system stability, optimizing performance even under demanding conditions. The breaker's custom logics feature enables tailored control strategies, allowing users to create specialized configurations for complex applications or simply rely on ready-to-use templates. This ensures that Emax 3 can respond intelligently to fluctuating power loads and system demands, delivering a resilient, future-proof solution for maximum uptime.

POWER QUALITY AND MEASUREMENT

Setting a new standard in accuracy, Emax 3 can achieves class 0.5 accuracy for active power and energy in accordance with IEC 61557-12. That performance improves load monitoring, enables precise sub-billing, and improve system management without the need of additional meters or sensors, optimizing space and reducing installation costs. Additionally, the data logger provides detailed event tracking, which supports thorough root-cause analysis and ongoing power quality management.

ASSET MANAGEMENT AND PREDICTIVE MAINTENANCE

Emax 3 enhances asset reliability through condition-based maintenance and predictive maintenance strategies. An internal network of sensors continuously monitors key metrics, proactively identifying potential issues and forecasting maintenance needs. This approach minimizes unexpected failures, allowing for maintenance only when necessary, rather than on a set schedule. Key features include:

- **Real-Time Asset Monitoring:** Continuous insights help system to prevent unforeseen breakdowns.
- **Advanced Health Indexing:** Sensors track component health, monitoring system conditions to reduce downtime.
- **Optimized Accessory Maintenance:** Monitors accessory usage to enhance reliability and extend system life.
- **Temperature monitoring**: To check breaker performance in any ambient and load condition.

PRODUCT RANGE - A GLOBAL PLATFORM

EMAX 3 IEC

A complete family from 250 A to 6300 A for applications in accordance to IEC 60947 standards.

EMAX 3 UL

A complete portfolio of breakers from 800 A to 6000 A for applications in accordance to ANSI C37/UL1066 standards.

EMAX 3 MULTI-STANDARD

for global OEMs with standardized solutions. It includes IEC, UL and CCC markings on same device.

E1.3 - THE MOST COMPACT FRAME

- IEC Icu up to 66kA@440V and 50kA@690V
- UL Interrupting rating up to 65kA@508V and 42kA@635V
- Installation in vertical and horizontal position
- 1.600A IEC / 1200A UL in switchboards with a 400mm width

E2.3 - THE COMPACT REFERENCE UP TO 2.500A

- IEC Icu up to 100kA@440V and 85kA@690V
- UL Interrupting rating up to 100kA@508V and 85kA@635V
- 2.500A IEC / 2000A UL in switchboards with 400 mm(3p) or 600mm (4p) width
- 2.500A available in IP31@35/45°C switchboards

E4.3 - THE ULTIMATE PERFORMANCE

- IEC Icu up to 150kA@440V and 100kA@690V
- UL Interrupting rating up to 125kA@508V
- 4.000A IEC / 3600A UL switchboards with 600 mm(3p) or 800mm (4p) width
- Fully rated neutral in 4p

E6.3 - EFFICIENCY UP TO 6.300 A

- IEC Icu up to 150kA@440V and 120kA@690V
- UL Interrupting rating up to 150kA@508V
- 6.300A IEC / 6000A UL
- 50% and 100% rated neutral

OVERVIEW OF FUNCTIONS

Main innovations

BLE, NFC
(Wireless communication for ease of use)

M-Sense Enabler
(Spring charging motor diagnostic and predictive maintenance)

Evolved Datalogger with SD card
(Deep data acquisition on plant for events analysis)

USB Type-C port
(Standard interface for software connection by computer and by mobile)

Digital Rating Plug
(Configurable nominal current on customer site)

Wireless Temperature sensors
(External sensors to monitor installation temperature)

Embedded RRD-E
(easy and safe CB racking with communication and diagnostic)

Ekip Supply differentiated offer
(Integrated Modbus TCP option)

Daisy chain Ethernet communication
(Easy cabling and installation without switches)

Arc-Flash sensors
(Connected to a cartridge module)

IEC 62443-4-2 SL-2 cybersecurity
("Best-in-class" Cyber Security protection)

3.5 IPS Touch panel
(High readable HMI with intuitive menu)

Sense-Coils
(Coil with integrated diagnostic)

Poles internal temperature measurements
(CB diagnostic, predictive maintenance and protection)

High accuracy sensors
(Class 0.5 Active Power and Energy in accordance with IEC 61557-12)

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