

OPERATING INSTRUCTIONS

# Protection settings setup for Ekip Touch Trip Units







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# Index of terms / Field setting sheet

Traditional/Study Reference	ABB Ekip Touch Reference
Long Time Protection	L Protection Overload (49) – Threshold I1 – t1
Short Time Protection	S Protection Selective Short Circuit (51/50TD) – Threshold I2 – t2
Instantaneous Protection	I Protection Short Circuit (50) – Threshold I3 – t3
Ground Fault Protection	G Protection Earth Fault (51N/50NTD) – Threshold I4 – t4
Arc-Flash Mitigation/RELT	2I Protection Second I Protection – Threshold I31
Step Curve or I <sup>2</sup> t Out 	Function t = k
Slope Curve or I <sup>2</sup> t In 	Function t = k/I <sup>2</sup>

Note: Protection setting thresholds are not in pickup or delay but are in current [A] and time [seconds].

## Settings table for breaker

Please fill in values from coordination study in reference table below.

Settings Value	Traditional/Study Reference	ABB Ekip Touch Reference	Standards Reference
Protection Settings Menu 			
<b>Amps</b>	Long Time Pickup	Threshold I1	49
<b>Seconds</b>	Long Time Delay/Band	t1	
<b>Amps</b>	Short Time Pickup	Threshold I2	51
<b>Seconds</b>	Short Time Delay/Band	t2	
<b>Curve Type</b>	I <sup>2</sup> t out OR I <sup>2</sup> t in (for ST)	t = k OR t = k/I <sup>2</sup>	Step OR Slope
<b>Amps</b>	Instantaneous Pickup	Threshold I3	50
<b>Amps</b>	Ground Fault Time Pickup	Threshold I4	51N
<b>Seconds</b>	Ground Fault Time Delay/Band	t4	
<b>Curve Type</b>	I <sup>2</sup> t out OR I2t in (for GF)	t = k OR t = k/I <sup>2</sup>	Step OR Slope
Advanced Settings Menu 			
<b>Amps</b>	RELT/Arc-Flash Pickup	2I - Threshold I31	

Note: Delay settings are in seconds rather than delay time bands to allow for more precise adjustment.

# Default protection settings

## Example of study in EDSA

Protection Function	Frame	Enabled	Trip Enabled	Function / Curve	Threshold / Pickup	Time / Delay	Thermal Memory	Pre-alarm
Long Time Protection L Protection Overload (49)	XT2 & XT4	ON	-	t = k/I <sup>2</sup>	I1 = 1 x I <sub>n</sub>	t1 = 12 seconds	OFF	90% I1
	XT5					t1 = 48 seconds		
	XT7/XT7M					t1 = 144 seconds		
	E <sub>max</sub> 2					t1 = 144 seconds		
Short Time Protection S Protection Selective Short Circuit (51/50TD)	XT2 & XT4	OFF*	ON	t = k	I2 = 2 x I <sub>n</sub>	t2 = 0.1 seconds	-	-
	XT5					t2 = 0.05 seconds		
	XT7/XT7M					I2 = 4 x I <sub>n</sub>		
	E <sub>max</sub> 2					I2 = 2 x I <sub>n</sub> t2 = 0.1 seconds		
Instantaneous Protection I Protection Short Circuit (50)	XT2 & XT4	ON	-	-	I3 = 5.5 x I <sub>n</sub>	-	-	-
	XT5					I3 = 4 x I <sub>n</sub>		
	XT7/XT7M					-		
	E <sub>max</sub> 2					-		
Ground Fault Protection G Protection Earth Fault (51N/50NTD)	XT2 & XT4	OFF*	ON	t = k	I4 = 0.2 x I <sub>n</sub>	t4 = 0.1 seconds	-	90% I4
	XT5					t4 = 0.4 seconds		
	XT7/XT7M					t4 = 0.1 seconds		
	E <sub>max</sub> 2					t4 = 0.1 seconds		

\*Protection must be Enabled=ON to input the settings.

## Example of study in EDSA

Protection Function	Frame	Threshold / Pickup Range	Time / Delay Range
Long Time Protection L Protection Overload (49)	XT2 & XT4	0.4 x I <sub>n</sub> to 1 x I <sub>n</sub> ; in 0.001 I <sub>n</sub> steps	3 - 60 s in 1s steps
	XT5		3 - 48s in 1s steps
	XT7/XT7M		3 - 144s in 1s steps
	E <sub>max</sub> 2		3 - 144s in 1s steps
Short Time Protection S Protection Selective Short Circuit (51/50TD)	XT2 & XT4	0.6 x I <sub>n</sub> to 10 x I <sub>n</sub> ; in 0.1 I <sub>n</sub> steps	0.05 - 0.4s in 0.01s steps
	XT5		0.05 - 0.8s in 0.01s steps (1)
	XT7/XT7M		-
	E <sub>max</sub> 2		-
Instantaneous Protection I Protection Short Circuit (50)	XT2 & XT4	1.5 x I <sub>n</sub> to 15 x I <sub>n</sub> ; in 0.1 I <sub>n</sub> steps (2)	-
	XT5		-
	XT7/XT7M		-
	E <sub>max</sub> 2		-
Ground Fault Protection G Protection Earth Fault (51N/50NTD)	XT2 & XT4	0.1 x I <sub>n</sub> to 1 x I <sub>n</sub> ; in 0.001 I <sub>n</sub> steps	0.1 - 1.0s in 0.05s steps (4)
	XT5		
	XT7/XT7M		
	E <sub>max</sub> 2		

<sup>1</sup> UL version: t2 Max = 0.4s

<sup>2</sup> I3 threshold must be higher than I2 (if S Enabled = ON)

<sup>3</sup> UL version: I4 Max = 1200A

<sup>4</sup> UL version: t4 max = 0.4s

## Example of study in EDSA

CB: UPS-B-Load 1	
MFR	ABB
Model	XT5-N
Size	400
Rating	65 kA, 0.24kV
Cont. Amp	400.00
3-Phase kA	10.28 Sym. (Calc.)
LG kA	8.24 Sym. (Calc.)
Base kV	0.208 Sym. (Calc.)

LV Solid state trip device			
MFR	ABB		
Model	XT5-Ekip DIP LSI (UL)		
Sensor	400A		
Phase setting	Long-time	LT Pickup	1.00 Multiples
		LT Band	36
	Short-time	ST Pickup	3.5
		ST Band	0.1 I' <sup>2</sup> t=IN
INST	Ins. Pickup	7.5	

# Protection setting setup

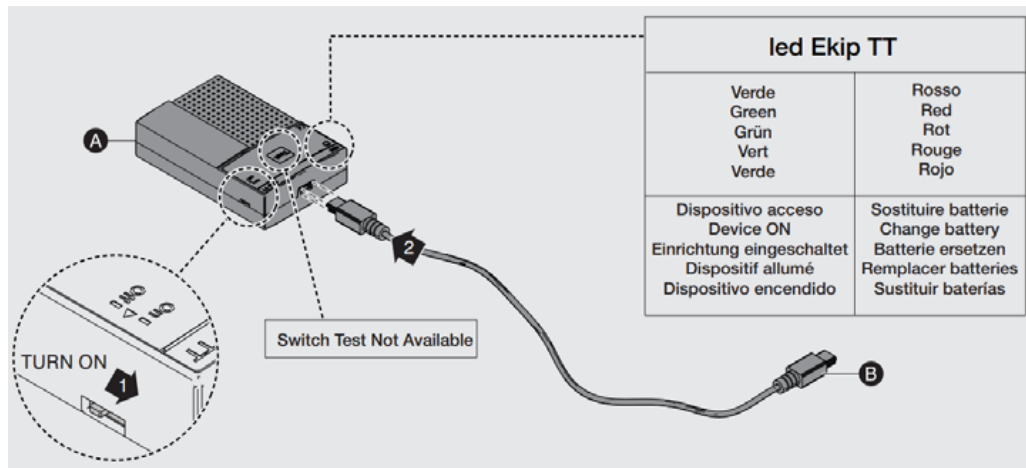
## XT5, XT7/XT7M and Emax 2

An EKIP TT (Battery Pack) or Ekip T&P (Test & Programming) is required for COLD (unpowered equipment) set up.

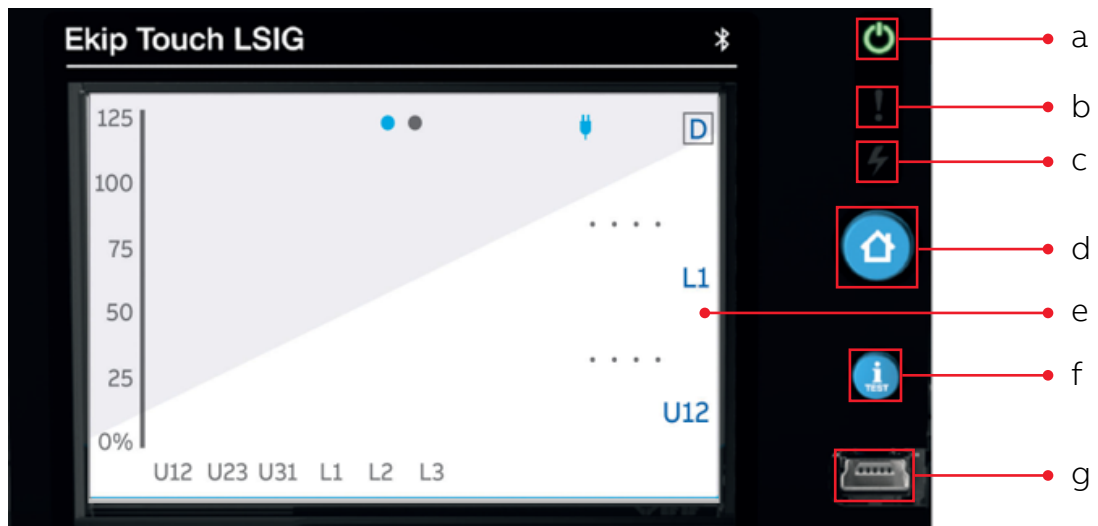
Sold separately:  
 Ekip TT: ZEAEKPTT (1SDA066988R1)  
 Ekip T&P\*: ZEAEKPTP (1SDA066989R1)  
 Ekip Programming\*: ZEAEKPPGM (1SDA076154R1)

\*Powered via USB port on laptop/computer

Ekip TT



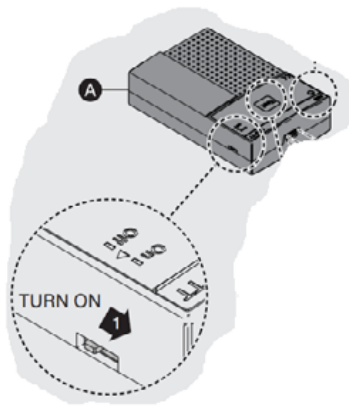
Step 1. Insert the Ekip TT Plug End (B) into Ekip Touch Trip Unit Service Connector (G)



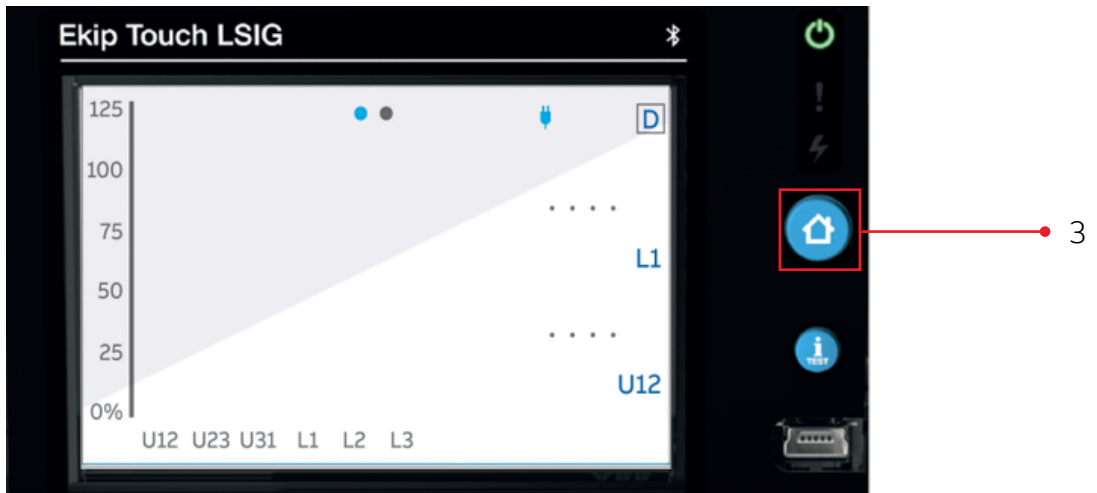
- a. Power LED
- b. Warning LED
- c. Alarm LED
- d. Home push-button

- e. Single-touch color touchscreen display
- f. iTEST push-button
- g. Service connector

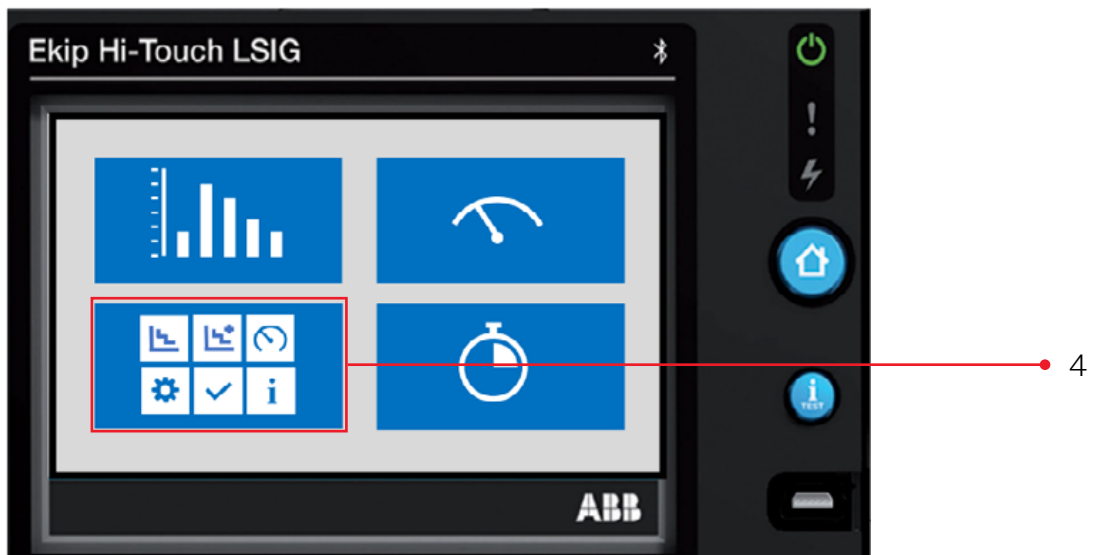
Step 2. Turn on the Ekip TT using the switch on the side of the unit.



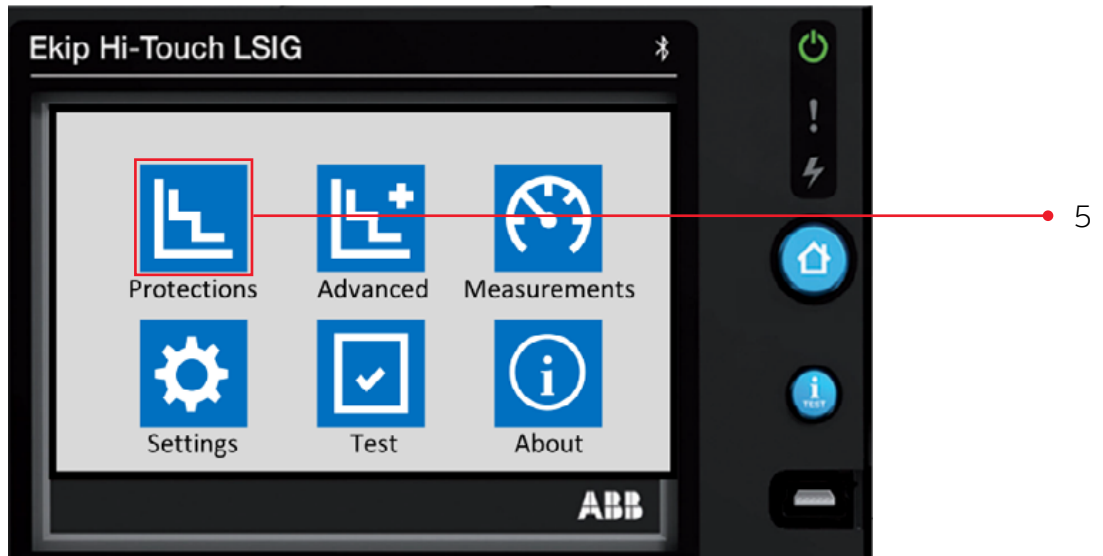
Step 3. Press the HOME button (3)



Step 4. Press the bottom left icon (six sub-icons)



Step 5. Press the upper left icon - **Protections** Icon



**ADJUSTING THE LONG TIME PROTECTION SETTINGS**

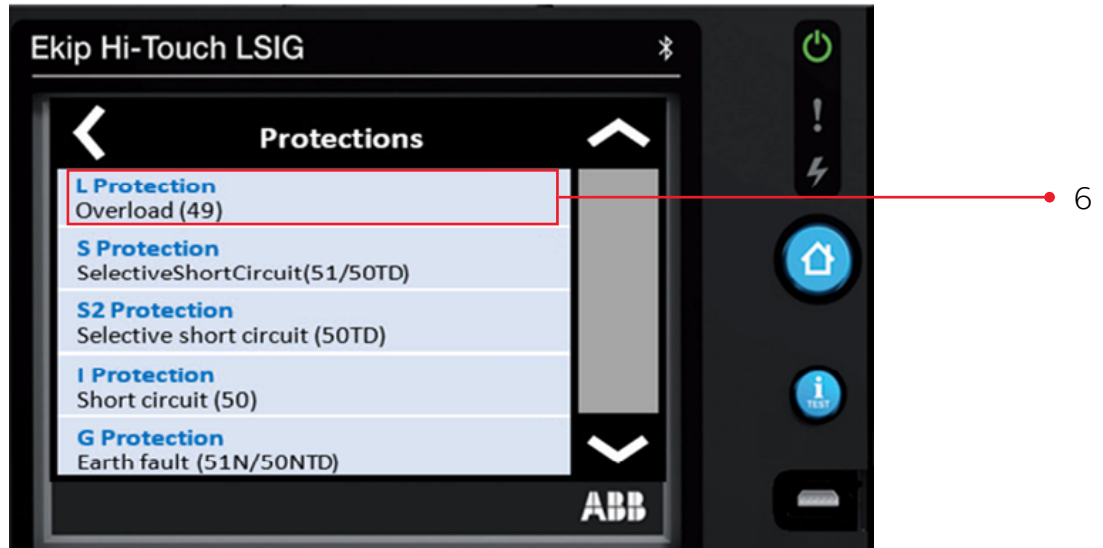
**Factory Default Settings**

Protection Function	Frame	Enabled	Trip Enabled	Function / Curve	Threshold / Pickup	Time / Delay	Thermal Memory	Pre-alarm
Long Time Protection	XT5					t1 = 48 seconds		
L Protection Overload (49)	XT7/XT7M Emax 2	ON	-	t = k/I <sup>2</sup>	I1= 1 x In	t1 = 144 seconds t1 = 144 seconds	OFF	90% I1

**Range Adjustability**

Protection Function	Frame	Threshold / Pickup Range	Time / Delay Range
Long Time Protection	XT5		3 - 48s in 1s steps
L Protection Overload (49)	XT7/XT7M Emax 2	0.4 x In to 1 x In; in 0.001 In steps	3 - 144s in 1s steps 3 - 144s in 1s steps

Step 6. Press the **L Protection Overload (49)** row

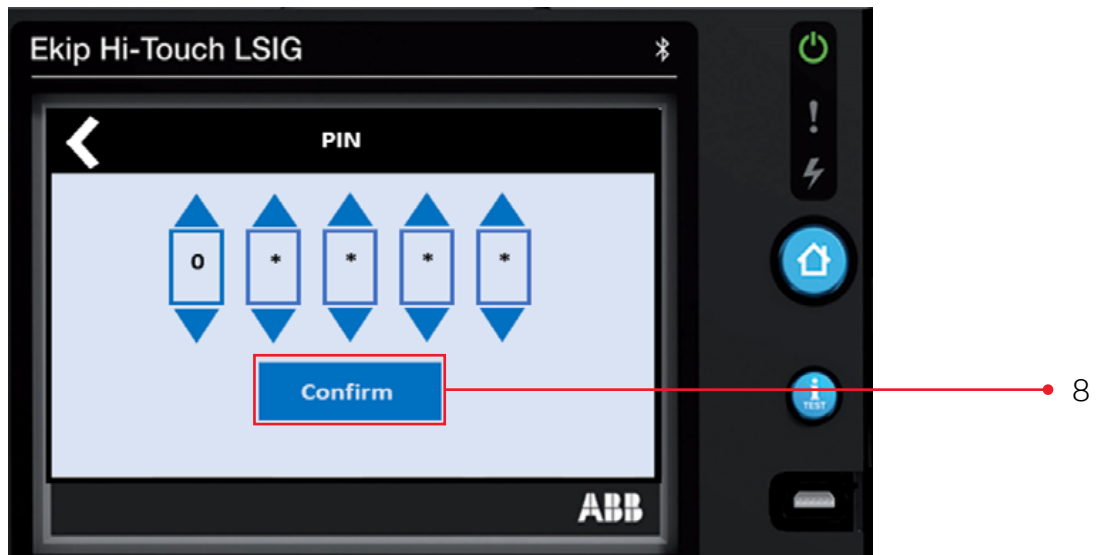




Step 7. Press the **Threshold I1** row



Step 8. This display is presented (In order to change settings, a password is required).



Default Password: 00001. Zero appears in the first PIN box.

Press **Confirm** to accept zero

Repeat for the next three PIN boxes

On the 5th PIN box change from zero to one (press the up triangle), then press **Confirm**

**This will allow Protection Settings to be changed per the coordination study.**

Note: Once the PIN code has been entered, all displays can be browsed for two minutes: once two minutes has elapsed, the PIN code must be entered again (depending on the case in question).

**ADJUSTING THE LONG TIME PICK UP OR THRESHOLD I1**

Step 9. Change the **Long Time Pickup / Threshold I1** setting to the value in the coordination study.



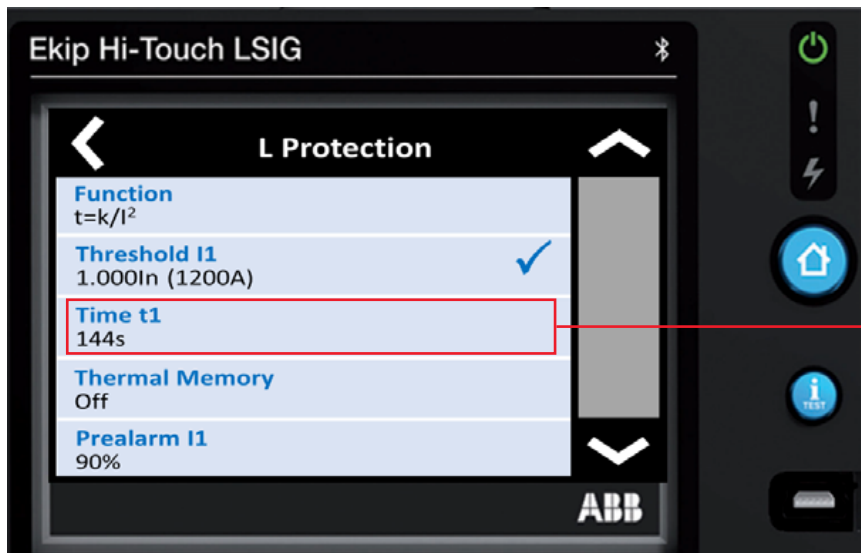
The setting range is from 0.4 to 1.0 of the breaker's nominal rating (rating plug value)

Press the **minus icon** or the **plus icon** to change to the value in the coordination study (maintaining the press will advance the settings faster). Then press **Confirm**

NOTE: The value is given as both absolute value (in Amperes) and relative value (In) and can be set within the range: 0.4 In to 1.0In in 0.001 steps.

**ADJUSTING THE LONG TIME DELAY OR TIME T1**

Step 10. Press the **Time t1** row



Change the **Long Time Delay / Time t1** setting to the value in the coordination study.

Step 11.



The setting range is from 3 to 144 Seconds (3 to 48 seconds for XT5)

Press the **minus icon** or the **plus icon** to change to the value in the coordination study (maintaining the press will advance the settings faster). Then press **Confirm**

NOTE: The value is given in seconds and can be set within the range: 3 seconds to 144 seconds, in 1 second steps.

Step 12. Press the left arrow key



This completes the settings of the **Long Time / L Protection** Function.

**ADJUSTING THE SHORT TIME PROTECTION SETTINGS**

The default setting for Short Time Protection is **OFF** or **ENABLE = OFF**

**Factory Default Settings**

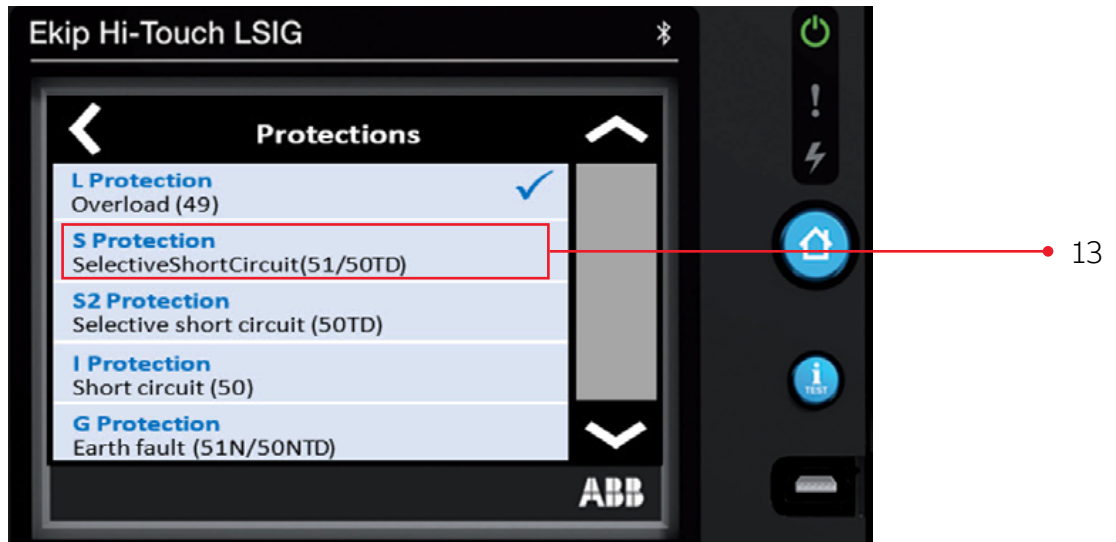
Protection Function	Frame	Enabled	Trip Enabled	Function / Curve	Threshold / Pickup	Time / Delay	Thermal Memory	Pre-alarm
Short Time Protection	XT5				$I_2 = 2 \times I_n$	$t_2 = 0.1$ seconds	-	-
S Protection Selective	XT7/XT7M	OFF	ON	$t = k$	$I_2 = 4 \times I_n$	$t_2 = 0.05$ seconds		
Short Circuit (51/50TD)	Emax 2				$I_2 = 2 \times I_n$	$t_2 = 0.1$ seconds		

**Range Adjustability**

Protection Function	Frame	Threshold / Pickup Range	Time / Delay Range
Short Time Protection	XT5		
S Protection Selective Short Circuit (51/50TD)	XT7/XT7M	$0.6 \times I_n$ to $10 \times I_n$ ; in $0.1 I_n$ steps	$0.05 - 0.8s$ in $0.01s$ steps <sup>1</sup>
	Emax 2		

<sup>1</sup>UL version:  $t_2 \text{ Max} = 0.4s$

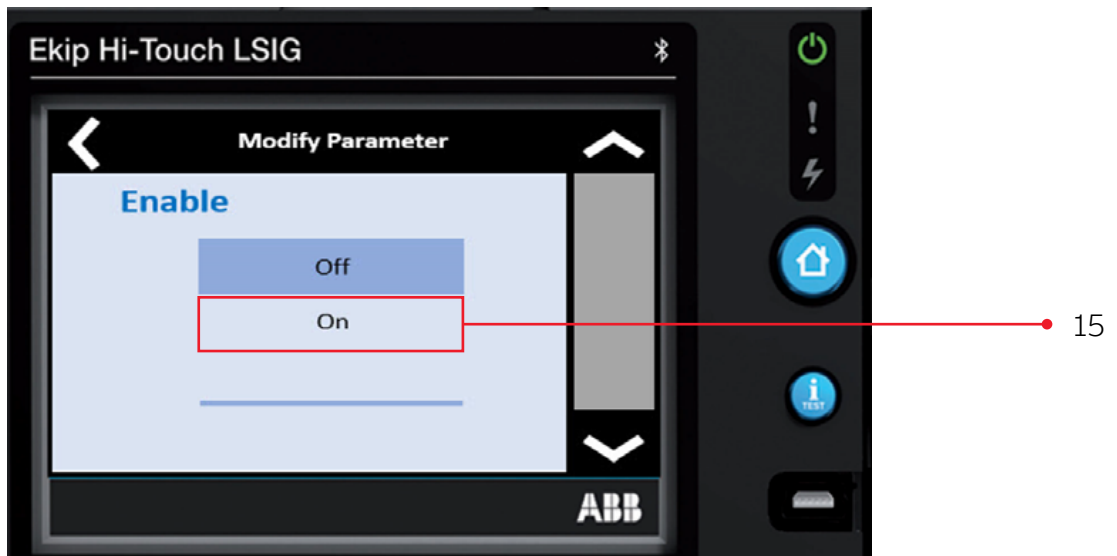
Step 13. Press **S Protection SelectiveShortCircuit(51/50TD)** row



Step 14. Press **Enable** off row



Step 15. Press **Enable On**

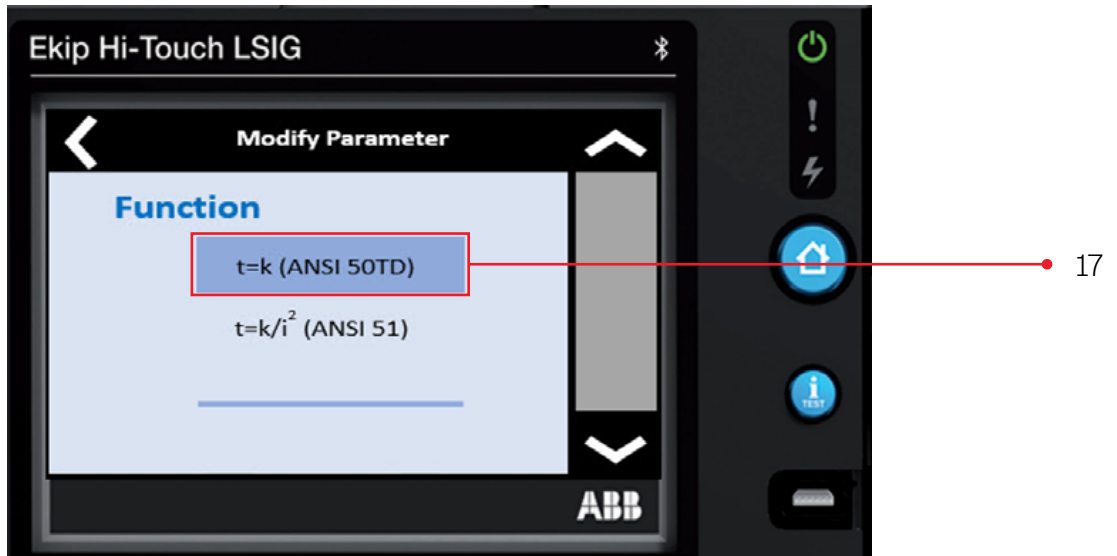


#### ADJUSTING THE SHORT TIME CURVE TYPE OR FUNCTION

Step 16. Press the **Function t=k (ANSI 50TD)** row



Step 17. Press the **Function** per the coordination study

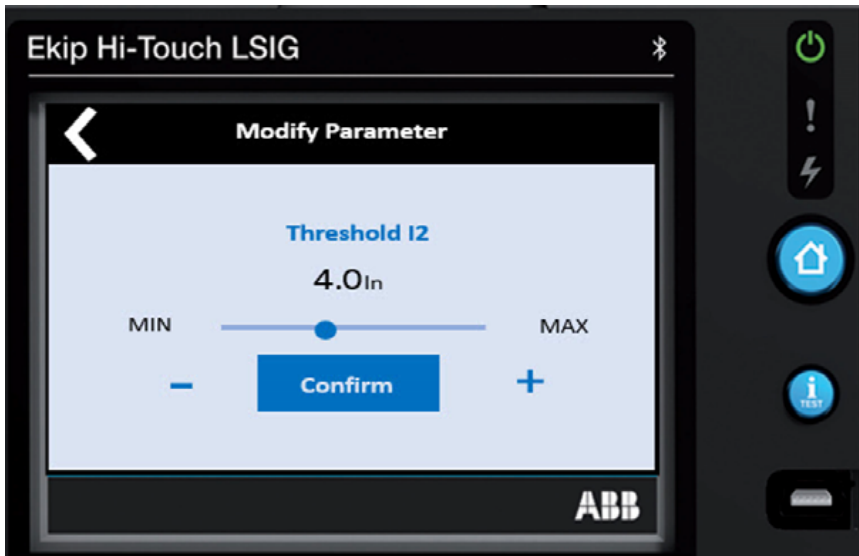


#### ADJUSTING THE SHORT TIME PICK UP OR THRESHOLD I2

Step 18. Press the **Threshold I2 4.0In** row



Step 19. Change the **Short Time Pickup / Threshold I2** setting to the value in the coordination study.

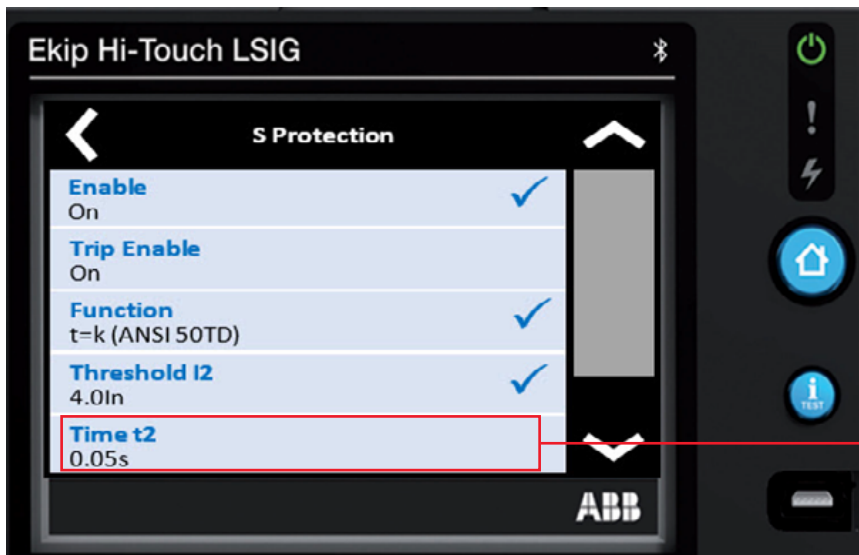


The setting range is from 0.6 to 10.0 of the breaker’s nominal rating (rating plug value)  
 Press the **minus icon** or the **plus icon** to change to the value in the coordination study (maintaining the press will advance the settings faster). Then press **Confirm**

NOTE: The value is given as both absolute value (Amperes) and in relative value (In) and can be set within the range: 0.6 In to 10 In, in steps of 0.1 In

**ADJUSTING THE SHORT TIME DELAY OR TIME T2**

Step 20. Press the **Time t2 0.05s** row



20

Step 21. Change the **Short Time Delay / Time t2** setting to the value in the coordination study.



The setting range is from 0.05 to 0.8 Seconds (UL versions: t2 Max = 0.4s)

Press the **minus icon** or the **plus icon** to change to **the value in the coordination study** (maintaining the press will advance the settings faster). Then press **Confirm**

NOTE: The value is given in seconds and can be set within the range: 0.05 seconds to 0.8 seconds, in 0.01 second steps.

Step 22. Press the **left** arrow key



This completes the settings of the **Short Time / S Protection** Function.



**ADJUSTING THE INSTANTANEOUS PROTECTION SETTINGS**

**Factory Default Settings**

Protection Function	Frame	Enabled	Trip Enabled	Function / Curve	Threshold / Pickup	Time / Delay	Thermal Memory	Pre-alarm
Instantaneous Protection I Protection Short Circuit (50)	XT5	ON	-	-	I3 = 4 x In	-	-	-
	XT7/XT7M							
	Emax 2							

**Range Adjustability**

Protection Function	Frame	Threshold / Pickup Range	Time / Delay Range
Instantaneous Protection I Protection Short Circuit (50)	XT5	1.5 x In to 15 x In; in 0.1 In steps <sup>2</sup>	-
	XT7/XT7M		
	Emax 2		

<sup>2</sup>I3 threshold must be higher than I2 (if S Enabled = ON)

Step 23. Press **I Protection Short circuit (50)** row

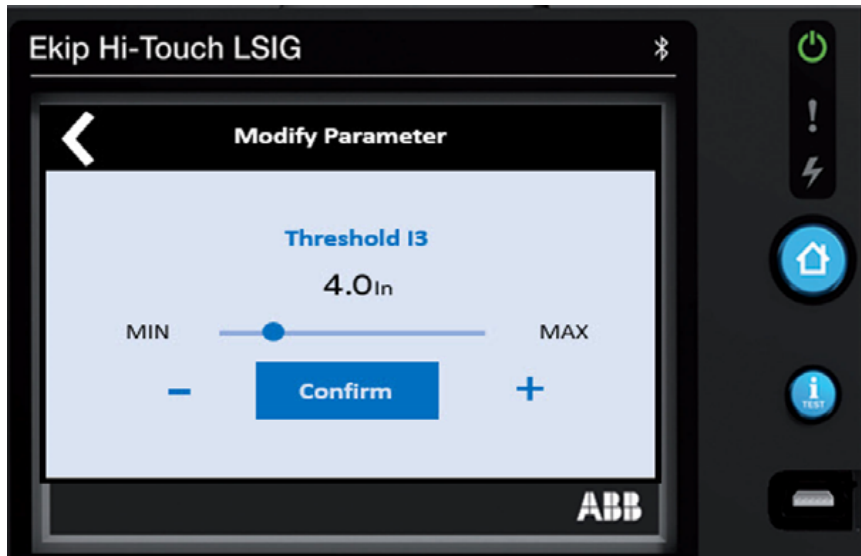


**ADJUSTING THE INSTANTANEOUS PICK UP OR THRESHOLD I3**

Step 24. Press the **Threshold I3 4.0** in row



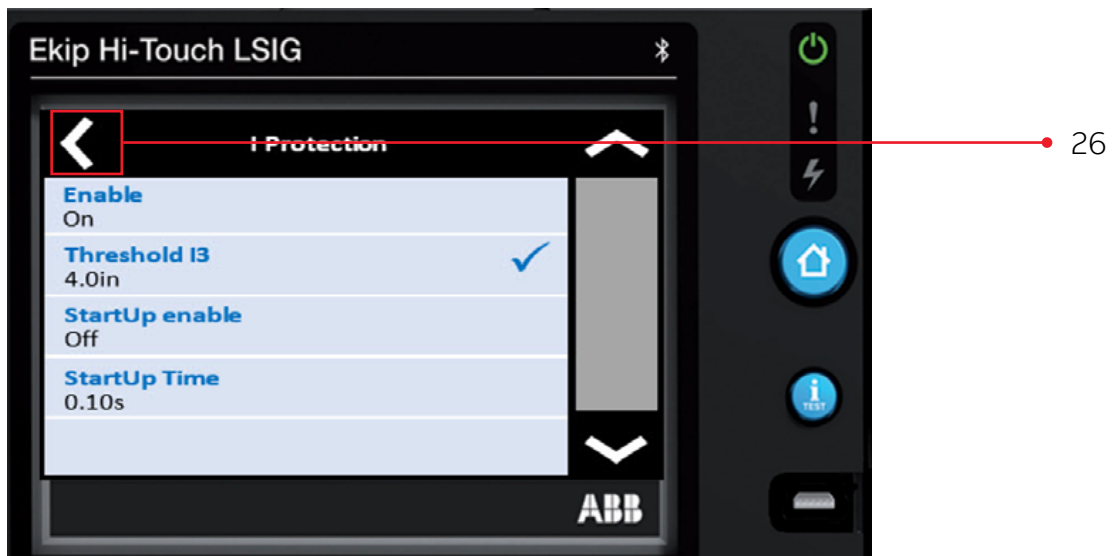
Step 25. Change the **Instantaneous Pickup / Threshold I3** setting to the value in the coordination study.



The setting range is from 1.5 to 15.0 of the breaker's nominal rating (rating plug value)  
 Press the **minus icon** or the **plus icon** to change to the value in the coordination study (maintaining the press will advance the settings faster). Then press **Confirm**

NOTE: The value is given as both absolute value (Amperes) and relative value (In) and can be set within the range : 1.5 In to 15.0 In, in 0.1 In steps.

Step 26. Press the left arrow key



This completes the settings of the **Instantaneous / I Protection** Function.

**ADJUSTING THE GROUND FAULT PROTECTION SETTINGS**

The default setting for Ground Fault Protection is **OFF** or **ENABLE = OFF**

**Factory Default Settings**

Protection Function	Frame	Enabled	Trip Enabled	Function / Curve	Threshold / Pickup	Time / Delay	Thermal Memory	Pre-alarm
Ground Fault Protection	XT5					t4 = 0.1 seconds		
G Protection Earth Fault (51N/50NTD)	XT7/XT7M Emax 2	OFF	ON	t = k	I4 = 0.2 x In	t4 = 0.4 seconds t4 = 0.1 seconds	-	90% I4

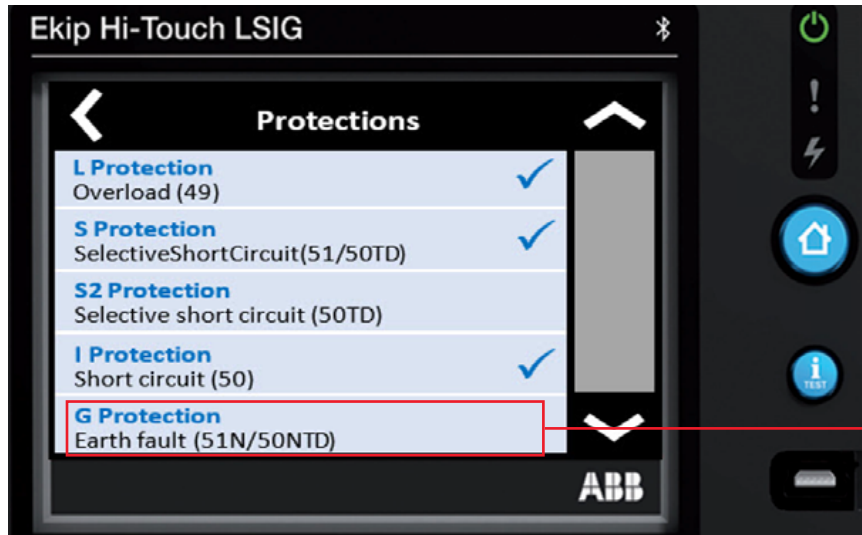
**Range Adjustability**

Protection Function	Frame	Threshold / Pickup Range	Time / Delay Range
Ground Fault Protection	XT5	0.1 x In to 1 x In; in 0.001 In steps	
G Protection Earth Fault (51N/50NTD)	XT7/XT7M Emax 2	0.1 x In to 1 x In; in 0.001 In steps <sup>3</sup>	0.1 - 1.0s in 0.05s steps <sup>4</sup>

<sup>3</sup>UL version: I4 Max = 1200A

<sup>4</sup>UL version: t4 max = 0.4s

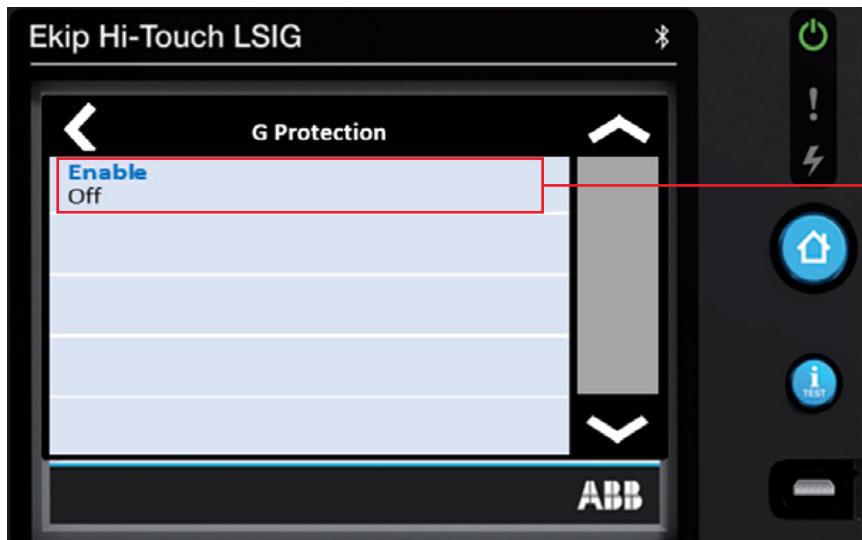
Step 27. Press the **G Protection Earth fault (51N/50NTD)** row



NOTE: For breakers using external neutral CT for ground fault protection change the breaker configuration from 3P to 3P + N. Go to Settings>Circuit Breaker>Configuration>Enter password 00001>3P + N>Home Button>Confirm

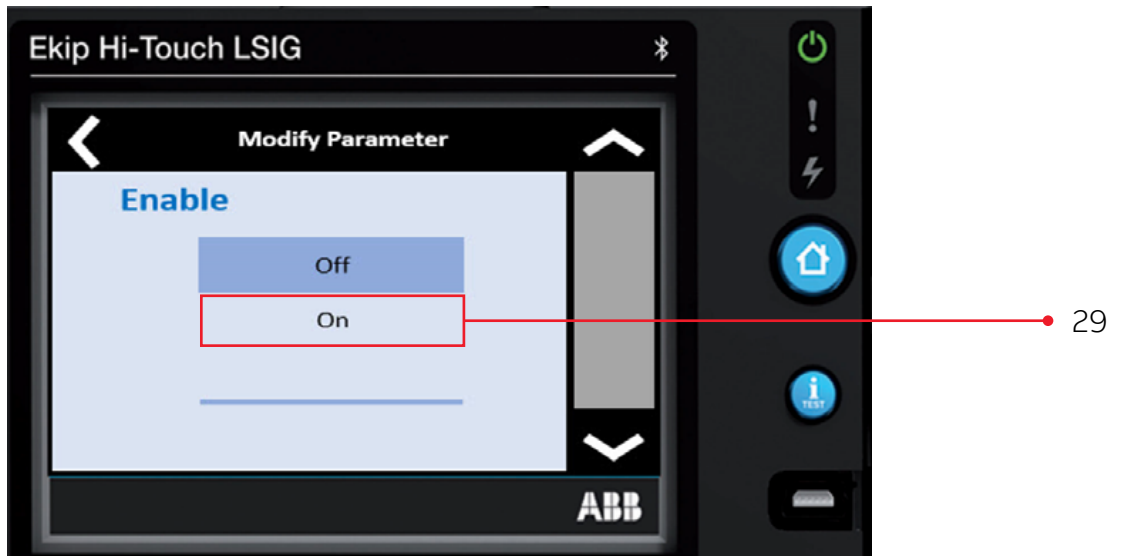
27

Step 28. Press the **Enable** off row



28

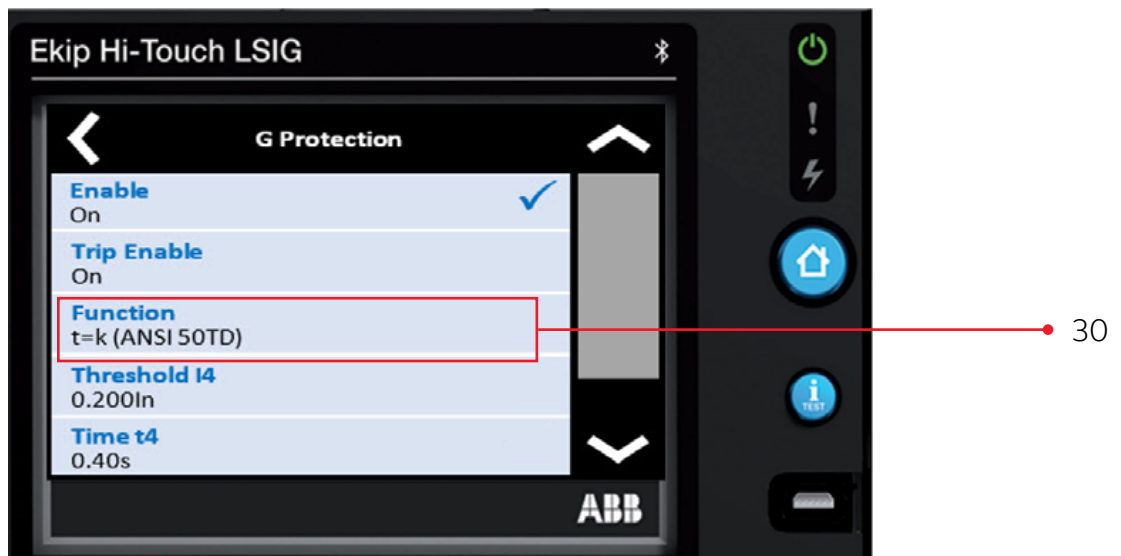
Step 29. Press **Enable On**



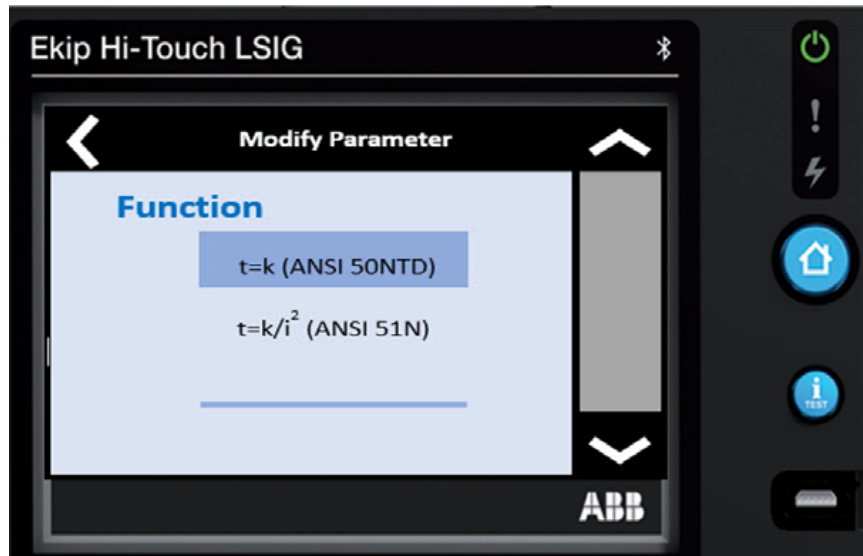
The Ground Fault - **G Protection** Function is now Enabled

**ADJUSTING THE GROUND FAULT CURVE OR FUNCTION**

Step 30. Press the **Function t=k (ANSI 50TD)** row



Step 31. Press the **Function** per the coordination study



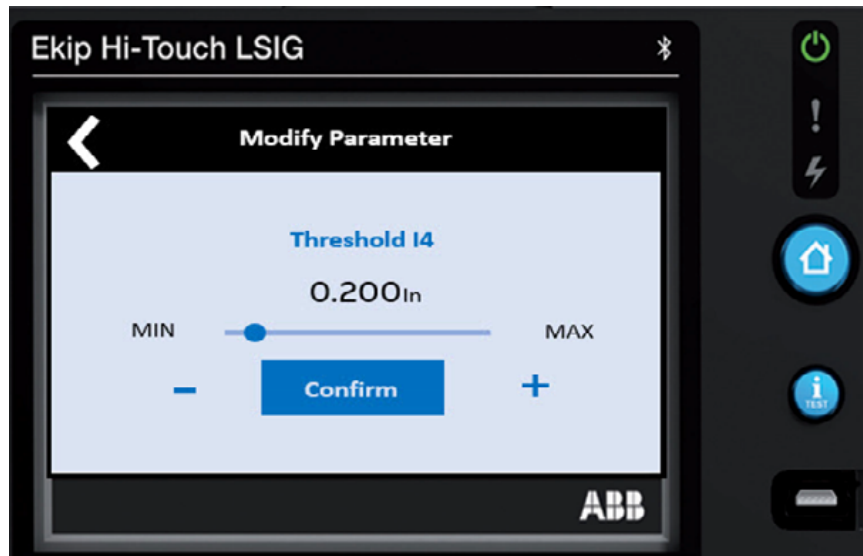
#### ADJUSTING THE GROUND FAULT PICK UP OR THRESHOLD I4

Step 32. Press the **Threshold I4 0.200In** row



32

Step 33. Change the **Ground Fault Pickup / Threshold I4** setting to the value in the coordination study.



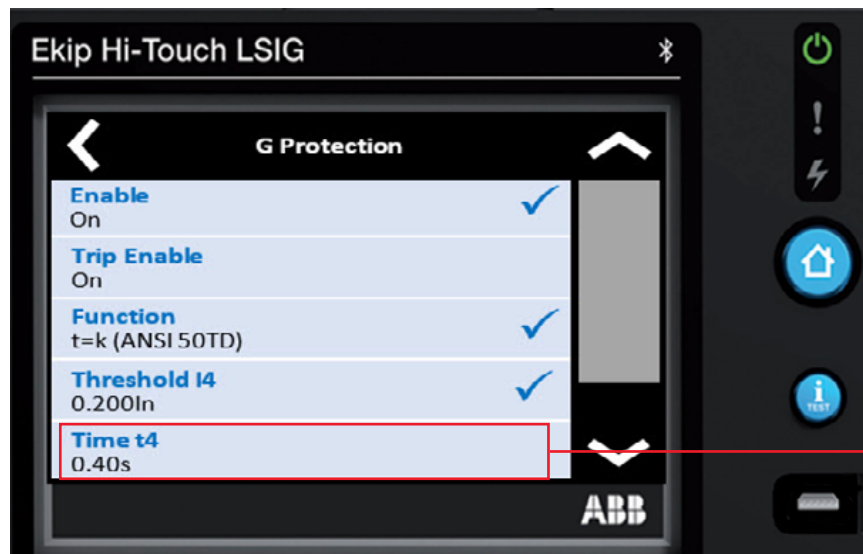
The setting range is from 0.1 to 1.0 of the breaker's nominal rating (rating plug value) (UL Version: I4 Max = 1200A)

Press the **minus icon** or the **plus icon** to change to the value in the coordination study (maintaining the press will advance the settings faster). Then press **Confirm**

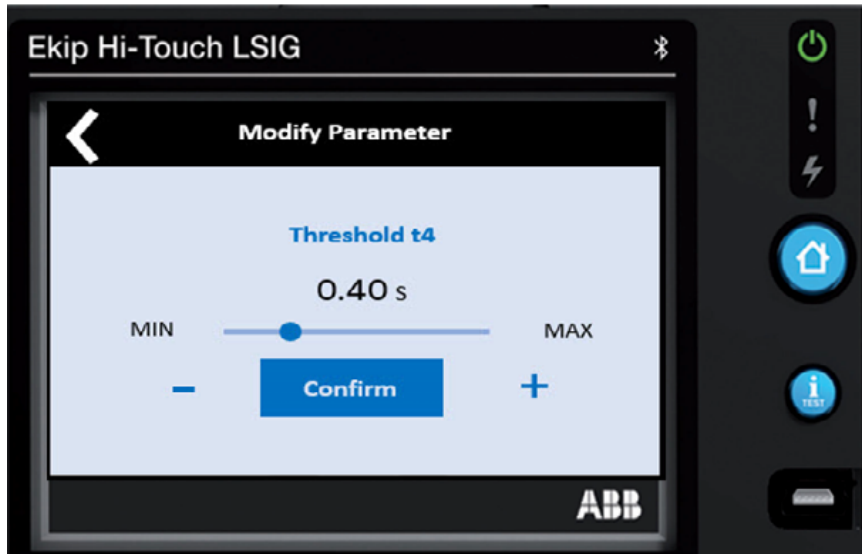
NOTE: The value is given as both absolute value (Amperes) and in relative value (In) and can be set within the range: 0.1 In to 1.0 In, in steps of 0.001 In

#### ADJUSTING THE GROUND FAULT DELAY OR TIME T4

Step 34. Press the **Time t4 0.40s** row



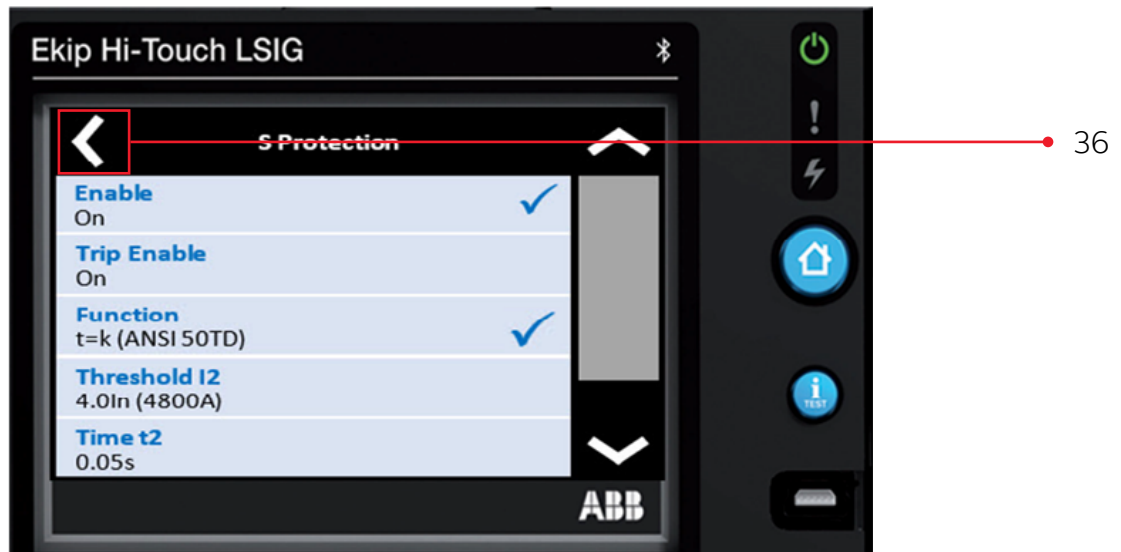
Step 35. Change the **Ground Fault Time Delay / Time t4** setting to the value in the coordination study.



The setting range is from Instantaneous to 0.10 to 1.00 Seconds  
 Press the **minus icon** or the **plus icon** to change to **the value in the coordination study** (maintaining the press will advance the settings faster). Then press **Confirm**

NOTE: The value is given in seconds and can be set within the range: 0.10 seconds to 1.00 seconds, in 0.05 second steps.

Step 36. Press the left arrow key

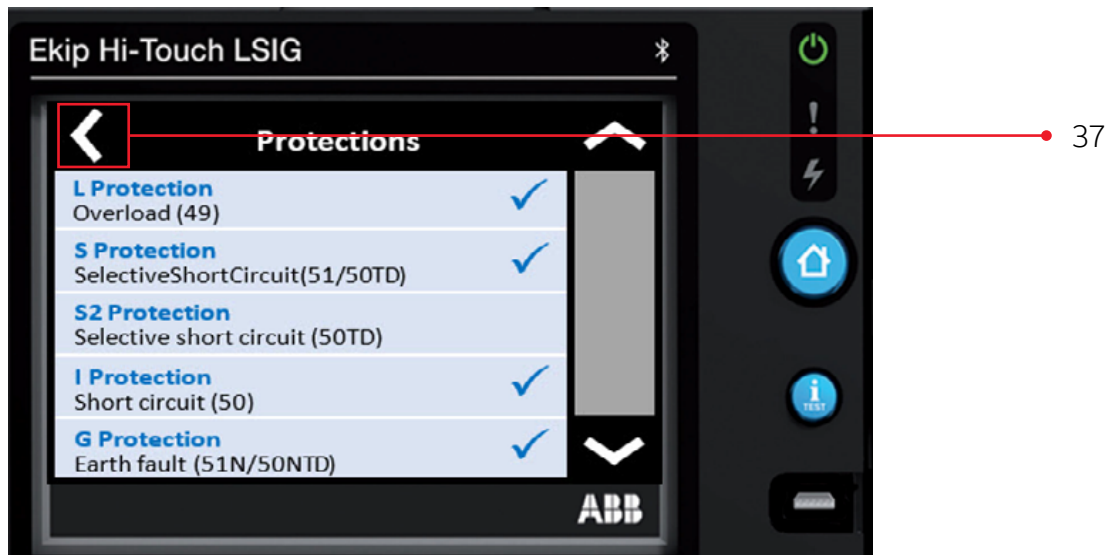


This completes the settings of the **Ground Fault / G Protection** Function.

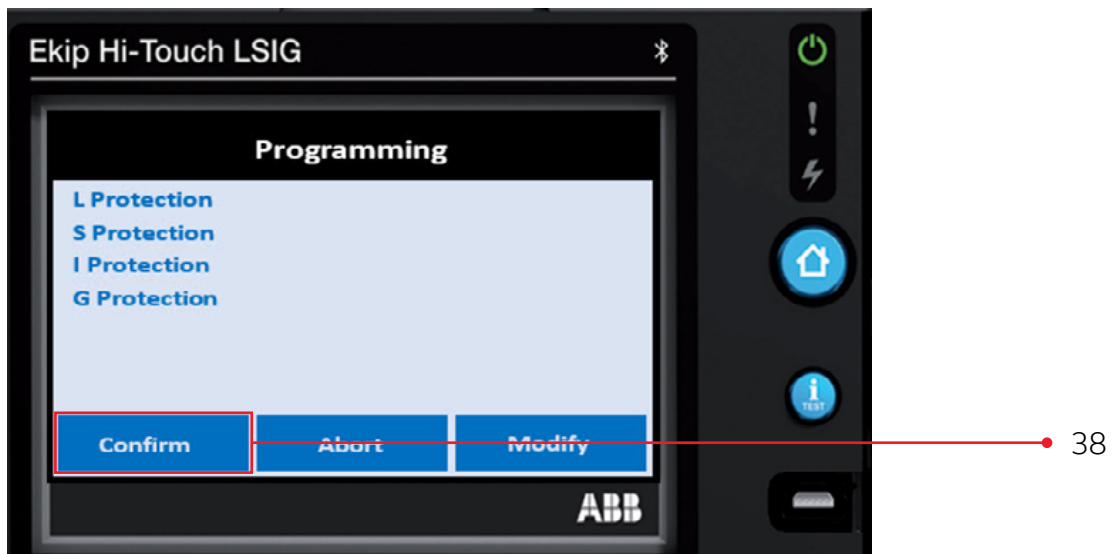
**APPLYING/CONFIRMING ADJUSTMENTS TO PROTECTION SETTINGS**

At the conclusion of inputting all the settings, these new settings **MUST** be confirmed to be saved.

Step 37. Press the left arrow key



Step 38. Then press **Confirm**





Step 38. Then press **Confirm**



The **LSIG Protection Parameters** are now **Updated**.

# Protection setting setup

## XT2 and XT4

An EKIP TT (Battery Pack) or Ekip T&P (Test & Programming) is required for COLD (unpowered equipment) set up.

Sold separately:

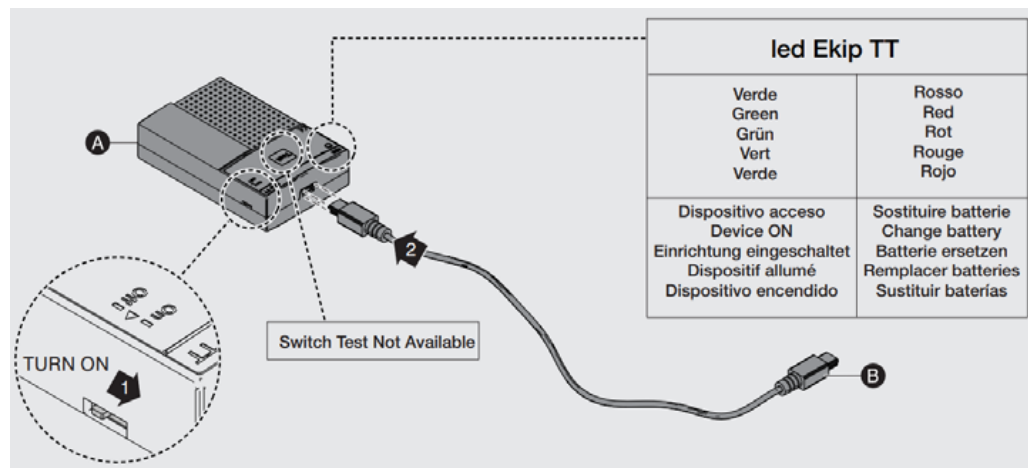
Ekip TT: ZEAEKPTT (1SDA066988R1)

Ekip T&P\*: ZEAEKPTP (1SDA066989R1)

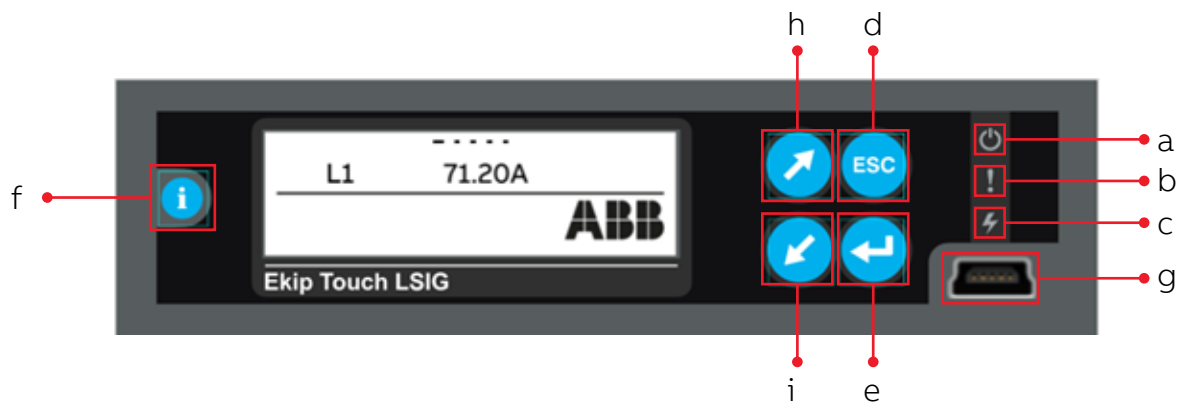
Ekip Programming\*: ZEAEKPPGM (1SDA076154R1)

\*Powered via USB port on laptop/computer

Ekip TT



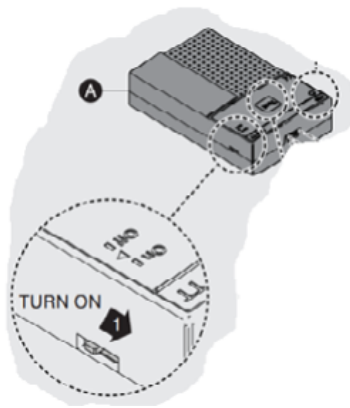
Step 1. Insert the **Ekip TT Plug End (B)** into Ekip Touch Trip Unit Service Connector (7)



- a. Power LED
- b. Warning LED
- c. Alarm LED
- d. Home/Back/Escape push-button
- e. Enter push-button

- f. iTest push-button
- g. Service Connector
- h. Right/Up push-button
- i. Left/Down push-button

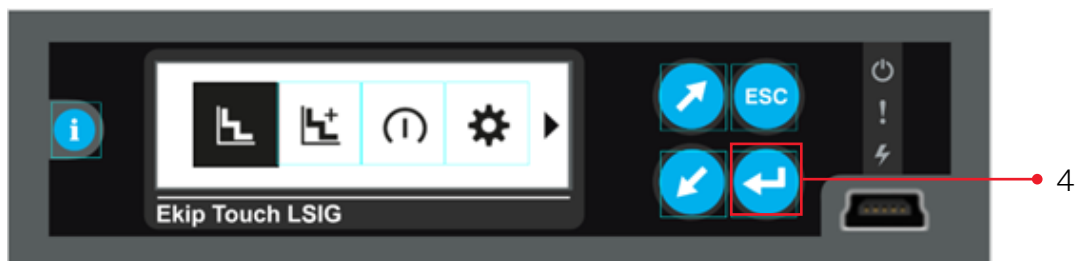
Step 2. Turn on the Ekip TT using the switch on the side of the unit.



Step 3. Press **ESC** button (3a) or Enter Button (3b)



Step 4. Press **Enter** Button (4) on the Protection Icon



## ADJUSTING THE LONG TIME PROTECTION SETTINGS

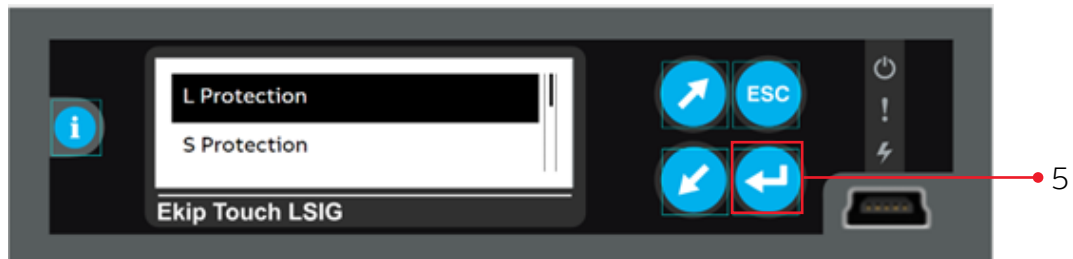
### Factory Default Settings

Protection Function	Frame	Enabled	Trip Enabled	Function / Curve	Threshold / Pickup	Time / Delay	Thermal Memory	Pre-alarm
Long Time Protection L Protection Overload (49)	XT2 & XT4	ON	-	$t = k/I^2$	$I1 = 1 \times I_n$	$t1 = 12$ seconds	OFF	90% $I1$

### Range Adjustability

Protection Function	Frame	Threshold / Pickup Range	Time / Delay Range
Long Time Protection L Protection Overload (49)	XT2 & XT4	$0.4 \times I_n$ to $1 \times I_n$ ; in 0.001 $I_n$ steps	3 - 60 s in 1s steps

Step 5. Press the **Enter** button (5) on **L Protection** row



Step 6. Press **Down** button (6a) to Threshold I1 and then **Enter** button (6b)



Step 7. This display is presented (In order to change settings, a password is required)



Default password: 00001. Zero appears in the first PIN box.

Press **Enter** button (7a) to accept zero

Repeat for the next three PIN boxes

On the 5th PIN box change from zero to one (press the **Up** button (7b)), then press **Enter** button (7a)

This will allow Protection Settings to be changed per the coordination study

Note: Once the PIN code has been entered, all displays can be browsed for two minutes: once two minutes has elapsed, the PIN code must be entered again (depending on the case in question).

**ADJUSTING THE LONG TIME PICK UP OR THRESHOLD I1**

Step 8. Change the **Long Time Pickup / Threshold I1** setting to the value in the coordination study Pressing **Up** or **Down** buttons (8a).



The setting range is from 0.4 to 1.0 of the breaker's nominal rating (rating plug/sensor value)

Press **Up** or **Down** buttons (8a) to change to the value in the coordination study. Then Press **Enter button** (8b) and this screen will be displayed.

Holding the **Up** or **Down** (8a) buttons will advance the settings faster.



NOTE: The value is given as both absolute value (in Amperes) and relative value (In) and can be set within the range: 0.4 In to 1.0In in 0.001 steps

**ADJUSTING THE LONG TIME DELAY OR TIME T1**

Step 9. Press **Down** button (9a) to select **Time T1** setting then press **Enter** button (9b)



Step 10. Change the Long Time Delay / Time T1 to the value in the coordination study using the **Up** or **Down** buttons (10a).



The setting range is from 3 to 144 Seconds

Press the **Up** or **Down** buttons (10a) to change to the value in the coordination study. Then press **Enter** button (10b) and this screen will be displayed.

Holding the **Up** or **Down** (10a) buttons will advance the settings faster.



NOTE: The value is given in seconds and can be set within the range: 3 seconds to 144 seconds, in 1 second steps.

Step 11. Press **ESC** button (11).



This completes the setting of the Long Time / **L Protection** function.

**ADJUSTING THE SHORT TIME PROTECTION SETTINGS**

**Factory Default Settings**

Protection Function	Frame	Enabled	Trip Enabled	Function / Curve	Threshold / Pickup	Time / Delay	Thermal Memory	Pre-alarm
Short Time Protection S Protection Selective Short Circuit (51/50TD)	XT2 & XT4	OFF*	ON	t = k	I2 = 2 x In	t2 = 0.1 seconds	-	-

\*Protection must be Enabled=ON to input the settings.

**Range Adjustability**

Protection Function	Frame	Threshold /Pickup Range	Time /Delay Range
Short Time Protection S Protection Selective Short Circuit (51/50TD)	XT2 & XT4	0.6 x In to 10 x In; in 0.1 In steps	0.6 x In to 10 x In; in 0.1 In steps

Step 12. Press **Down** button (12a) to select **S Protection** and Press **Enter** button (12b)



Step 13. Press **Enter** button (13) on **Enable**



Step 14. Press **Down** button (14a) to **On** and press **Enter** button (14b)



This screen will be displayed



#### ADJUSTING THE SHORT TIME CURVE TYPE OR FUNCTION

Step 15. Press **Down** button (15a) to select **Function** and Press **Enter** button (15b).



15a 15b

Step 16. Press **Down** (16a) and/or **Enter** (16b) button to select the **Function** per the coordination study



16a 16b



**ADJUSTING THE SHORT TIME PICK UP OR THRESHOLD I2**

Step 17. Press **Down** button (17a) to select **Threshold I2** and Press **Enter** button (17b)



Step 18. Change the **Short Time Pickup / Threshold I2** setting to the value in the coordination study using the **Up** and **Down** buttons (18a) and Press the **Enter** button (18b).



The setting range is from 0.6 to 10 of the breaker's nominal rating (rating plug/sensor value)  
Press the **Up** or **Down** buttons (18a) to change to the value in the coordination study. Then press **Enter** button (18b) and this screen will be displayed.

Holding the **Up** or **Down** (18a) buttons will advance the settings faster.



**ADJUSTING THE SHORT TIME DELAY OR TIME t2**

Step 19. Press the **Down** button (19a) to select **Time t2** and then press the **Enter** button (19b)



Step 20. Change the **Short Time Delay / Time t2** setting to the value in the coordination study using the **Up** and **Down** buttons (20a) and Press the **Enter** button (20b).



The setting range is from 0.05 to 0.8 Seconds (UL Version: t4 Max = 0.4s)

Press **Up** or **Down** buttons (20a) to change to the value in the coordination study. Then press **Enter** button (20b).

Holding the **Up** or **Down** (20a) buttons will advance the settings faster.

NOTE: The value is given in seconds and can be set within the range: 0.05 seconds to 0.8 seconds, in 0.01 second steps.

Step 21. Press **ESC** button (21)



This completes the settings of the Short Time / S Protection Function.

**ADJUSTING THE INSTANTANEOUS PROTECTION SETTINGS**

**Factory Default Settings**

Protection Function	Frame	Enabled	Trip Enabled	Function / Curve	Threshold / Pickup	Time / Delay	Thermal Memory	Pre-alarm
Instantaneous Protection I Protection Short Circuit (50)	XT2 & XT4	ON	-	-	I3 = 5.5 x In	-	-	-

**Range Adjustability**

Protection Function	Frame	Threshold /Pickup Range	Time /Delay Range
Instantaneous Protection I Protection Short Circuit (50)	XT2 & XT4	1.5 x In to 15 x In; in 0.1 In steps <sup>1</sup>	-

<sup>1</sup> I3 threshold must be higher than I2 (if S Enabled = ON)

Step 22. Press **Down** button (22a) to select the **I Protection** and Press **Enter** (22b).



Step 23. Press **Down** button (23a) to select **Threshold I3** and Press **Enter** (23b).



Step 24. Change the **Instantaneous Pickup / Threshold I3** setting to the value in the coordination study using the **Up** and **Down** buttons (24a) and Press the **Enter** button (24b).



The setting range is from 1.5 to 15.0 of the breaker's nominal rating (rating plug/sensor value)  
Press **Up** or **Down** buttons (24a) to change to the value in the coordination study. Then press **Enter** (24b)

Holding the **Up** or **Down** (24a) buttons will advance the settings faster.

Step 25. Press **ESC** button (25).



This completes the settings of the Instantaneous / I Protection function.

**ADJUSTING THE GROUND FAULT PROTECTION SETTINGS**

**Factory Default Settings**

Protection Function	Frame	Enabled	Trip Enabled	Function / Curve	Threshold / Pickup	Time / Delay	Thermal Memory	Pre-alarm
Ground Fault Protection G Protection Earth Fault (51N/50NTD)	XT2 & XT4	OFF*	ON	t = k	I4 = 0.2 x In	t4 = 0.1 seconds	-	90% I4

\*Protection must be Enabled=ON to input the settings.

**Range Adjustability**

Protection Function	Frame	Threshold /Pickup Range	Time /Delay Range
Ground Fault Protection G Protection Earth Fault (51N/50NTD)	XT2 & XT4	0.1 x In to 1 x In; in 0.001 In steps	0.1 - 1.0s in 0.05s steps <sup>1</sup>

<sup>1</sup> UL version: t4 max = 0.4s

NOTE: For breakers using external neutral CT for Ground Fault Protection change the breaker configuration from 3P to 3P + N. Go to Settings>Circuit Breaker>Configuration>Enter password 00001>3P + N>Enter button>Confirm

Step 26. Press **Down** button (26a) to select **G Protection** and Press **Enter** button (26b).



Step 27. Press Enter button (27) to Enable G Protection.



Step 28. Press **Down** button (28a) to select **Enable=ON** and Press **Enter** button (28b).



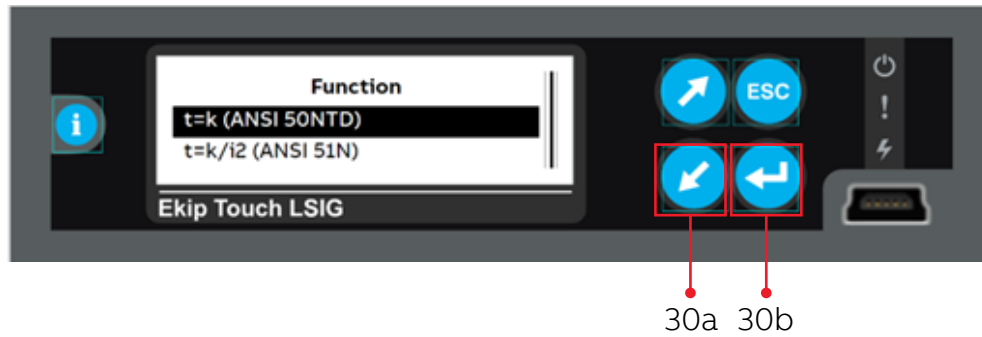
The Ground Fault – G Protection Function is now Enabled

**ADJUSTING THE GROUND FAULT CURVE OR FUNCTION**

Step 29. Press **Down** button (29a) to select **Function** and Press **Enter** button (29b)



Step 30. Press **Down** (30a) and/or **Enter** (30b) to selection Function/Curve per coordination study.

**ADJUSTING THE GROUND FAULT PICKUP OR THRESHOLD I4**

Step 31. Press **Down** button (31a) to select **Threshold I4** and Press **Enter** button (31b).



Step 32. Change the **Ground Fault Pickup / Threshold I4** setting to the value in the coordination study using the **Up** and **Down** buttons (32a) and Press the **Enter** button (32b).

Holding the **Up** or **Down** (32a) buttons will advance the settings faster.



The setting range is from 0.1 to 1.0 of the breaker’s nominal rating (rating plug/sensor value) Press the **Up** or **Down** buttons (32a) to change to the value in the coordination study (maintaining the press will advance the settings faster). Then press **Enter** button (32b).

NOTE: The value is given as both absolute value (Amperes) and in relative value (In) and can be set within the range: 0.1 In to 1.0 In, in steps of 0.001 In

**ADJUSTING THE GROUND FAULT DELAY OR TIME T4**

Step 33. Press **Down** button (33a) to select Time t4 and Press **Enter** button (33b).



Step 34. Change the **Ground Fault Time Delay / Time t4** setting to the value in the coordination study using the **Up** or **Down** buttons (34a) and Press **Enter** button (34b).



The setting range is from 0.10 to 1.00 seconds. Press the **Up** or **Down** buttons (34a) to change to the value in the coordination study. Then press **Enter** button (34b).

Holding the **Up** or **Down** (34a) buttons will advance the settings faster.



This completes the settings of the Ground Fault / G Protection Function.

#### APPLYING/CONFIRMING THE ADJUSTMENTS TO PROTECTIONS SETTINGS

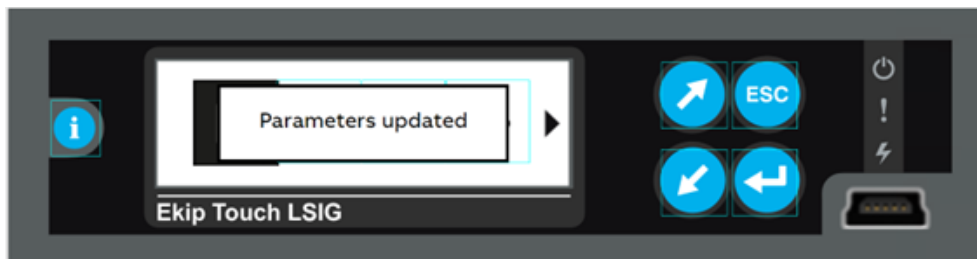
At the conclusion of inputting all the settings, these new settings **MUST** be confirmed to saved.

NOTE: This process applies to changing one or more settings/parameters within the trip unit and can be completed at any point in the above process.

Step 35. Press **ESC** button (35a) until the following **Programming Screen** appears then Press **Enter** button (35b) to **Confirm**.



The **LSIG Protection** Parameters are now **Updated**.

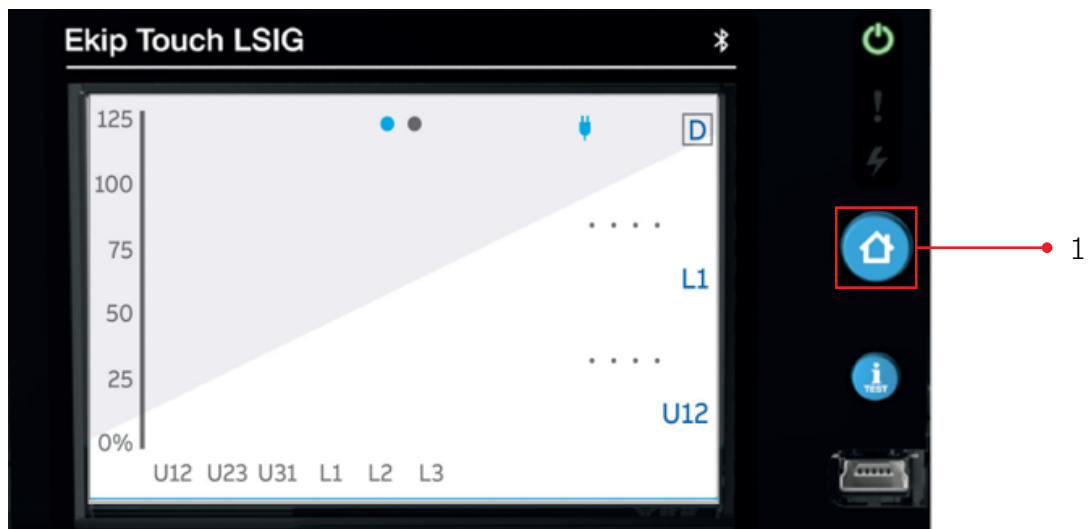




# Arc flash mitigation / RELT / 2I Protection setup

Adjust formatting to match smaller text and adjust to: "The default setting for Arc flash mitigation / RELT / 2I Protection is OFF or ENABLED = OFF"

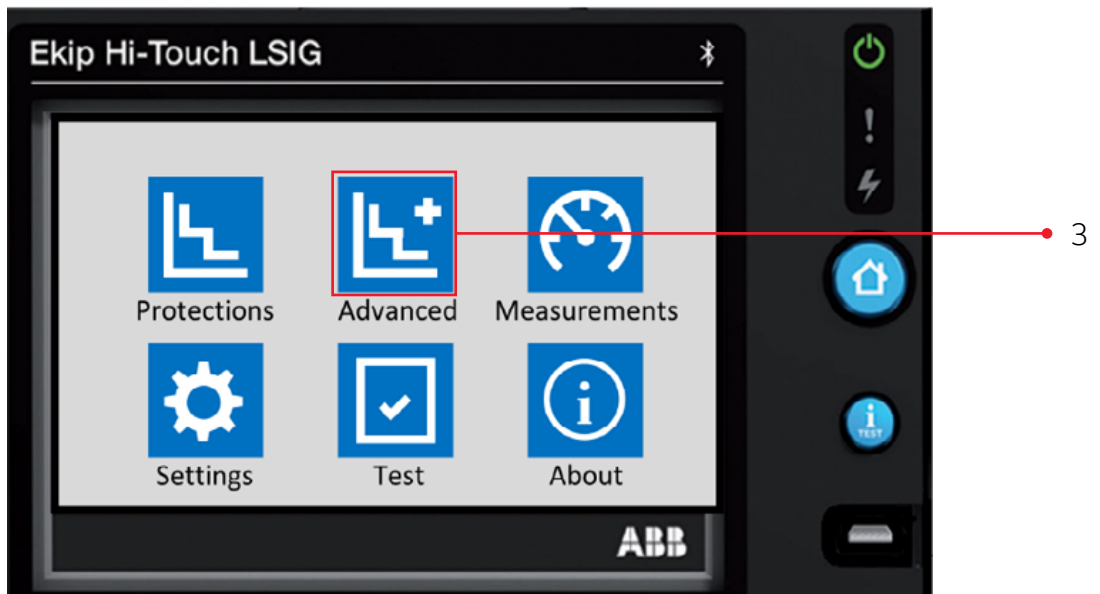
Step 1. Press the HOME button



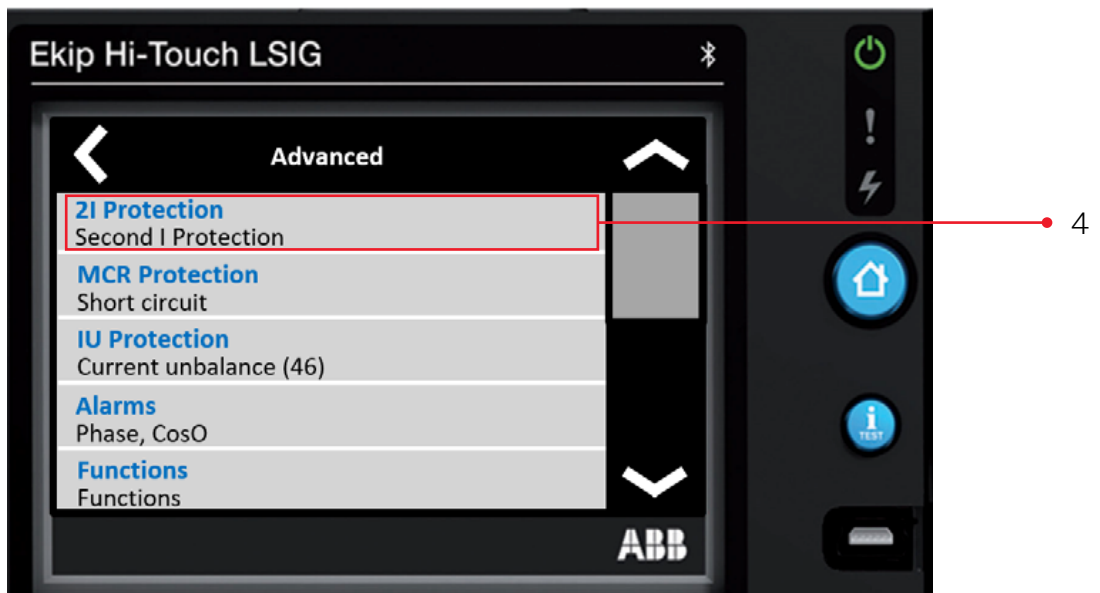
Step 2. Press Settings



Step 3. Press the upper center icon- **Advanced** Icon



Step 4. Press the **2I Protection Second I Protection** row



Step 5. Press the **Enable** off row



Step 6. Press **Enable** On

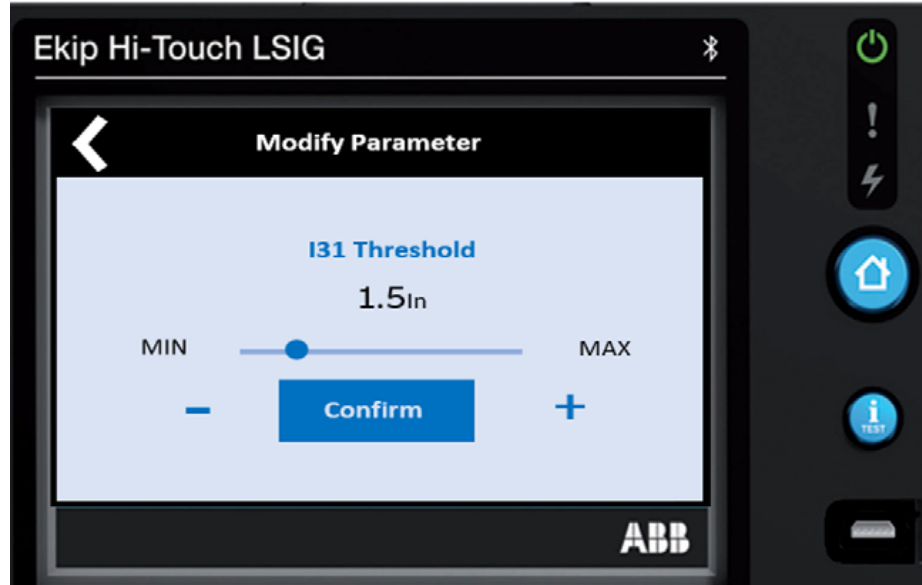


### ADJUSTING THE SECOND INSTANTANEOUS PICK UP OR I31

Step 7. Press the **I31 Threshold 1.5 In** row



Step 8. Change the **Arc Flash Mitigation / RELT / I31 Threshold** setting to the value in the coordination study.



The setting range is from 1.5 to 15.0 of the breaker's nominal rating (rating plug value). Press the **minus icon** or the **plus icon** to change to **the value in the coordination study** (maintaining the press will advance the settings faster). Then press **Confirm**.

NOTE: The value is given as both absolute value (Amperes) and relative value (In) and can be set within the range : 1.5 In to 15.0 In, in 0.1 In steps.

Step 9. Press the left arrow key

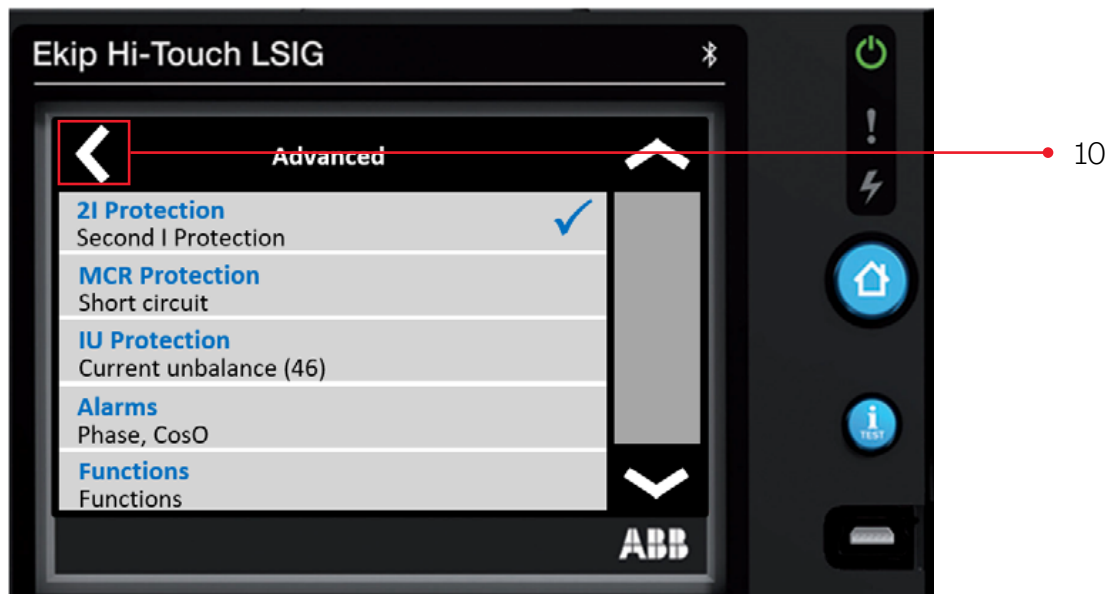


This completes the settings of the **Arc Flash Mitigation / RELT / 2I Protection** Function.

**APPLYING/CONFIRMING THE ARC FLASH MITIGATION / RELT / 2I PROTECTION SETTINGS**

At the conclusion of inputting all the settings, these new settings must be confirmed to be saved.

Step 10. Press the left arrow key



Step 11. Then press **Confirm**

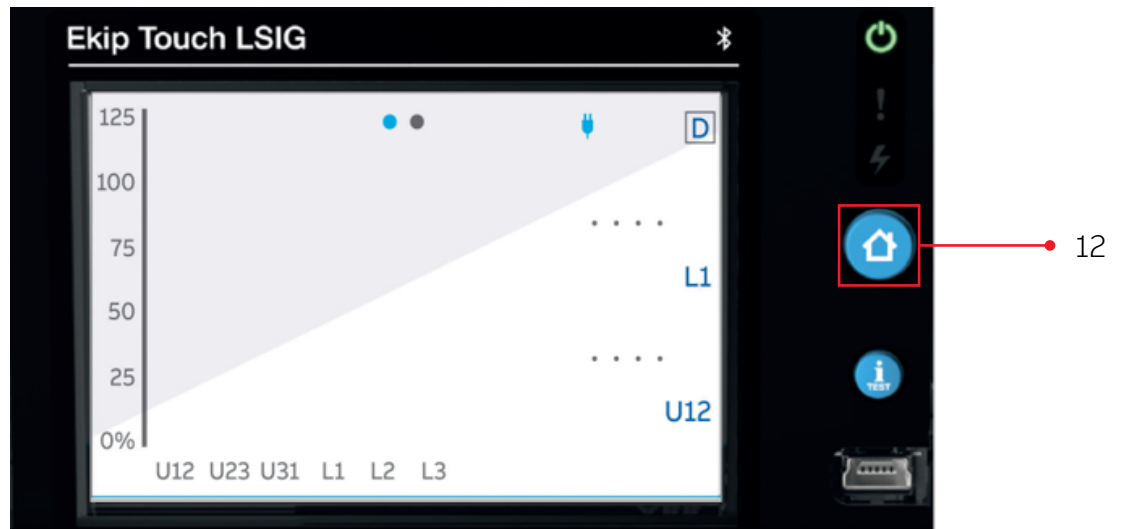


This display is presented



The Arc Flash / RELT / 2I Advanced Protection Parameter is now Updated.

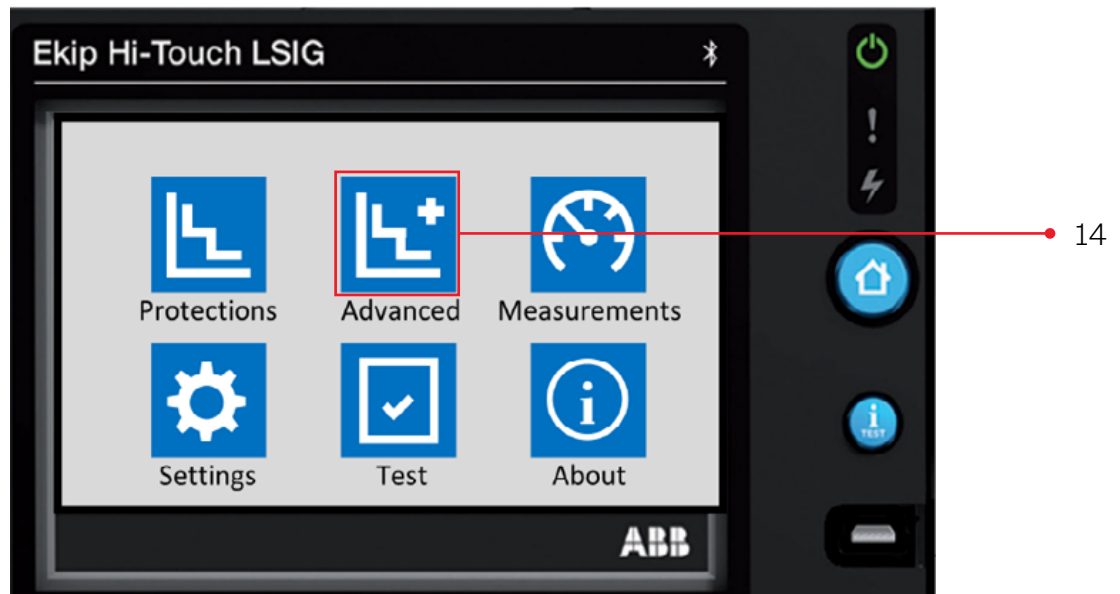
Step 12. To **activate** the Arc Flash / RELT / 2I Advanced Protection once it has been enabled follow the below.



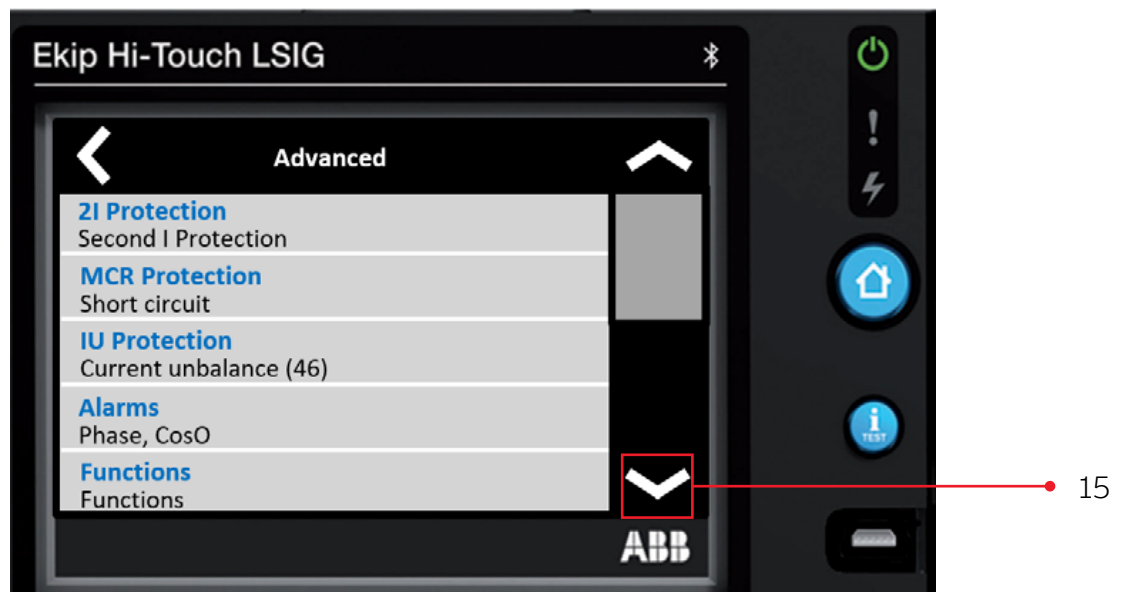
Step 13. Press Settings



Step 14. Press the upper center icon- **Advanced** Icon

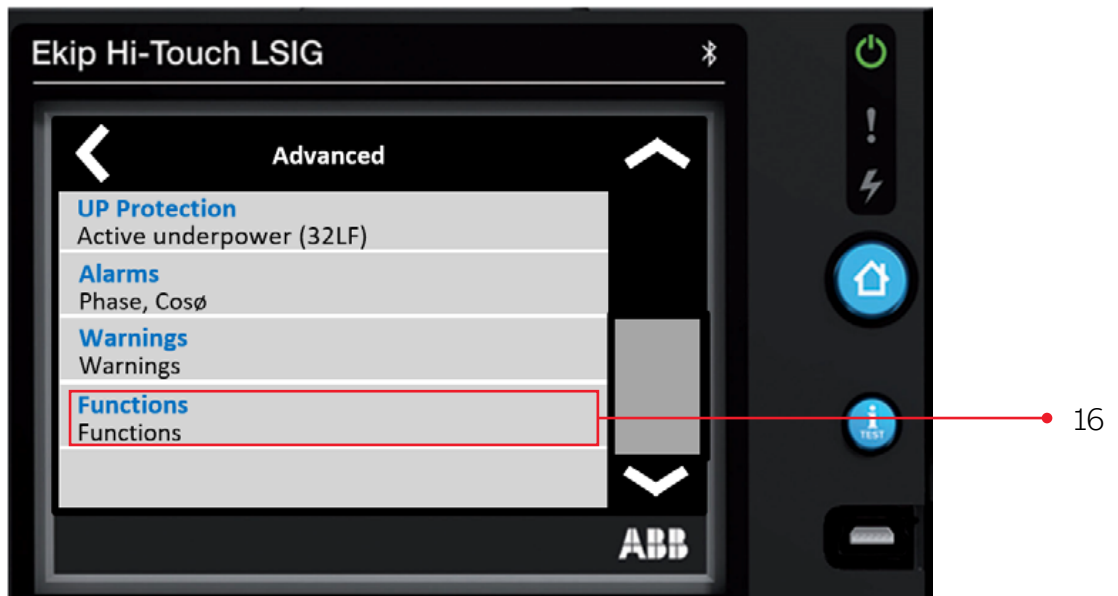


Step 15. Press the down arrow key until you reach the last page.

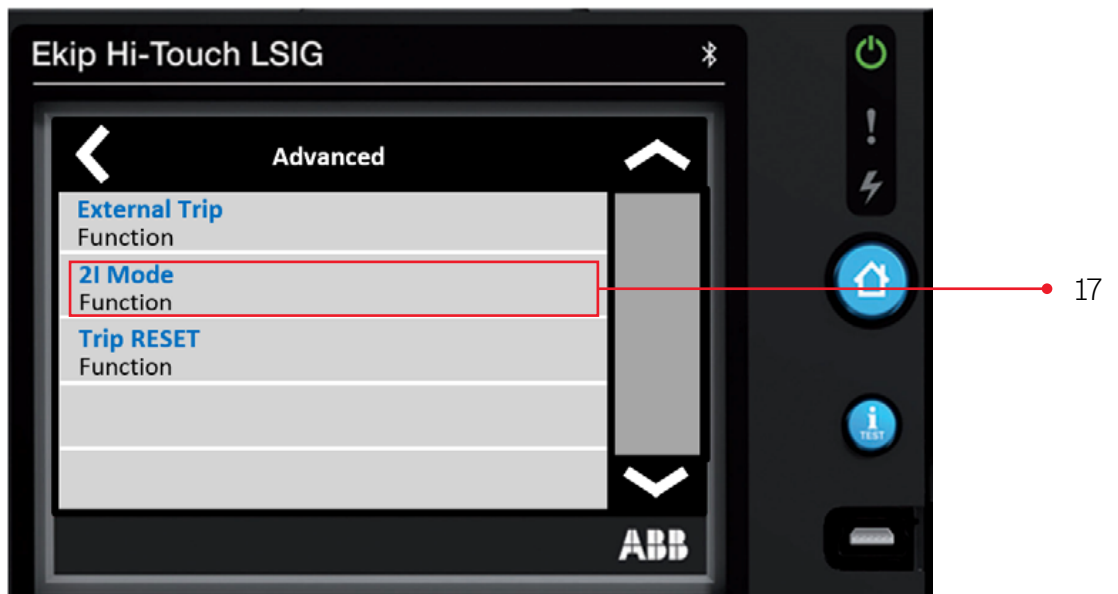




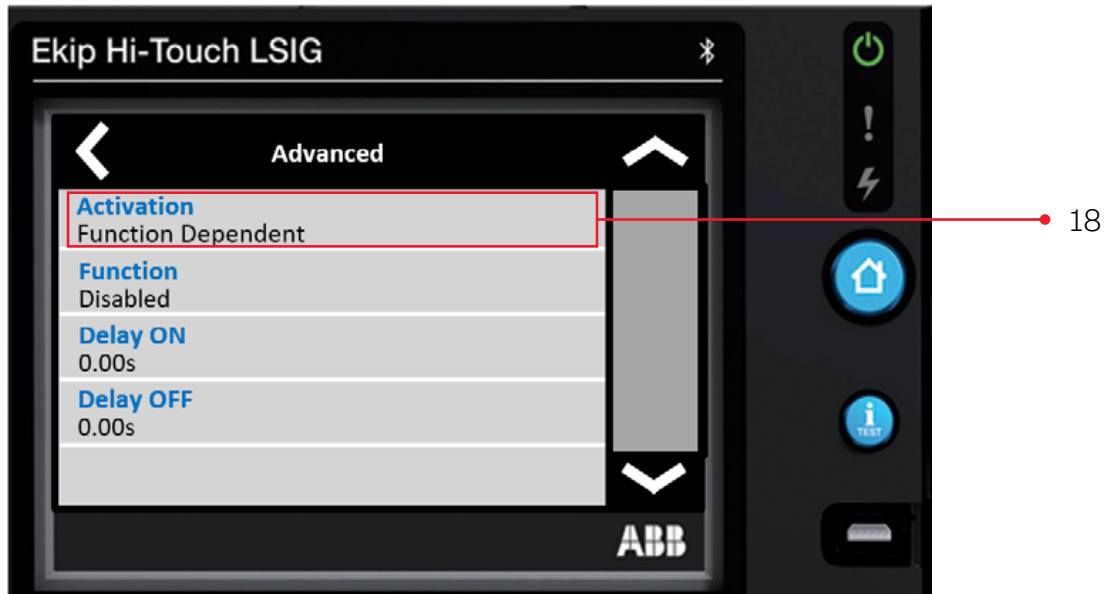
Step 16. Select Functions



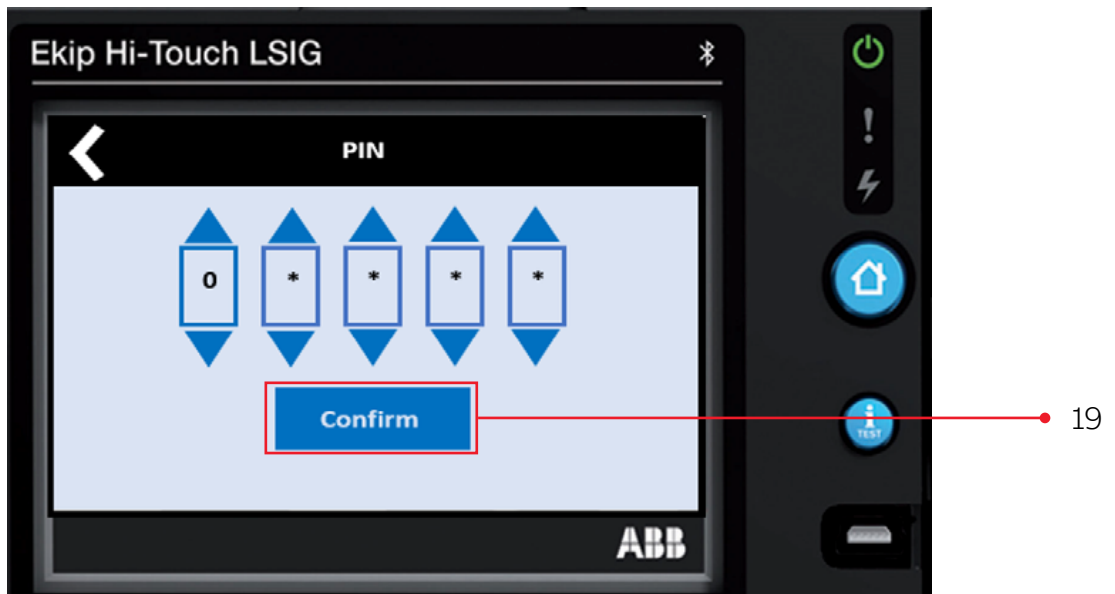
Step 17. Select 2I Mode



Step 18. Select Activation



Step 19. Enter password



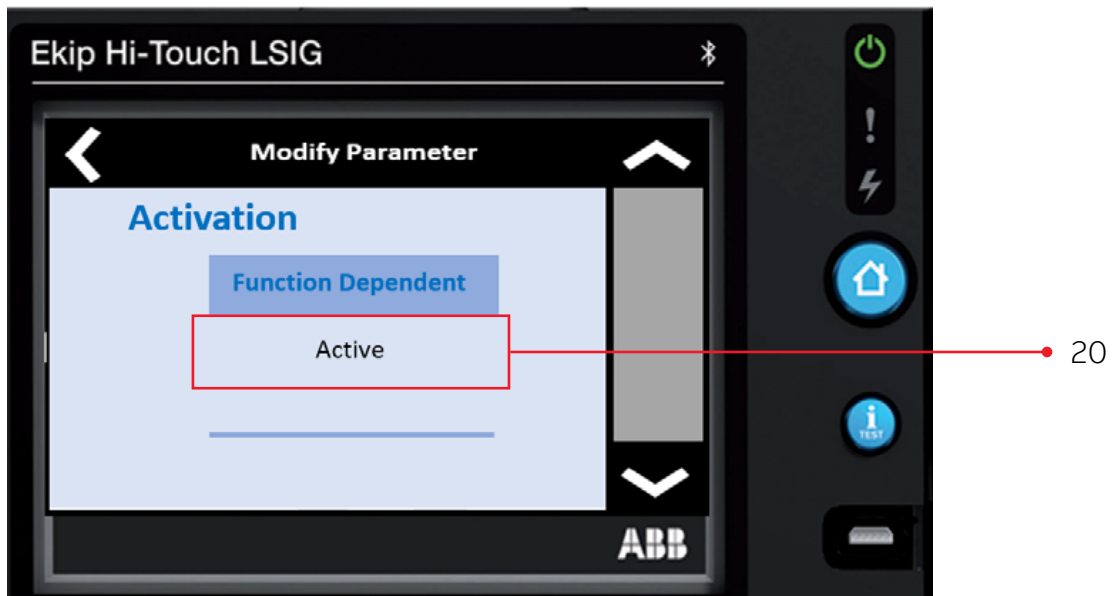
Default Password: 00001. Zero appears in the first PIN box.

Press **Confirm** to accept **zero**

Repeat for the next three PIN boxes

On the 5<sup>th</sup> PIN box change from **zero** to **one** (press the up triangle), then press **Confirm**

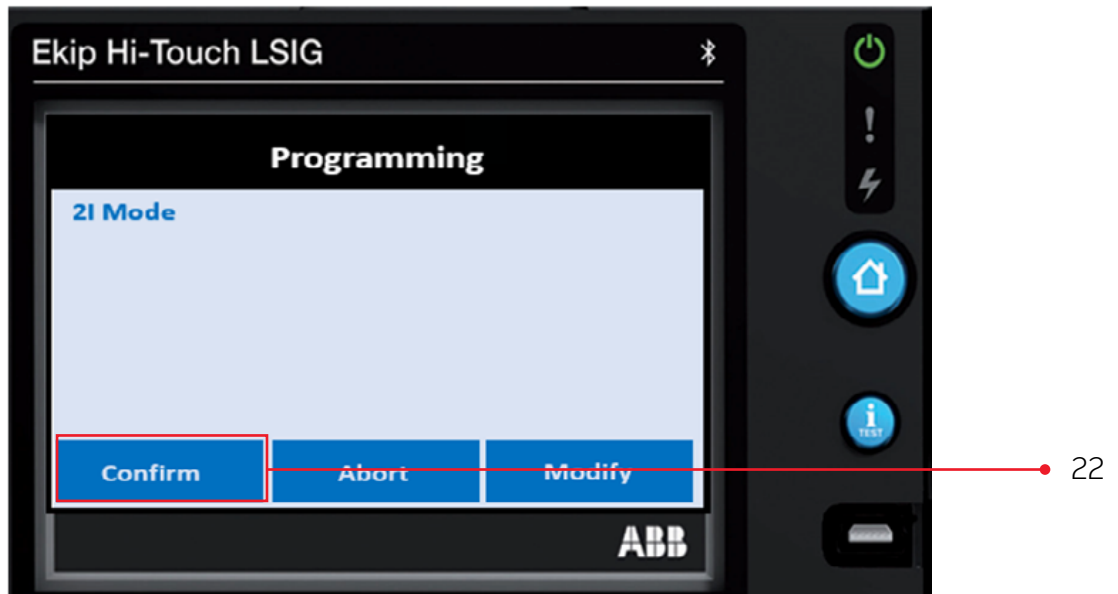
Step 20. Select Active



Step 21. Once Active press the Home button



Step 22. Select Confirm



Step 23. 2I Mode is now active



# Appendix for changing language back to English

For this example, we are using SPANISH as that has been the most prevalent language showing up

Three Easy Steps to change back

1. Configuracion
2. Sistema
3. Lenguaje “ **Change Espanol to English**”

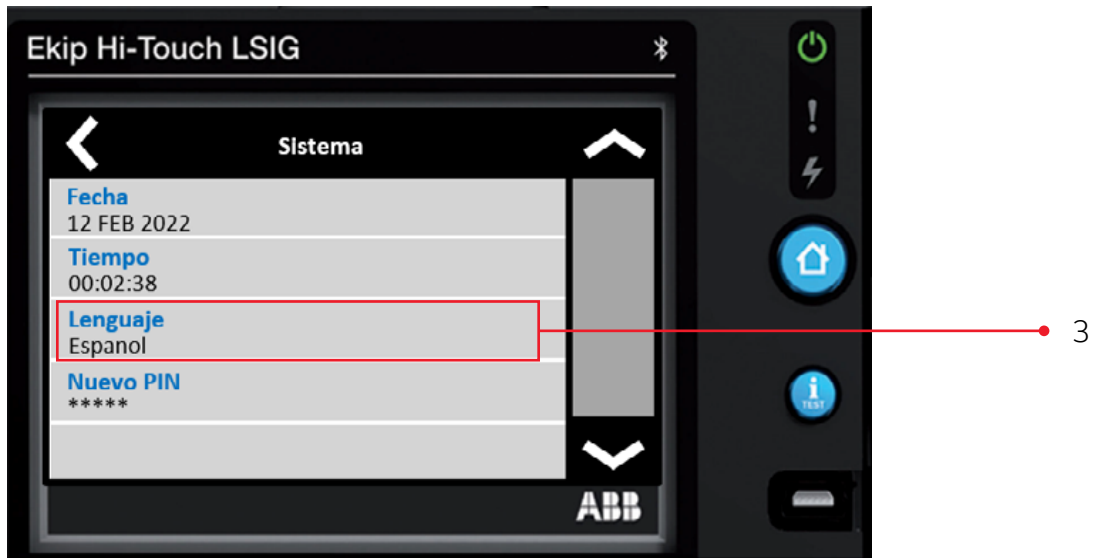
Step 1. Press the lower left **Configuracion** Icon



Step 2. Press the **Sistema** Configurar Sistema row (you may need to scroll down using the right down arrow)



Step 3. Press the **Lenguaje** Espanol row



Step 4. Use the up/down arrows to scroll to "English"



Step 5. Press “English”.

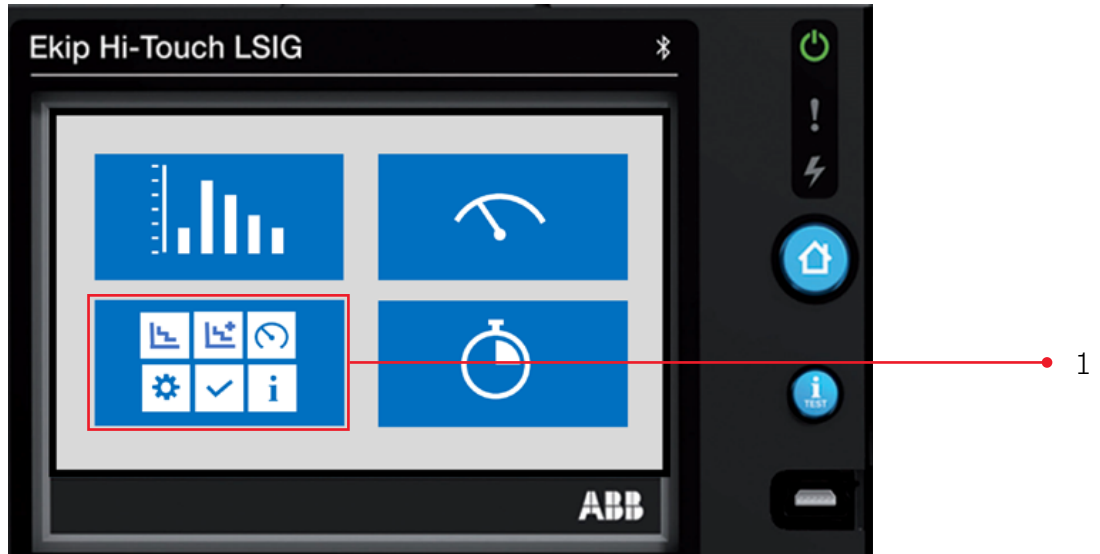


This completes language parameter settings.

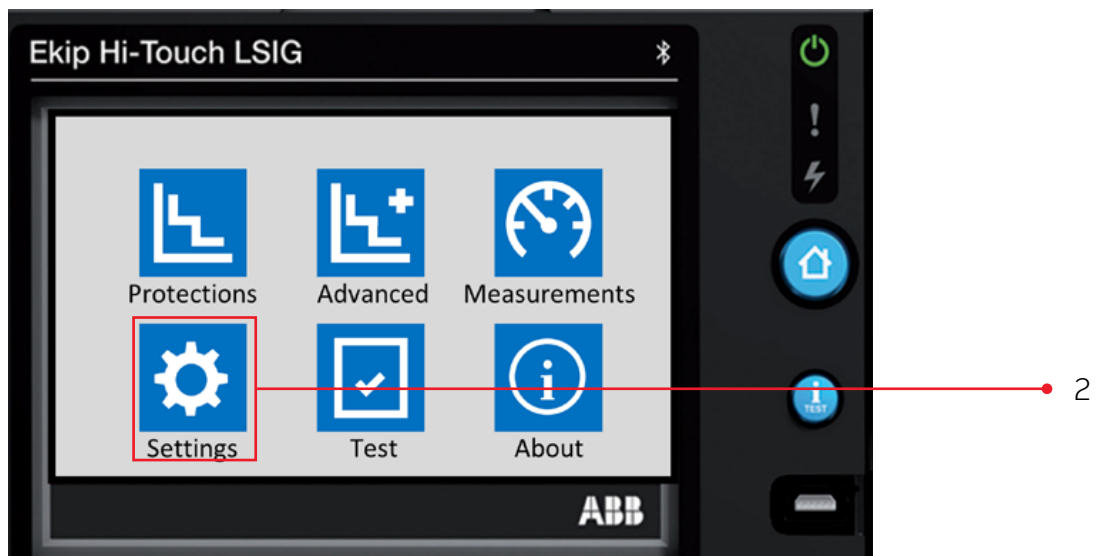
# How to set date and time

## XT5, XT7/XT7M and Emax 2

Step 1. Press the bottom left icon (six sub-icons)



Step 2. Press the lower left icon – **Settings** Icon





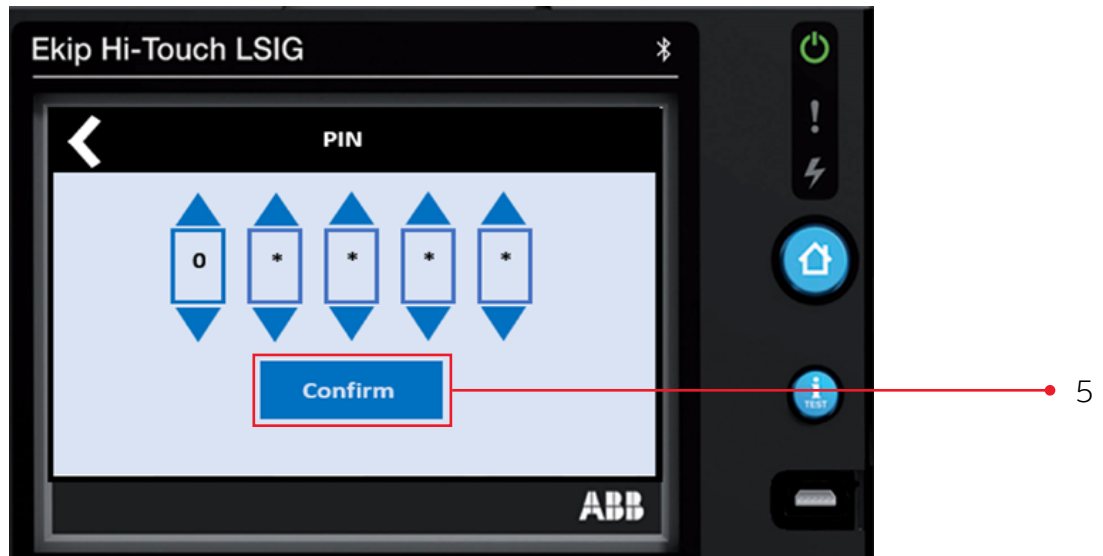
Step 3. Press the down arrow key to find the **System** menu. Press **System**



Step 4. Press **Date** to set the current date



Step 5. This display is presented (In order to change settings, a password is required)



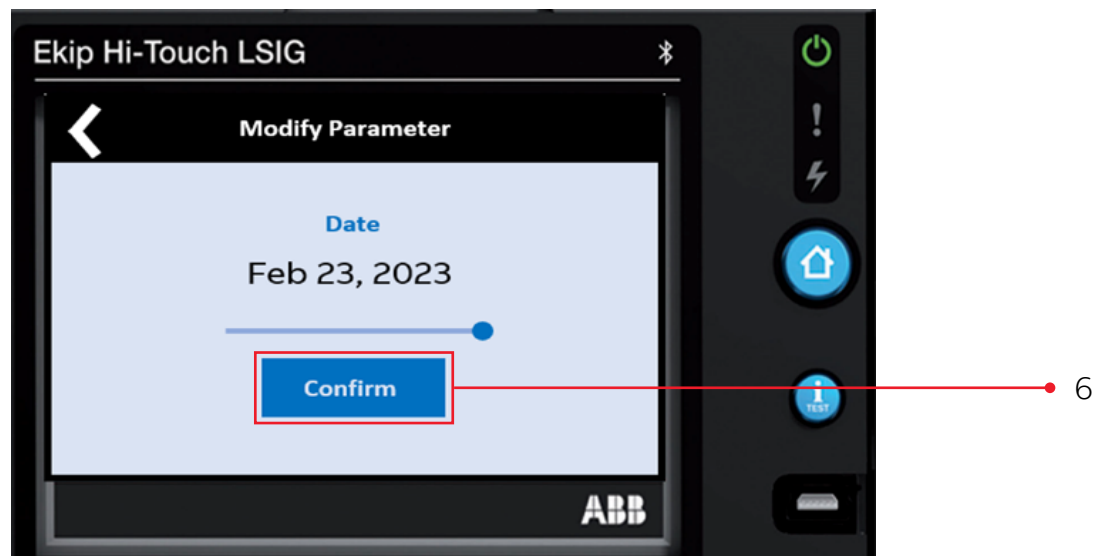
Default Password: 00001. Zero appears in the first PIN box

Press **Confirm** to accept zero

Repeat for the next three PIN boxes

On the 5th PIN box change from zero to one (press the up triangle), then press **Confirm**

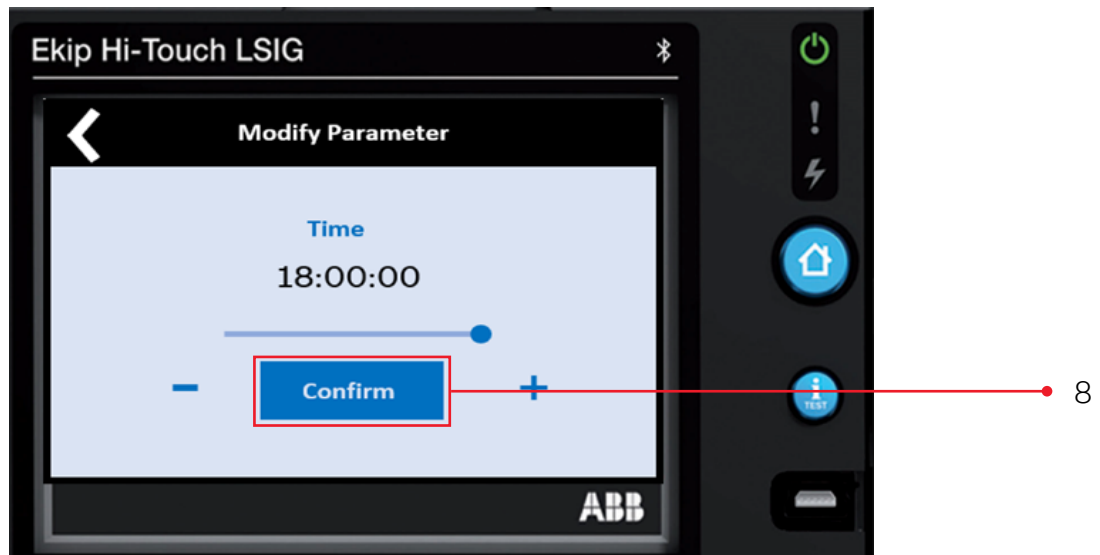
Step 6. Press the **plus** and **minus** to adjust date. Press confirm



Step 7. Press **Time** to set the current time



Step 8. Press the **plus** and **minus** to adjust date. Press **confirm**



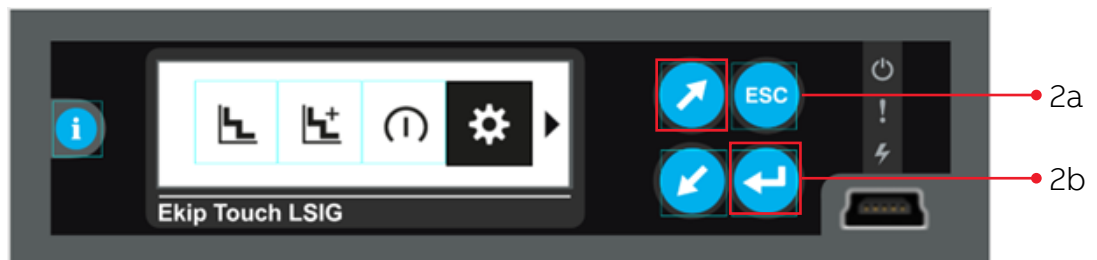
# How to set date and time

## XT2 and XT4

Step 1. Press **ESC** button (1a) or **Enter** Button (1b)



Step 2. Press **Up** button (2a) to select **Settings** icon and Press **Enter** button (2b).



Step 3. Press **Down** button (3a) to find **System** menu and Press **Enter** button (3b)



Step 4. Press **Down** button (4a) to find **Date** menu and Press **Enter** button (4b).



Step 5. This display is presented (In order to change settings, a password is required)



Default Password: 00001. Zero appears in the first PIN box.

Press **Enter** button (5b) to accept zero

Repeat for the next three PIN boxes

On the 5th PIN box change from zero to one (press the **Up** button (5a)), then press **Enter** button (5b)

This will allow Settings to be changed.

Note: Once the PIN code has been entered, all displays can be browsed for two minutes: once two minutes has elapsed, the PIN code must be entered again (depending on the case in question).

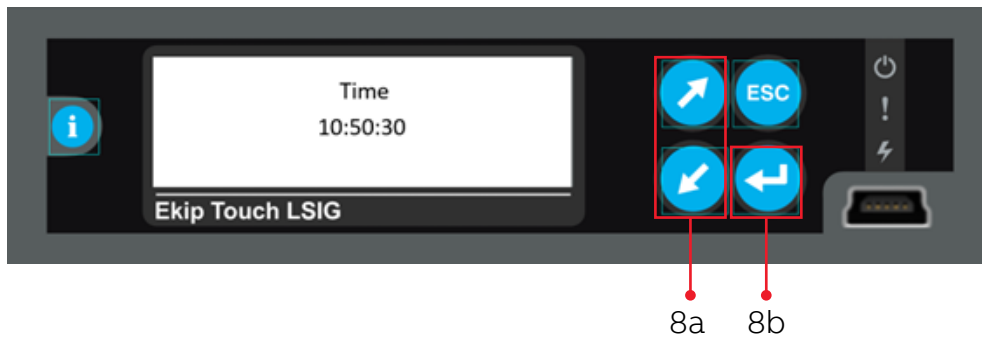
Step 6. Press **Up** or **Down** buttons (6a) to adjust to the current **Date** and Press **Enter** (6b). Holding the **Up** or **Down** buttons (6a) will advance the settings faster.



Step 7. Press **Down** button (7a) to select **Time** and Press **Enter** (7b).



Step 8. Press **Up** or **Down** buttons (8a) to adjust to the current **Time** and Press **Enter** (8b). Holding the **Up** or **Down** buttons (8a) will advance the settings faster.



Step 9. Press **ESC** button and **Confirm** settings if prompted.





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Monday - Friday

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