Ekip Dip
Overview

The Ekip Dip is a first level of electronic trip unit, used for the protection of AC networks.

Power Distribution Protection
- Ekip Dip LS/I
- Ekip Dip LIG
- Ekip Dip LSI
- Ekip Dip LSIG

Motor Protection
- Ekip M Dip I
- Ekip M Dip LIU

Generator Protection
- Ekip G Dip LS/I

Key:
1. Dip switches for an overload protection setting.
2. Dip switches for short-circuit and time delayed short-circuit protection settings.
3. Slot for lead seal.
4. Test connector.
5. Power-on LED.

Dip switches
The dip switches on the front of the trip unit allow manual settings also when the trip unit is off.

LEDs
The LEDs on the front indicate the status of the release (on/off) and provide information about the protection tripped when the Ekip TT accessory is connected.

Front connector
The connector on the front of the unit allows the connection of:
- Ekip TT for trip testing; LED-test and signaling of the most recent trip.
- Ekip T&P, for connection to a laptop with the Ekip Connect program (thus measurement reading, as well as trip and protection function tests are made available for the user).

Characteristics of electronic Ekip Dip trip units

Operating temperature	-25°C...+70°C
Relative humidity	98%
Self-supplied	0.2xIn (single phase)*
Auxiliary supply (where applicable)	24V DC ± 20%
Operating Frequency	45...66Hz
Electromagnetic compatibility	IEC 60947-2 Annex F

*For 10A: 0,4xIn

Thermal memory
All the Ekip Dip trip units include a thermal memory function. The trip unit records the trips which have occurred in the last few minutes. Since the trip causes overheating, in order to protect the cables and let them cool down, the trip unit imposes a shorter delay tripping time in case of a fault. This way, the system is protected against damage due to cumulative overheating. This can be disabled, if needed, by using the Ekip T&P.

External neutral
Ekip Dip trip units are available in both 3 and 4 poles. The 3-pole version with earth fault protection (G) can be equipped with an external sensor for the neutral phase. In this way, the external neutral phase is protected and uninterrupted.

Communication
- Using the dedicated Ekip Com module, XT2 and XT4 can communicate with Modbus RTU when they are equipped with the following trip units:
- Ekip LSI
- Ekip LSIG.

Field of application	Trip Unit		L - Overload Protection		S - Selective Short-circuit Protection		I - Short-circuit Protection	
			Current Threshold	Trip Time	Current Threshold	Trip Time	Current Threshold	Trip Time
Power Distribution Protection	Ekip Dip	LS/I	Adjustable	Adjustable	Adjustable	Adjustable	Adjustable	Fixed
		LIG	Adjustable	Adjustable	-	-	Adjustable	Fixed
		LSI	Adjustable	Adjustable	Adjustable	Adjustable	Adjustable	Fixed
		LSIG	Adjustable	Adjustable	Adjustable	Adjustable	Adjustable	Fixed
Motor Protection	Ekip M Dip	I	-	-	-	-	Adjustable	Fixed
		LIU	Adjustable	Adjustable	-	-	Adjustable	Fixed
Generator Protection	Ekip G Dip	LS/I	Adjustable	Adjustable	Adjustable	Adjustable	Adjustable	Fixed

Power Distribution Protection

Ekip Dip LS/I

Ekip Dip LIG

Ekip Dip LSI

Ekip Dip LSIG

In [A]	10	25	40	63	100	160	250	320	400	630	800	1000	1250	1600
XT2	●	●		●	●	●								
XT4			●	●	●	●	●							
XT5							●	●	●	●				
XT6										●	●	●		
XT7											●	●	●	●

Motor Protection

Ekip M Dip I

In [A]	10	25	40	63	100	160	250	320	400	630	800	1000	1250	1600
XT2	●	●		●	●	●								
XT4			●	●	●	●	●							
XT5							●	●	●	●				
XT6										●	●	●		
XT7											●	●	●	●

Ekip M Dip LIU

In [A]	10	25	40	63	100	160	250	320	400	500	630	800	1000	1250	1600
XT2		●		●	●	●									
XT4			●	●	●	●									
XT5							●	●	●	●					
XT6											●	●			

Generator Protection

Ekip G Dip LS/I

In [A]	10	25	40	63	100	160	250	320	400	630	800	1000	1250	1600
XT2	●	●		●	●	●								
XT4			●	●	●	●	●							
XT5							●	●	●	●				
XT6										●	●	●		
XT7											●	●	●	●

Ekip Dip
Protection settings

Available settings for Ekip Dip trip units:

Ekip DIP LS/I & Ekip DIP LIG

ABB code	Protection Function	Threshold	Trip Time	Trip Curve
L	Overload	I1 = 0.4...1 x In with steps of 0.04	t1 at 3 x I1 = 12 - 36s 12 - 48s for XT7	t=k/I²
S	Selective short-circuit	I2 = Off – 1 – 1.5 – 2 – 2.5 – 3 – 3.5 – 4.5 - 5.5 – 6.5 – 7 – 7.5 – 8 – 8.5 – 9 – 10 x In	t2 = 0.1 - 0.2s at 10 x In when t = k/I²	t=k t = k or t = k/I² for XT7
I	Short-circuit	I3 = Off – 1 – 1.5 – 2 – 2.5 – 3 – 3.5 – 4.5 - 5.5 – 6.5 – 7 – 7.5 – 8 – 8.5 – 9 – 10 x In	t3 ≤ 20ms t3 ≤ 30ms for XT7	t=k
G	Earth fault	I4 = Off - 0.20 - 0 .25 - 0.45 - 0.55 - 0.75 - 0.80 – 1 x In I4 = Off - 0.2 - 0.3 - 0.4 - 0.6 - 0.8 - 0.9 - 1.0 x In for XT7	t4 = 0.1 - 0.2 - 0.4 - 0.8s at 3 x In when t = k/I²	t=k t = k or t = k/I² for XT7

Ekip DIP LSI & Ekip DIP LSIG

ABB code	Protection Function	Threshold	Trip Time	Trip Curve
L	Overload	I1 = 0.4...1 x In with steps of 0.02 I1 = 0.4 - 0.42 - 0.45 - 0.47 - 0.5 - 0.52 - 0.55 - 0.57 - 0.6 - 0.62 - 0.65 - 0.67 - 0.7 - 0.72 - 0.75 - 0.77 - 0.8 - 0.82 - 0.85 - 0.87 - 0.9 - 0.92 - 0.95 - 0.97 - 1 x In for XT7	t1 at 3xI1 = 3 - 12 - 36 - 60s at 3xI1 for XT2-XT4 3 - 12 - 36 - 48s for XT5 3 - 12 - 36 - MAX for XT6 3 - 12 - 24 - 36 - 48 - 72 - 108 - 144s for XT7	t=k/I²
S	Selective short-circuit	I2 = Off – 1 – 1.5 – 2 – 2.5 – 3 – 3.5 – 4.5 - 5.5 – 6.5 – 7 – 7.5 – 8 – 8.5 – 9 – 10 x In I2 = Off – 0.6 - 0.8 - 1 – 1.5 – 2 – 2.5 – 3 – 3.5 – 4 - 5 - 6 – 7 – 8 – 9 – 10 for XT7	t2 = 0.05 - 0.1 - 0.2 - 0.4 for XT2-XT4-XT5-XT6 t2 = 0.1 - 0.2 - 0.3 – 0.4 – 0.5 – 0.6 – 0.7 – 0.8 for XT7 at 10xIn when t = k/I²	t = k or t = k/I²
I	Short-circuit	I3 = Off – 1 – 1.5 – 2 – 2.5 – 3 – 3.5 – 4.5 - 5.5 – 6.5 – 7 – 7.5 – 8 – 8.5 – 9 – 10 x In I3 = Off – 1 .5 – 2 – 3 – 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 -13 - 14 - 15 for XT7	t3 ≤ 20ms t3 ≤ 30ms for XT7	t=k
G	Earth fault	I4 = Off - 0.20 - 0 .25 - 0.45 - 0.55 - 0.75 - 0.80 – 1 x In I4 = Off - 0.2 - 0.3 - 0.4 - 0.6 - 0.8 - 0.9 - 1.0 x In for XT7	t4 = 0.1 - 0.2 - 0.4 - 0.8s at 3 x In when t = k/I²	t=k t = k or t = k/I² for XT7

Note: t1 MAX for XT6: 42s for XT6 1000 and 72s for XT6 800

Ekip M DIP I

ABB code	Protection Function	Threshold	Trip Time	Trip Curve
I	Short-circuit	I3 = Off – 1 – 1.5 – 2 – 2.5 – 3 – 3.5 – 4.5 - 5.5 – 6.5 – 7 – 7.5 – 8 – 8.5 – 9 – 10 x In	t3 ≤ 15ms for XT2-XT4 t3 ≤ 20ms for XT5-XT6 t3 ≤ 30ms for XT7	t=k

Ekip M DIP LIU

ABB code	Protection Function	Threshold	Trip Time	Trip Curve
L	Overload	I1 = 0.4...1 x In with steps of 0.04	Operating Class for XT2-XT4: 5E - 10E - 20E Operating Class for XT5-XT6: 5E - 10E - 20E - 30E	$t=k/I^2$
I	Short-circuit	I3 = 6 – 7 – 8 – 9 - 10 – 11 – 12 - 13 x In	t3 ≤ 15ms for XT5-XT4 t3 ≤ 20ms for XT5-XT4 t3 ≤ 30ms for XT7	t=k
U	Phase loss (IEC 60947-4-1)	ON/OFF	When ON. t6 = 2s	t=k

Ekip G DIP LS/I

ABB code	Protection Function	Threshold	Trip Time	Trip Curve
L	Overload	I1 = 0.4...1 x In with steps of 0.04	t1 at 3 x I1 = 3 - 6s	$t=k/I^2$
S	Selective short-circuit	I2 = Off – 1 – 1.5 – 2 – 2.5 – 3 – 3.5 – 4.5 - 5.5 – 6.5 – 7 – 7.5 – 8 – 8.5 – 9 – 10 x In	t2 = 0.05 - 0.075 - 0.1 - 0.2 at 10 x In when t = k/I2	t=k t = k or $t = k/I^2$ for XT7
I	Short-circuit	I3 = Off – 1 – 1.5 – 2 – 2.5 – 3 – 3.5 – 4.5 - 5.5 – 6.5 – 7 – 7.5 – 8 – 8.5 – 9 – 10 x In	t3 ≤ 20ms t3 ≤ 30ms for XT7	t=k

Ekip Dip
Tolerances

Tolerances in case of:

- Self-powered trip unit at full power
- 2 or 3 phase supply

Trip Unit	Protection	Trip Threshold	Trip Time
Ekip DIP LS/I **Ekip DIP LIG** **Ekip G Dip LS/I**	L	trip between 1,05…1,3 x I1 according IEC 60947-2	±10% up to 4xIn ±20% from 4xIn
	S	±10%	XT2-XT4-XT5-XT6: 15% (2) XT7: t=k: ±10% t=k/I²: ±15% up to 4xIn ±20% from 4xIn
	I	±10%	-
	G (1)	±10%	XT2-XT4-XT5-XT6: ±20% XT7: ±15%
Ekip DIP LSI **Ekip DIP LSIG**	L	trip between 1,05…1,3 x I1 according IEC 60947-2	XT2-XT4-XT5-XT6: ±10% up to 4xIn ±20% from 4xIn XT7: ±10% up to 6xIn ±20% from 6xIn
	S	±10%	XT2-XT4-XT5-XT6: t=k: ±10% up to 4xIn ±20% from 4xIn t=k/I²: ±15% t2 >100ms ±20ms t2 ≤100ms XT7: t=k the better of the two data: ±10% or ± 40ms t=k/I²: ±15% up to 6xIn ±20% from 6xIn
	I	±10%	-
	G (1)	XT2-XT4-XT5-XT6: ±10% XT7: ±7%	XT2-XT4-XT5-XT6: ±15% XT7: t=k the better of the two data: ±10% or ± 40ms t=k/I²: ±15% up to 6xIn ±20% from 6xIn
Ekip M Dip I **Ekip M Dip LIU**	L	trip between 1,05…1,2xI1	±10% up to 4xIn ±20% up to 4xIn
	I	±10%	-
	U	±10%	±10%

Note: When the trip unit is used at 400Hz the tripping time tolerance is +/- 25%
(1) G protection is inhibited for currents higher than: - 2xIn with XT2 and XT4
- 4xIn with XT5 and XT6

(2) for G Dip LS/I: - ±10% t2 > 100ms
- ±20% t2 ≤ 100ms

Tolerances in other conditions:

Trip Unit	Protection	Trip Threshold	Trip Time
Ekip DIP LS/I **Ekip DIP LIG** **Ekip G Dip LS/I**	L	trip between 1,05…1,3 x I1 according IEC 60947-2	±20%
	S	±10%	±20%
	I	±15%	≤60ms
	G	± 30% For In=10A Ifault min=4A For In=25A Ifault min=9A	± 20% For In=10A,25A: ±30%
Ekip DIP LSI **Ekip DIP LSIG**	L	trip between 1,05…1,3 x I1 according IEC 60947-2	±20%
	S	±10%	±20%
	I	±15%	≤60ms
	G	XT2-XT4-XT5-XT6 ± 30% For In=10A Ifault min=4A For In=25A Ifault min=9A XT7 ± 7%	XT2-XT4-XT5-XT6 ± 20% For In=10A,25A: ±30% XT7 t=k the better of the two data: ±10% or ±40ms t=k/I^2: ± 15%
Ekip M Dip I **Ekip M Dip LIU**	L	trip between 1.05…1.2xI1	±20%
	I	±15%	≤60ms
	U	±20%	±20%

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.**

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