

Ekip Touch/Hi-Touch

Overview

The Ekip Touch/Hi-Touch provide a complete series of protections and high accuracy measurements of all electrical parameters and can be integrated perfectly with the most common automation and supervision systems.

Power Distribution Protection

- Ekip Touch LSI
- Ekip Touch LSIG
- Ekip Touch Measuring LSI
- Ekip Touch Measuring LSIG
- Ekip Hi-Touch LSI
- Ekip Hi-Touch LSIG

Motor Protection

- Ekip M Touch LRIU

Generator Protection

- Ekip G Touch LSIG
- Ekip G Hi-Touch LSIG

Key:

1. Power-on LED; pre-alarm LED; alarm LED
2. Test and programming connector
3. Display
4. Home push-button to return to homepage;
5. Push-button for testing and tripping information



Communication & Connectivity

The Ekip Touch/Hi-Touch trip units can be integrated perfectly into all automation and energy management systems to improve productivity and energy consumption and for remote control. The circuit-breakers can be equipped with communication modules for Modbus, Profibus, and DeviceNet™ protocols as well as Modbus TCP, Profinet and EtherNet/IP™. The modules can be easily installed even at a later date.

A solution with integrated modules is useful when the space in the switchboard is limited, but also a solution with external Ekip Cartridge modules is highly suitable for when an advanced control and communication system is required.

Furthermore, the IEC61850 communication module enables connection to automation systems widely used in medium voltage power distribution to create intelligent networks (Smart Grids). All circuit-breaker functions are also accessible via the Internet, in complete safety and through the Ekip Link switchgear supervision system. Furthermore, with an easy connection thanks to the Ekip Com Hub module, the circuit-breakers allow the system to be monitored via ABB Ability™ Energy and Asset Manager.

Efficiency and measurements

Achieving maximum efficiency of an electrical installation requires intelligent management of power supplies and energy use. For this reason, the new technologies used in the Ekip Touch/Hi-Touch trip units allow the productivity and reliability of installations to be optimized while reducing consumption and fully respecting the environment. These advanced functionalities, together with the protection and communication functions contribute to making Tmax XT with Ekip Touch/Hi-Touch the circuit-breaker that maximizes efficiency in all low-voltage electrical installations.

With 1% accuracy on power and energy measurements, the trip units are certified according to the IEC 61557-12 Standard. Ekip Touch/Hi-Touch trip units are no longer simply protection devices, but integrate multimeter and network analyzer functionality, thus guaranteeing a top level energy management system.

Digital Upgrade

Ekip Touch/Hi-Touch trip units are available in different versions, to enable a wide range of functions: from the Ekip Touch to the Ekip Hi-Touch, it is always possible to customize any device thanks to the additional digital modules.

All functions are available on the ABB Ability Marketplace™ and can be added both when ordering the trip unit as well as after the installation of the circuit-breaker. Ekip Connect efficiently provides desired functions.

Several packages are available to download, and all of them are designed to save time, costs, and space, since no external devices are needed.

Interface

It is possible to interact with the trip unit in several ways via:

- **The front display**

An LCD display with a push button ensures easy navigation on the XT2 and XT4, while a color touch screen is available for intuitive and quick navigation on the XT5 and XT7, together with the possibility of viewing the waveform for different parameters.

- **Smartphone via Bluetooth**

Thanks to the integrated Bluetooth functionality, it is possible to set and check all the measurements and information directly from a smartphone thanks to the EPiC app. Even when the cabinet door is closed, it is always possible to carry out maintenance in a safer way.

- **PC with Ekip Connect**

It is also easy to interact with the trip unit with a PC. Thanks to the Ekip T&P cable the trip unit can be easily connected to a USB PC port and using the Ekip Connect program it is possible to fully interact with the trip unit.

Ekip Touch/Hi-Touch

Overview

Supply

The Ekip Touch/Hi-Touch protection trip unit is self-supplied through the current sensors and does not require an external supply for the basic protection functions or for the alarm indication functions. The trip units for all the circuit-breakers start to power on from a minimum of $0.2 \times I_n^*$ and activate the indication functions, ammeter and the display. All protection settings are stored in a non-volatile memory that maintains the information, even without a power supply. An auxiliary supply can also be easily connected. In fact, the trip unit can be supplied by means of a galvanically isolated 24V DC auxiliary voltage with the following characteristics:

Parameter	Operation limits
Voltage	24V DC galvanically isolated*
Tolerance	±10%
Maximum wave	±5%
Maximum surge current @24V	10A for 5ms
Maximum rated power @24V	4W
Connecting cable	Insulated with ground cable (characteristics equal to or greater than Belden 3105A/B)

The insulation characteristics must refer to the IEC 60950 (UL 1950) or their equivalent

The Ekip Supply module can be connected to both DC and AC current power supplies to activate additional functions such as:

- using the unit with circuit-breaker open;
- using additional modules such as Ekip Signalling and Ekip Com;
- connection to external devices such as Ekip Multimeter;
- recording the number of operations;
- G protection with values below 100A or below $0.2 \times I_n^*$;
- zone selectivity;
- Gext and MCR protection functions.

Supply	Ekip Supply	
Nominal voltage	24-48 V DC	110-240 V AC/DC
Voltage range	21.5-53 V DC	105-265 V AC/DC
Rated power (including modules)	10W max.	10W max.
Inrush current	~10A for 5 ms	~10A for 5 ms

The Ekip Touch/Hi-Touch is also supplied with a battery that enables the cause of the fault to be indicated after a trip. In addition, the battery enables the date and time to be updated, thus ensuring the chronology of events. When the Ekip Touch/Hi-Touch is operating, it uses an internal control circuit to automatically indicate that the battery is flat. Furthermore, when the unit is switched off a battery test can be run by simply pressing the iTest key.

* for XT2 with $I_n=40A$: $0.3 \times I_n$; for XT2 & XT4 with $I_n=100A$: $0.25 \times I_n$

Rating Plug

The XT5 and XT7 trip units allow the rated current to be modified by simply changing the front rating plug. Thus, an upgrade of the circuit-breaker, whenever needed, can be carried out without replacing the circuit-breaker.

Commissioning

The setting, testing and downloading of reports can be carried out directly from a smartphone, tablet or PC. In addition, the commissioning stage can be further accelerated, minimizing the possibility of errors, by directly configuring the protection trip unit with the DOC design software settings.

Test function

The test port and the iTest key on the front of the protection unit can be used to carry out circuit-breaker tests by connecting one of the following devices:

- The Ekip TT, which allows trip tests, LED tests and checks for the absence of alarms detected by the watchdog function;
- The Ekip T&P, which permits not only trip tests and LED tests but also testing of the individual protection functions and the saving of the relative report;
- The iTest key, to run a battery test when the circuit-breaker is disconnected.

The following table shows the main features for each version of the trip unit. The additional features can be added to the trip unit at the time of purchase or after via the ABB Ability Marketplace™.

Trip Unit	Current measurement & protection	Voltage, power, energy measurements	Voltage, power, energy protections	Embedded functions*
Ekip Touch LSI	●	○	○	○
Ekip Touch LSIG	●	○	○	○
Ekip Touch Measuring LSI	●	●	○	○
Ekip Touch Measuring LSIG	●	●	○	○
Ekip Hi-Touch LSI	●	●	●	●
Ekip Hi-Touch LSIG	●	●	●	●
Ekip M Touch LRIU	●	●	●	●
Ekip G Touch LSIG	●	●	●	●
Ekip G Hi-Touch LSIG	●	●	●	●

● Default available

○ Additionable features

* See the following pages for more details

Ekip Touch/Hi-Touch

Overview

Watchdog

All the Ekip Touch/Hi-Touch trip units for the Tmax XT ensure high reliability thanks to an electronic circuit that periodically checks the continuity of the internal connections, such as the trip coil, rating plug and each current sensor (ANSI 74). In the event of an alarm, a message is shown on the display, and if it is set during the installation phase, the trip unit can command the opening of the circuit-breaker. If a protection function intervenes, Ekip Touch/Hi-Touch always checks that the circuit-breaker has been opened by auxiliary contacts that indicate the position of the main contacts. Otherwise, Ekip Touch/Hi-Touch indicates an alarm (ANSI BF code Breaker Failure) to command the opening of the circuit-breaker upstream.

Ekip Touch/Hi-Touch also features self-protection, which ensures the correct operation of the unit in overtemperatures (OT) inside the protection trip unit.

The following indications or controls are available:

- “Warning” LED for temperature below $-20\text{ }^{\circ}\text{C}$ or above $+70\text{ }^{\circ}\text{C}$, at which point the trip unit operates correctly with the display switched off.
- “Alarm” LED for temperature outside the operating range, at which point the trip unit commands the opening of the circuit-breaker (if set during the configuration phase).

Power Distribution Protection

Ekip Touch LSI
Ekip Touch LSI G
Ekip Touch Measuring LSI
Ekip Touch Measuring LSI G
Ekip Hi-Touch LSI
Ekip Hi-Touch LSI G

In [A]	40	63	100	160	250	320	400	630	800	1000	1250	1600
XT2	●	●	●	●								
XT4			●	●	●							
XT5					●	●	●	●				
XT7									●	●	●	●

Motor Protection

Ekip M Touch LRIU

In [A]	40	63	100	160	200	250	320	400	500	800	1000	1250
XT2	●	●	●	●								
XT4			●	●	●							
XT5						●	●	●	●			
XT7										●	●	●

Generator Protection

Ekip G Touch LSI G
Ekip G Hi-Touch LSI G

In [A]	250	320	400	630	800	1000	1250	1600
XT5	●	●	●	●				
XT7					●	●	●	●

Ekip Touch/Hi-Touch

Protection functions

The Ekip Touch/Hi-Touch enables all the protection functions to be set with a few simple steps.

Thanks to the ABB Ability Marketplace™, it is always possible to customize the Ekip Touch/Hi-Touch trip units when ordering and also when the circuit-breaker is already installed by using the Ekip Connect App.

Each trip unit has a default protection set, as shown in the table below. Adding other functional packages to this set is always possible, either directly when ordering the circuit-breaker, or via ABB Ability Marketplace™ at a later time.

The following protection software packages are available to be added to any version of Ekip Touch/Hi-Touch trip units:

- Voltage Protection
- Voltage Protection Advanced
- Frequency Protection
- Power Protection
- ROCOF Protection
- Adaptive Protection

ABB Code	ANSI Code	Function	Ekip Touch LSI	Ekip Touch LSIG	Ekip Touch Measuring LSI
Default Protection					
L	49	Overload	●	●	●
S	50 TD / 68 / 51	Selective short circuit	●	●	●
I	50	Instantaneous short-circuit	●	●	●
G	50N/50N TD/68/51N	Earth Fault		●	
N		Neutral	●	●	●
2I	50	2nd instantaneous short-circuit	●	●	●
MCR		Closing on short-circuit	●	●	●
linst		Instantaneous high intensity short-circuit protection	●	●	●
IU	46	Current unbalance	●	●	●
Harmonic Distortion			●	●	●
T		Temperature	●	●	●
Hardware trip			●	●	●
Current Thresholds			●	●	●
S2	50 TD/68	2nd Time delayed overcurrent	●	●	●
Voltage Protection package					
Phase Sequence	47	Cyclical direction of the phases	○	○	○
UV	27	Undervoltage	○	○	○
OV	59	Overvoltage	○	○	○
UV2	27	2nd Undervoltage	○	○	○
OV2	59	2nd Overvoltage	○	○	○
VU	47	Voltage unbalance	○	○	○
Voltage Protection Advanced package					
S(V)	51V	Voltage controlled overcurrent	○	○	○
S(V) 2nd	51V	2nd Voltage controlled overcurrent	○	○	○
RV	59N	Residual overvoltage	○	○	○

● Available as standard

○ Available as software package to be ordered via ABB Marketplace™ or during the circuit-breaker ordering phase. To add this function, the Measuring package must be installed first.

Ekip Touch Measuring LSIG	Ekip Hi-Touch LSI	Ekip Hi-Touch LSIG	Ekip M Touch LRIU	Ekip G Touch LSIG	Ekip G Hi-Touch LSIG
●	●	●		●	●
●	●	●	●	●	●
●	●	●	●	●	●
●		●	●	●	●
●	●	●		●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
○	●	●	●	●	●
○	●	●	●	●	●
○	●	●	●	●	●
○	●	●	●	○	●
○	●	●	●	○	●
○	●	●	●	●	●
○	○	○	○	●	●
○	○	○	○	○	●
○	○	○	○	●	●

Ekip Touch/Hi-Touch

Protection functions

ABB Code	ANSI Code	Function	Ekip Touch LSI	Ekip Touch LSIG	Ekip Touch Measuring LSI
Frequency Protection package					
UF	81L	Underfrequency	○	○	○
OF	81H	Overfrequency	○	○	○
UF2	81L	2nd Underfrequency	○	○	○
OF2	81H	2nd Overfrequency	○	○	○
Power Protection package					
RP	32R	Reverse active power	○	○	○
Cos φ	78	Power Factor	○	○	○
D	67	Directional overcurrent	○	○	○
RQ	40/32R	Loss of field or reverse reactive power	○	○	○
OQ	320F	Reactive overpower	○	○	○
OP	320F	Active overpower	○	○	○
UP	32LF	Active underpower	○	○	○
ROCOF Protection package					
ROCOF	81R	Rate of change of frequency	○	○	○
Adaptive Protection package					
Set A-B		Dual Setting	○	○	○
Motor Protection					
L		Motor protection overload			
R	51LR	Rotor blockage			
U	46	Phase lackand/or unbalance			
Uc	37	Undercurrent			
Protection with additional modules					
SC	25	Synchrocheck	●	●	●
Ekip CI		Motor contactor interface protection			
PTC		PTC for temperature			
G ext	50G TD/86/51G	Earth fault	● ⁽¹⁾	● ⁽¹⁾	● ⁽¹⁾
Rc	64 50N TD 87N	Residual current / Differential ground fault		● ⁽¹⁾	

● Available

○ Available as software package to be ordered via ABB Ability Marketplace™ or during the circuit-breaker ordering phase. To add this function, the Measuring package must be installed first.

Note:

1) Available with additional module for XT7 and XT7 M only

When an Ekip Touch LSI or LSIG trip unit is upgraded with one of the following packages:

- Voltage Protection
- Voltage Protection Advanced
- Frequency Protection
- Power Protection
- ROCOF Protection

it is mandatory to add first the Measuring package described on the following pages.

Ekip Touch Measuring LSIG	Ekip Hi-Touch LSI	Ekip Hi-Touch LSIG	Ekip M Touch LRIU	Ekip G Touch LSIG	Ekip G Hi-Touch LSIG
○	●	●	●	●	●
○	●	●	●	●	●
○	●	●	●	○	●
○	●	●	●	○	●
○	●	●	●	●	●
○	●	●	●	●	●
○	●	●	●	○	●
○	○	○	○	●	●
○	○	○	○	●	●
○	○	○	○	●	●
○	○	○	○	○	●
○	●	●	●	○	●
			●		
			●		
			●		
			●		
●	●	●	●	●	●
			●		
			●		
● ⁽¹⁾	● ⁽¹⁾	● ⁽¹⁾	● ⁽¹⁾	● ⁽¹⁾	● ⁽¹⁾
● ⁽¹⁾		● ⁽¹⁾		● ⁽¹⁾	● ⁽¹⁾

Ekip Touch/Hi-Touch

Measurement functions and data

Currents

All the Ekip Touch/Hi-Touch trip units measure the RMS value of the instantaneous currents of the three phases and the neutral. There are two different levels of accuracy depending on the version (0.5% and 1%). In addition, also the minimum and maximum values recorded within an adjustable time interval are available.

Voltage

Instantaneous phase-to-phase and phase-to-neutral voltages can be measured. They are available at a 0.5% level of accuracy. In addition, the minimum and maximum values recorded within an adjustable time interval are available.

Power

Real time measurements of the total and phase power. Available at 2 different level of accuracy depending on the version, 1 % and 2%. In addition, the minimum and maximum values recorded within an adjustable time interval are available.

Energy meters

Measurements of the active, reactive and apparent energy totals, updated every minute. The measurements can be reset when needed.

Frequency

Measurement of line real time frequency, expressed in hertz.

Peak Factor

Real time measurements of the peak factors of the phase currents. The measurements are expressed as a ratio between the peak values and RMS values, for each single phase.

Power Factor

Power factor and real time measurements of the ratio between the total active power and total apparent power, expressed as $\cos\varphi$. In addition, the trip unit signals an alarm if the $\cos\varphi$ value drops below an adjustable threshold, settable via Ekip Connect software (from 0.5 to 0.95).

Datalogger

This function allows the data related to a trigger event to be recorded. These data are:

- Analog measurements: phase currents and phase-to-phase voltages
- Digital events: protection alarms, circuit-breaker status signals, tripping of protections.

When the datalogger is activated, the trip unit continuously acquires data by filling and emptying an internal register. If a trigger event occurs, the trip unit inhibits acquisition (either immediately or with an adjustable time-lag) and stores the data, which is available for downloading.

Network Analyzer

This function fully evaluates the quality of the network. It is possible to set the controls to long cycle voltage and current in order to analyze the system functionality. Voltages and currents are monitored to find:

- The sequence of voltages
- Short term voltage drops or interruptions
- Short duration voltage increases
- Slow voltage drops
- Slow voltage increases
- Unbalances between the voltages
- Harmonic distortion of voltages and currents.

Waveforms

A selected quantity can be represented as a waveform and acquired at the moment of selection.

The phase current and phase-phase voltage can be displayed.

Harmonics

A representation in the form of a histogram of the measurements of the harmonics that make up the waveform, and related to the frequency set.

Summary

A brief overview and more useful information

Order Codes

A brief overview and more useful information

The link provided here will redirect you to the **detailed product catalog**, where you can find more **information about the products and the order codes**.

[https://search.abb.com/library/Download.aspx?
DocumentID=1SDC210100D0203&LanguageCode=en&DocumentPartId=&Action=Launch](https://search.abb.com/library/Download.aspx?DocumentID=1SDC210100D0203&LanguageCode=en&DocumentPartId=&Action=Launch)