Emax 2 - New Electronics
A new powerful experience

ABB is upgrading the electronics in the Emax 2 smart circuit breaker.

The move aims to meet the continuously evolving needs of our customers by providing a new, even more powerful user experience.

In order to simplify the user experience and the interaction with the device, we have improved the connectivity capabilities and we have created a unique architecture between Air Circuit Breakers and Molded Case Circuit Breakers.

Moreover we made the circuit breakers able to measure with an higher accuracy level, making them first in class in technology.

All of these enhancements are made available while maintaining the same mechanical performances, system installation and certifications.

Ease of Use for the Life of the Product
As the needs of our customers evolve, so must the Emax 2. This product enhancement enables the Emax 2 to be customizable throughout its entire lifecycle; making these upgrades possible at any time and any place. The unit's new embedded Bluetooth Low Energy (BLE) connectivity makes it even easier to access the ABB Ability MarketplaceTM so that users can purchase digital packages whenever they need. The improved computing power will mean more uptime for our customers – it will no longer be necessary to shut down the breaker during upgrades or for routine system updates.

	Touch	G Touch	Hi-Touch	G Hi-Touch
1% accuracy	↑	↑	•	•
Measuring Package	↑	•	•	•
Adaptive Protections	↑	↑	•	•
Voltage Protections	↑	↗	•	•
Advanced Voltage Protections	↑	↗	↑	•
Frequency Protections	↑	↗	•	•
Power Protections	↑	↗	↗	•
ROCOF Protections	↑	↑	↑	•
Data Logger	↑	•	•	•
Network Analyzer	↑	↑	•	•

Features not available with Dip Trip Units

- • Default
- ↗ Some elements of the package are already installed by default. It is possible to upgrade the trip unit to achieve the complete package.
- ↑ Upgradable

Improved Measurement Accuracy

Emax 2 is now certified for Class 1 energy accuracy in accordance with IEC61557-12. The accuracy of the current has also been improved and it is now detectable at extremely low values, starting at 0.004 In. This makes Emax 2 the perfect fit for more sophisticated supervisory systems.

Performance class IEC61557-12	Classic Grey Platform	New Black Platform
Phase Current	1	0.5
Neutral Current	1	0.5
Voltage	0.5	0.5
Frequency	0.2	0.1
Total Active Power	2	1
Total Reactive Power	2	2
Total Apparent Power	2	1
Total Active Energy	2	1
Total Reactive Energy	2	2
Total Apparent Energy	2	1

Emax 2 IEC61557-12 ranges	New Electronics
Value of the current for which the relevant performances of a direct-connected PMD are fixed	Ib = In
Highest value of current at which Emax 2 meets the uncertainty requirements for IEC61557-12	Imax = 1.2 In
Lowest value of the current detected and registered by Emax 2	0.4% Ib
Lowest current ensuring 1% accuracy for Active Power and Energy with a Power Factor of 1	10% Ib
Lowest current ensuring 1% accuracy for Active Power and Energy with a Power Factor of 0.5 Inductance to 0.8 Capacitance	20% Ib

New look

The new features of Emax 2 – the BLE embedded connectivity, more precise measurement, Marketplace customization, and zero-shutdown upgrades/updates – are signaled by a new black design for the unit. This new aesthetic and feel is shared with ABB's Tmax XT and Emax 2 product lines, guaranteeing a single unified user experience for our customers from 160 to 6300 A.

Classic Grey Platform

New Black Platform

FAQ

Does the Ekip Dip Change?
No. The Ekip Dip maintains exactly the same features and capabilities as it is now. Only the aesthetic has been updated in order to create consistency between the whole ABB Breakers offering (Emax 2 and Tmax XT completely share now the same architecture).

Has the mechanical performance changed in any way?
No, the mechanical aspects are not affected by this new implementation.

The Emax 2 maintains the same dimensions and continues to fit the fixed parts/cassettes in the field.

Does this improvement affect the protections, system installation and the certifications?
No. The only modifications are improved measurement accuracy, connectivity and usability. The protections are not affected in any way.

Since the mechanical and protection aspects of the Emax 2 remain the same, there is no impact to system installation, insulation performances, short circuit capabilities, thermal behavior, etc.
As a result, this preserves the validity of all current certifications*.

*ABB can provide an official statement if needed.

How can I get the 1% accuracy feature?
The 1% accuracy is available by default with Ekip G Touch and G Hi-Touch trip units.

This new feature for Ekip Touch and G-Touch trip units can be unlocked by specifying a dedicated extra code. This is not possible with Ekip Dip trip units. The 1% accuracy feature is available factory-fitted.

Will the Circuit Breaker be certified for MID?
No, the circuit breaker won't be certified for billing purposes. The Emax 2 will follow the IEC 61557-12 standard

How do we manage the old platform?
The old trip unit (Grey Platform) will be maintained as spare parts to support our customers with a dedicated replacement.

Is the BLE always integrated on the new trip units?
BLE will be embedded on Touch an Hi-Touch Trip Units. The Ekip Dip and LCD will not have BLE integrated. To upgrade these trip units, a BLE dongle will be released.

How does the LCD trip Unit work?
The LCD trip units (Ekip LCD, Ekip Hi-LCD, Ekip G LCD, Ekip G Hi-LCD) will continue to be ordered in the same way. As before, people should specify a dedicated extracode to receive the LCD versions.

The LCD logic is the same as the corresponding Touch trip unit. The only difference is the BLE.
e.g. Ekip Hi-Touch → same feature as Ekip Hi-LCD

What can I do with the Bluetooth connectivity?
Users can access Ekip Connect and the ABB Marketplace wirelessly, leveraging the power of smart devices for:
- Commissioning
- Settings
- Changing parameters
- Uploading digital packages

How do you implement Cybesecurity countermeasures? Is it possible to disable the Bluetooth?
i.e. in case of critical applications such as Datacenter and marine?
Emax 2 always requires a Password to access the trip unit and to modify parameters and settings (locally and remotely).

The Emax 2 firmwares are digitally signed, ensuring availability, integrity and confidentiality.
Further more, we have structured three different security layers for our wireless connection (BLE).

1. The standard supply foresees that the trip unit comes from the factory with the BLE disabled by default. It is up to the user to access the switchboard, insert the trip unit password and switch on the BLE to start the pairing and connection process. These secure operations follow the "Defense in depth" Cybersecurity apporach.
2. There is the possibility to ask to the factory to disable via software the BLE switch on. No possibility to start and create a connection with the device.
3. For all the applications in which also the component (BLE Antenna) has to be avoided, Ekip LCD (same advanced features as Ekip Touch) and Ekip Dip (standard applications) can be used, since those trip units do not have any kind of BLE Antenna.

Will the commercial codes change?
The only additional codes will be those including the new spare trip units, the rating plugs and the measurement enabler module.

This is intended to avoid confusion when ordering spare trip units with new electronics.

The actual codes for the loose supply of trip units and Ekip Measuring modules will be maintained as spare parts for the installed base with the previous grey platform.

The actual commercial codes for the circuit breaker will remain as they are now.

e.g. E2.2N 2500 Ekip Touch LI - 1SDA072414R1 → remains the same

Do you need an internet connection when accessing the market place?
An internet connection is essential to connect to the ABB Marketplace and to purchase a license for the digital packages. The uploading of the purchased digital package can be performed offline.

Is it possible to select the installation of the voltage sensors since the measurement module is supplied by default?
The voltage sensors are connected to the bottom terminals by default. It is possible to specify connection to the top terminals at the time of ordering by using the same part number as today.

How do you know what digital packages are installed in Emax 2?
This can be read via a dedicated menu on the Touch Trip Unit. It is also possible to view the digital packages using Ekip Connect.