
User Guide

MDGF

**Modified differential
ground fault**





Before starting

Before starting

The following slides with step by step settings are valid for Emax 2 and XT7 touch trip units.



Before starting

Ensure the trip unit's firmware is version 4.04.00 or higher. And the Mainboards firmware is 3.23 or higher

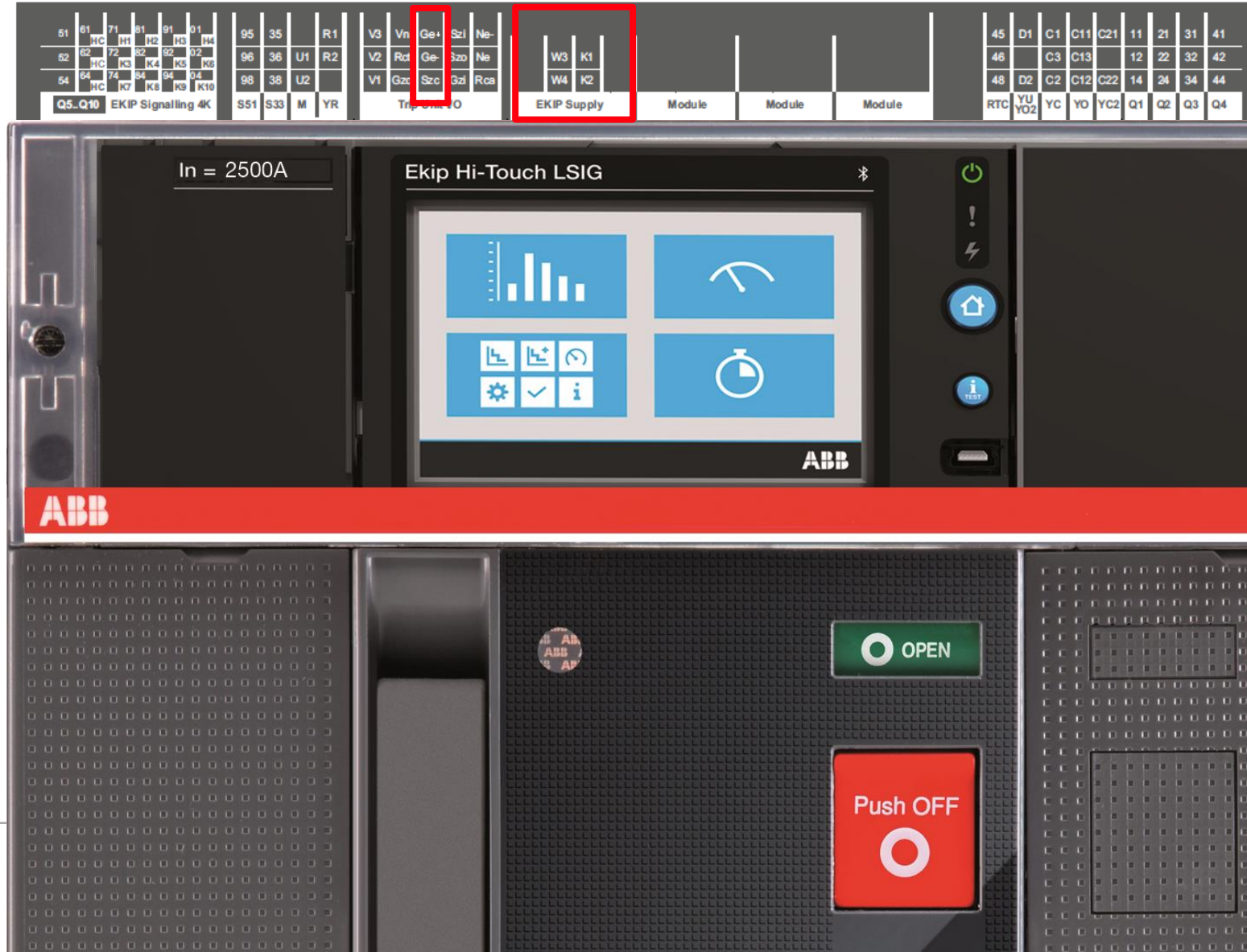
This feature is not available for prior versions.



Before starting

Provide power to the Ekip Supply module (using 110-240V AC/DC or 24-48Vdc) or directly with 24Vdc.

Install the MDGF terminal in order to be able to connect the pins *Ge+* and *Ge-*.



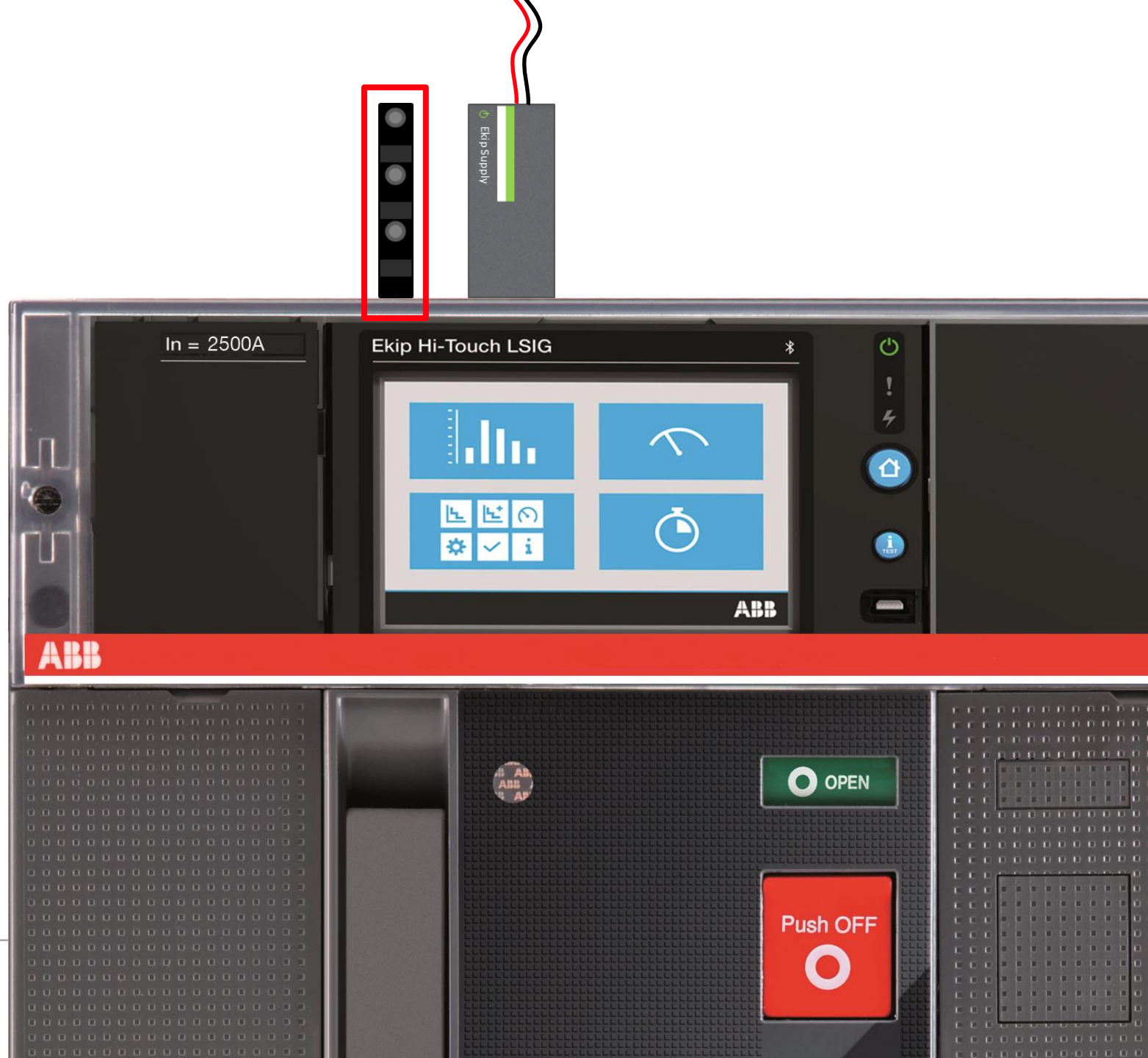
Before starting

Provide power to the Ekip Supply module (using 110-240V AC/DC or 24-48Vdc) or directly with 24Vdc.

Install the MDGF terminal in order to be able to connect the pins *Ge+* and *Ge-*.



Make sure you are using the proper terminal for MDGF. It is black and labeled "Only for MDGF"

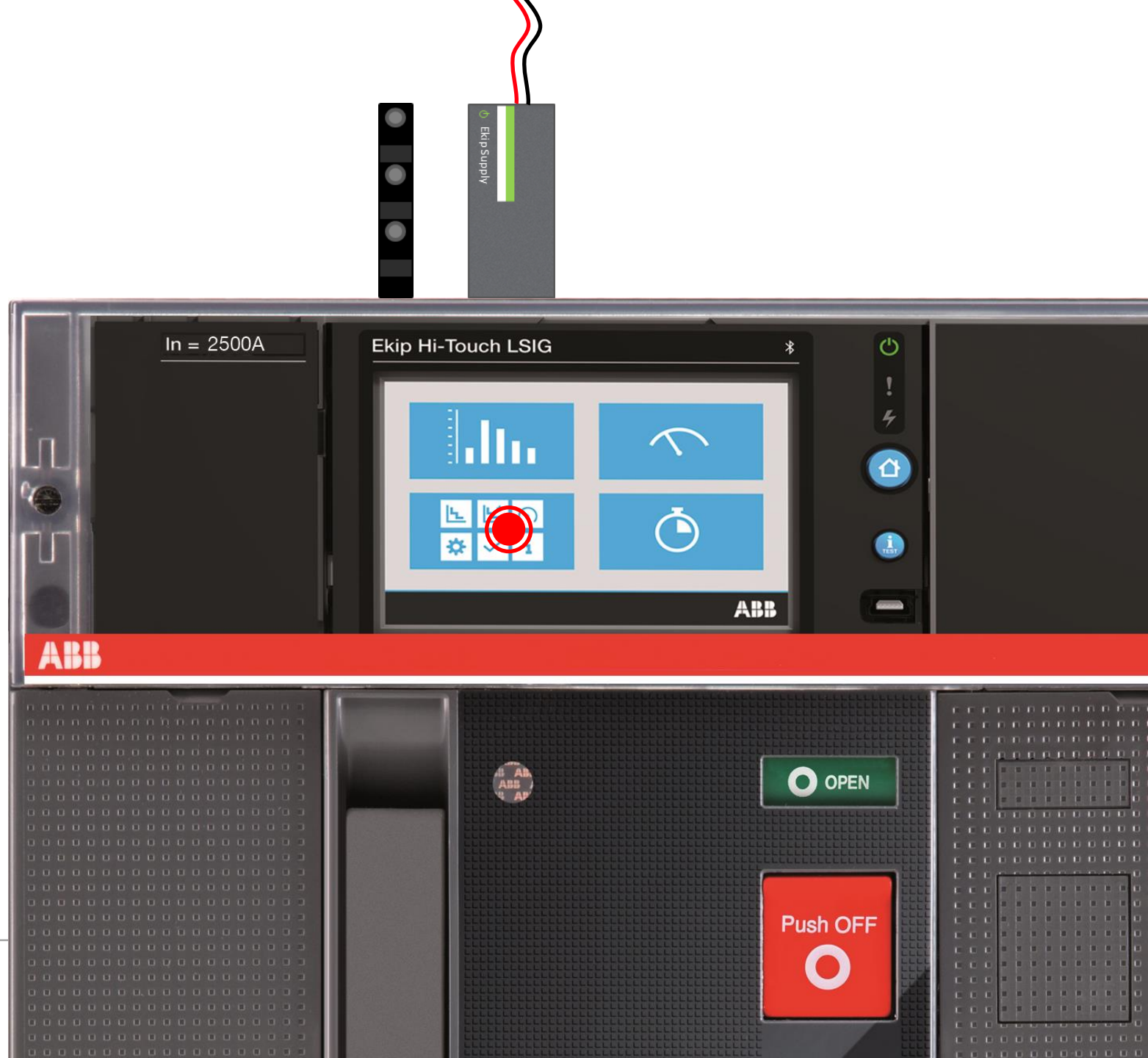




MDGF configuration

MDGF configuration

First, click on the settings menu.



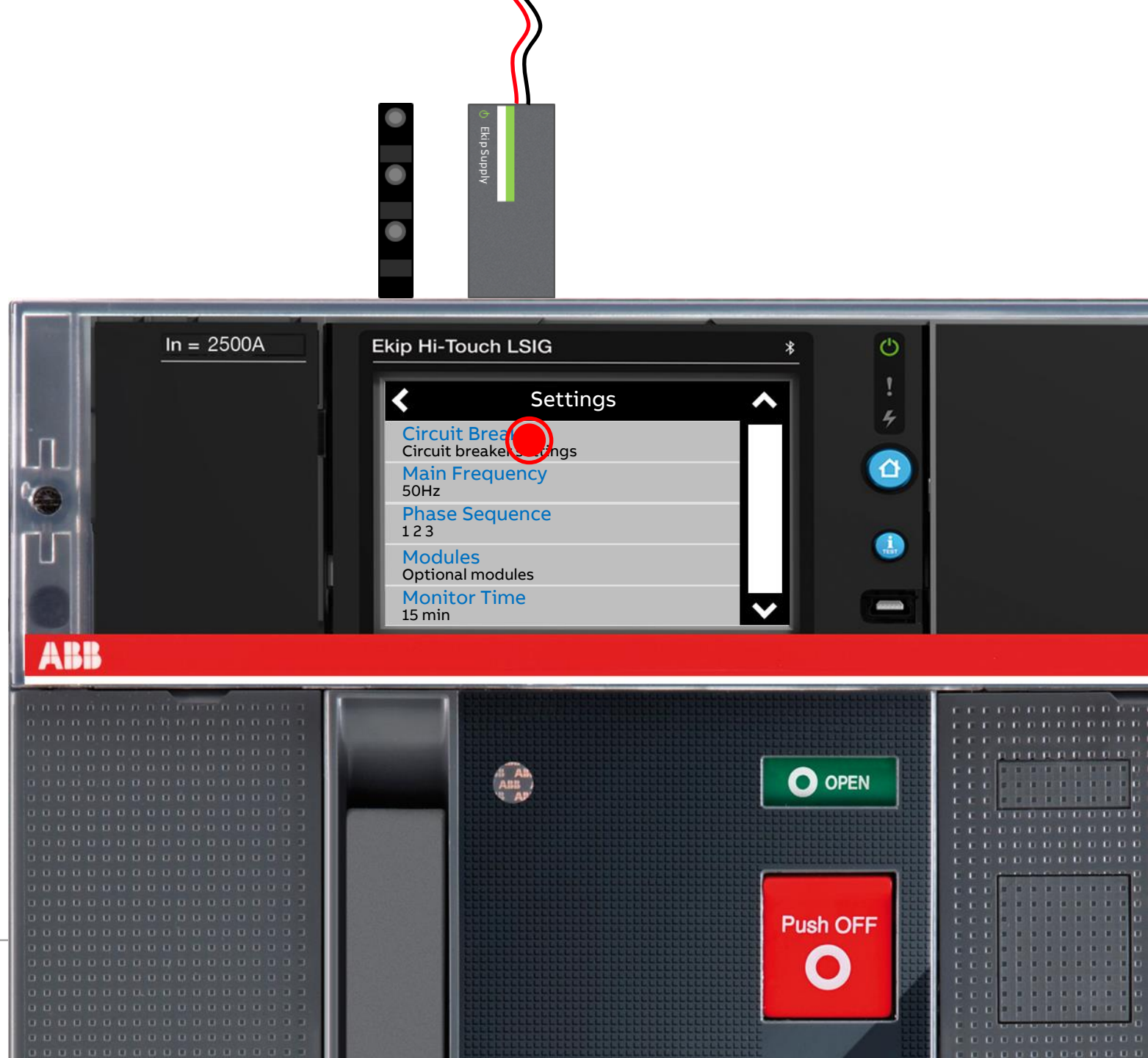
MDGF configuration

First, click on the settings menu.



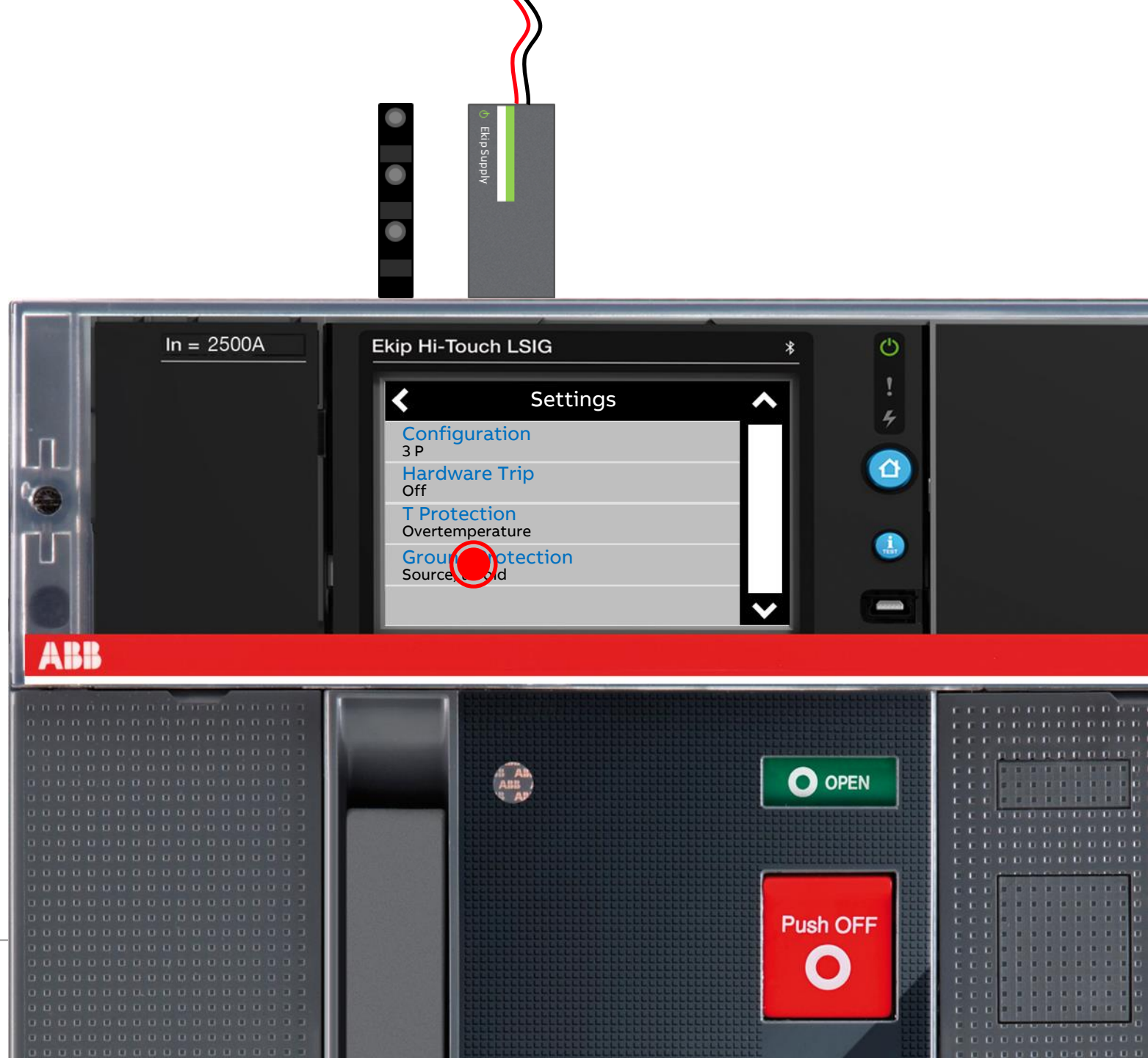
MDGF configuration

Then inside the circuit breaker settings click on Ground Fault Protection.



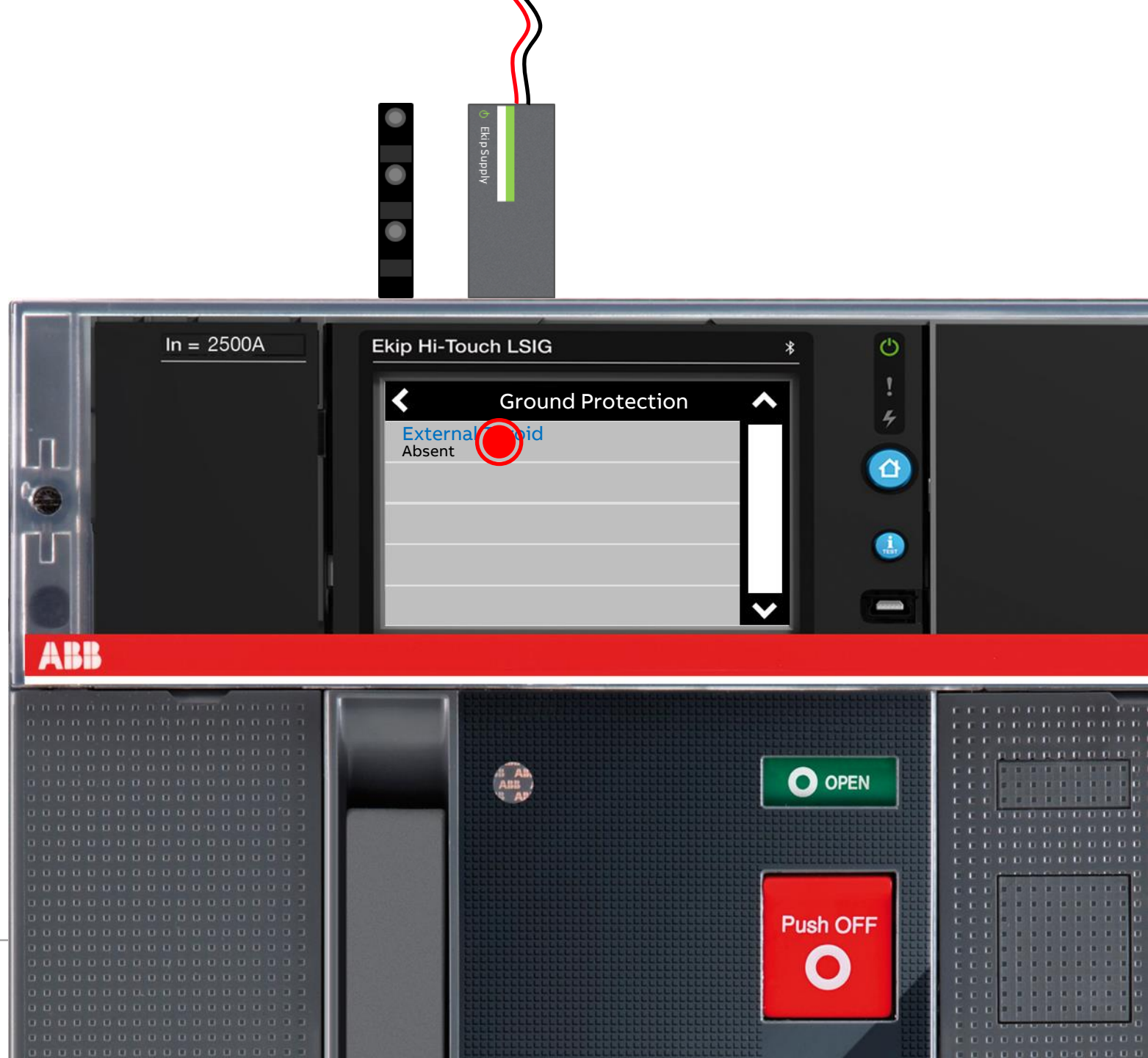
MDGF configuration

Then inside the circuit breaker settings click on Ground Fault Protection.



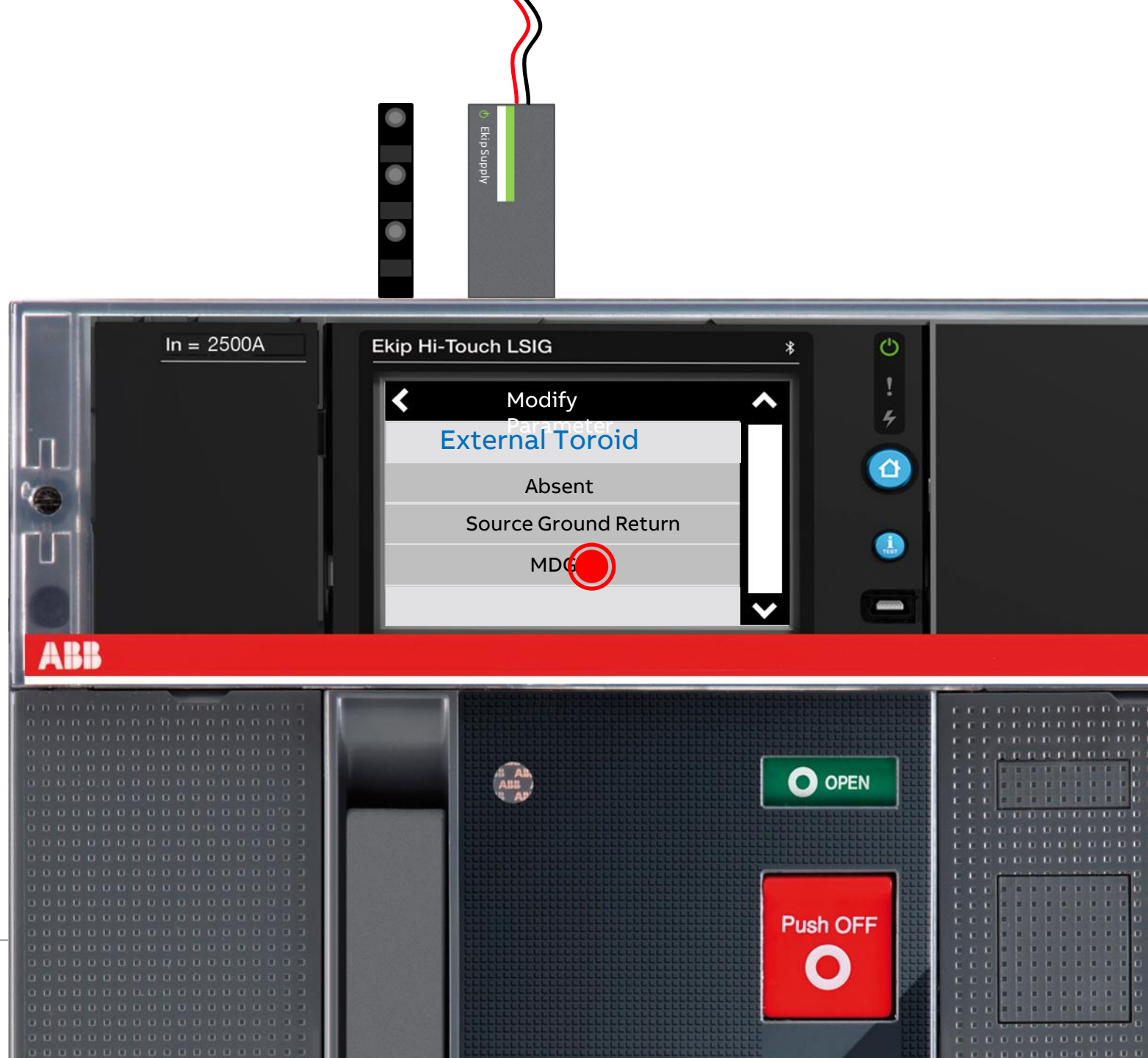
MDGF configuration

Next, click External Toroid and select MDGF.



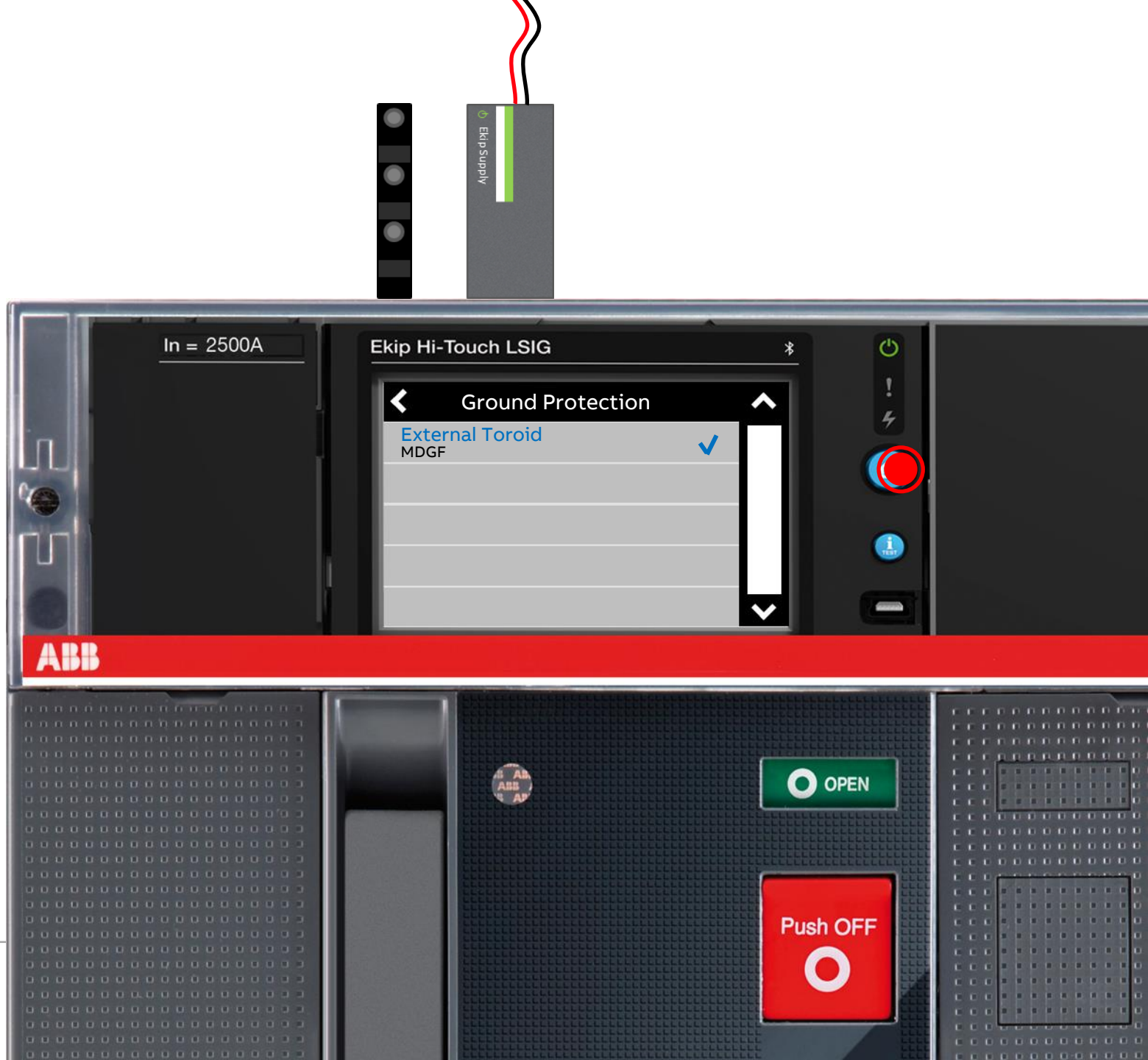
MDGF configuration

Next, click External Toroid and select MDGF.



MDGF configuration

Press home button to return to the default screen.



MDGF configuration

Click confirm to finalize the configuration.



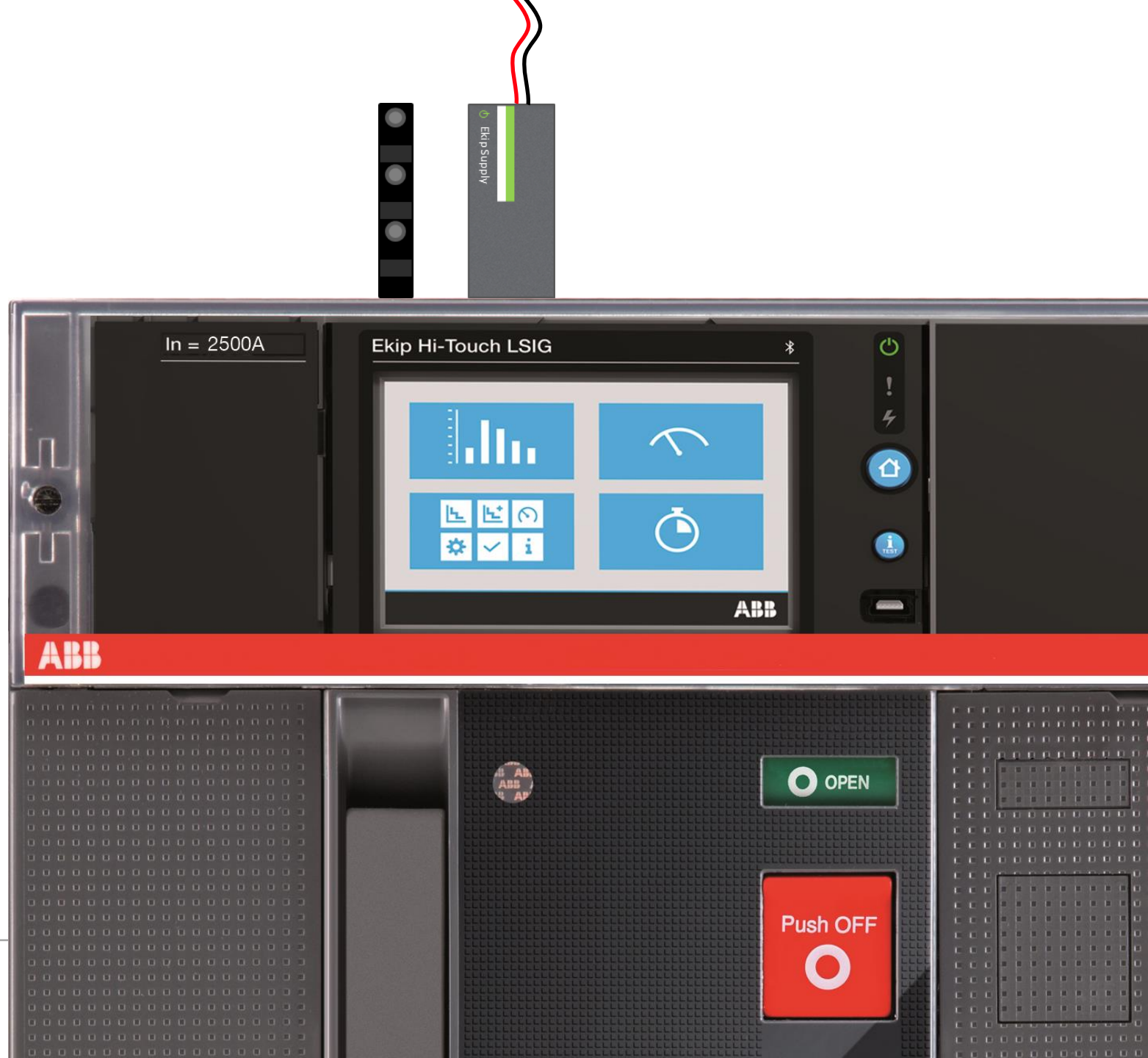
MDGF

Setting the pickup value

MDGF

Setting the pickup value

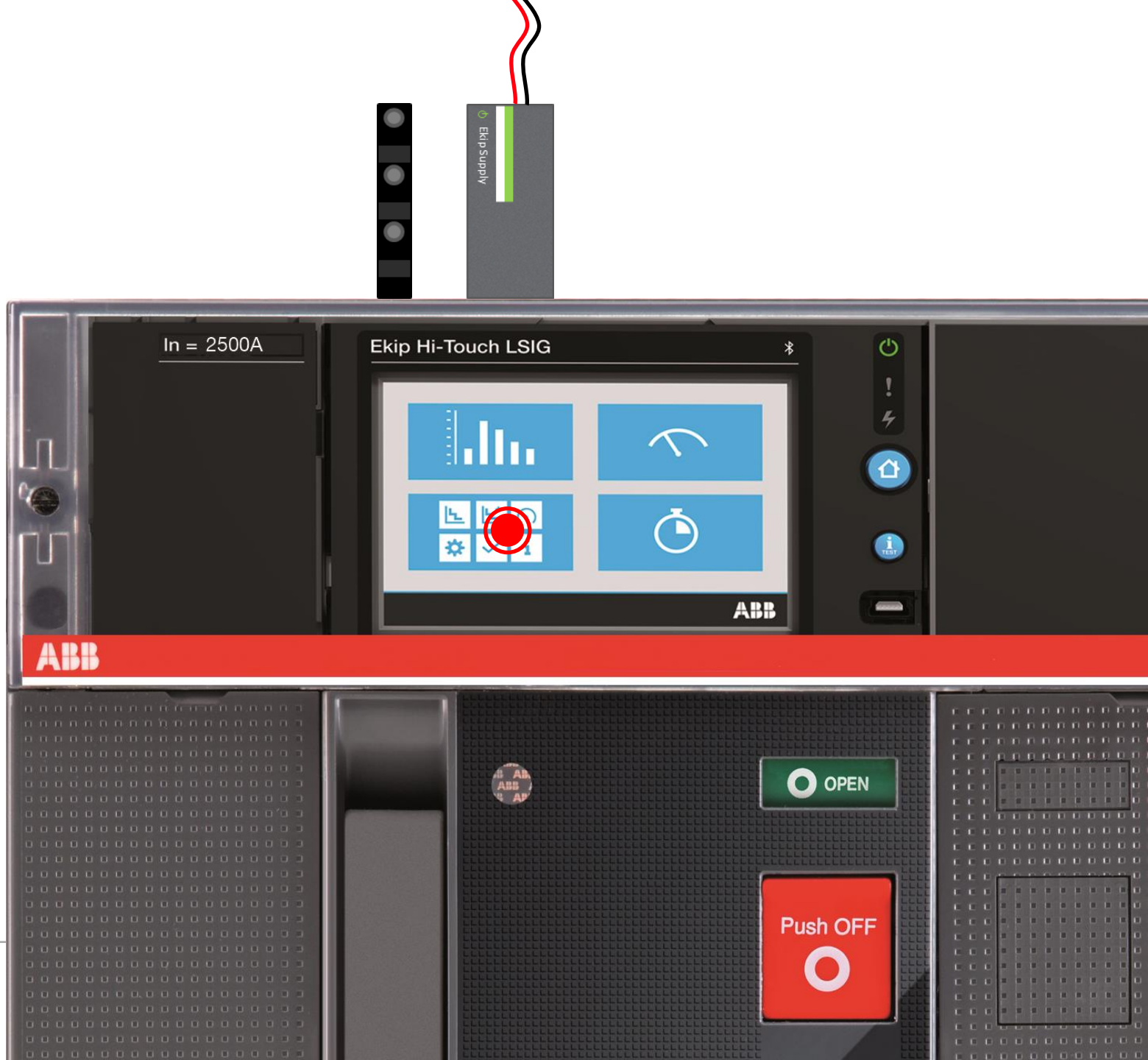
For this example, let's set the Ground Fault Protection with a $0.2I_n$ threshold. This is the same value recommended for testing.



MDGF

Setting the pickup value

Navigate to the protection settings menu.



MDGF

Setting the pickup value

Navigate to the protection settings menu.

Click protection settings.



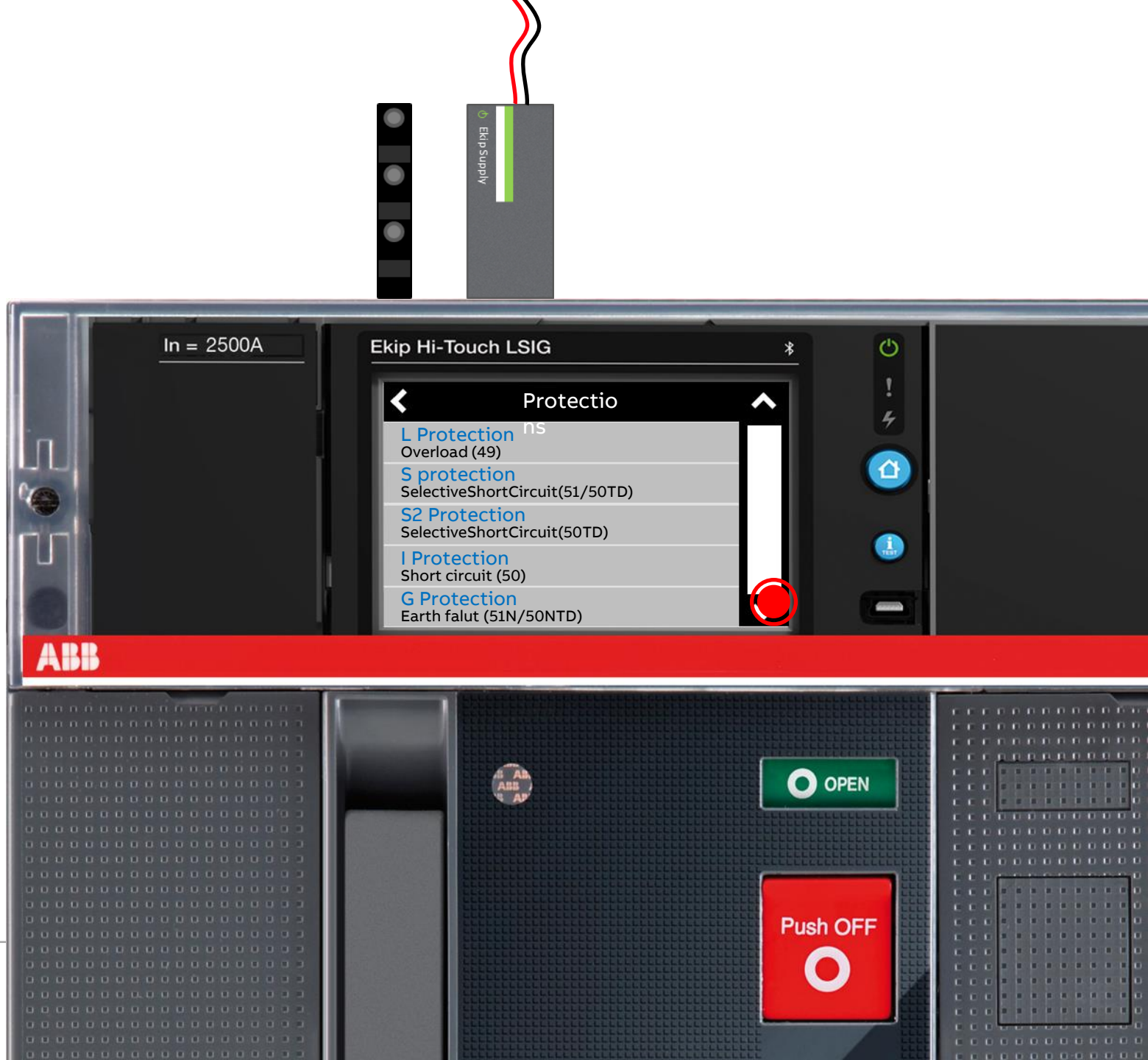
MDGF

Setting the pickup value

Navigate to the protection settings menu.

Click protection settings.

Scroll down and click on MDGF (Gext) Protection.



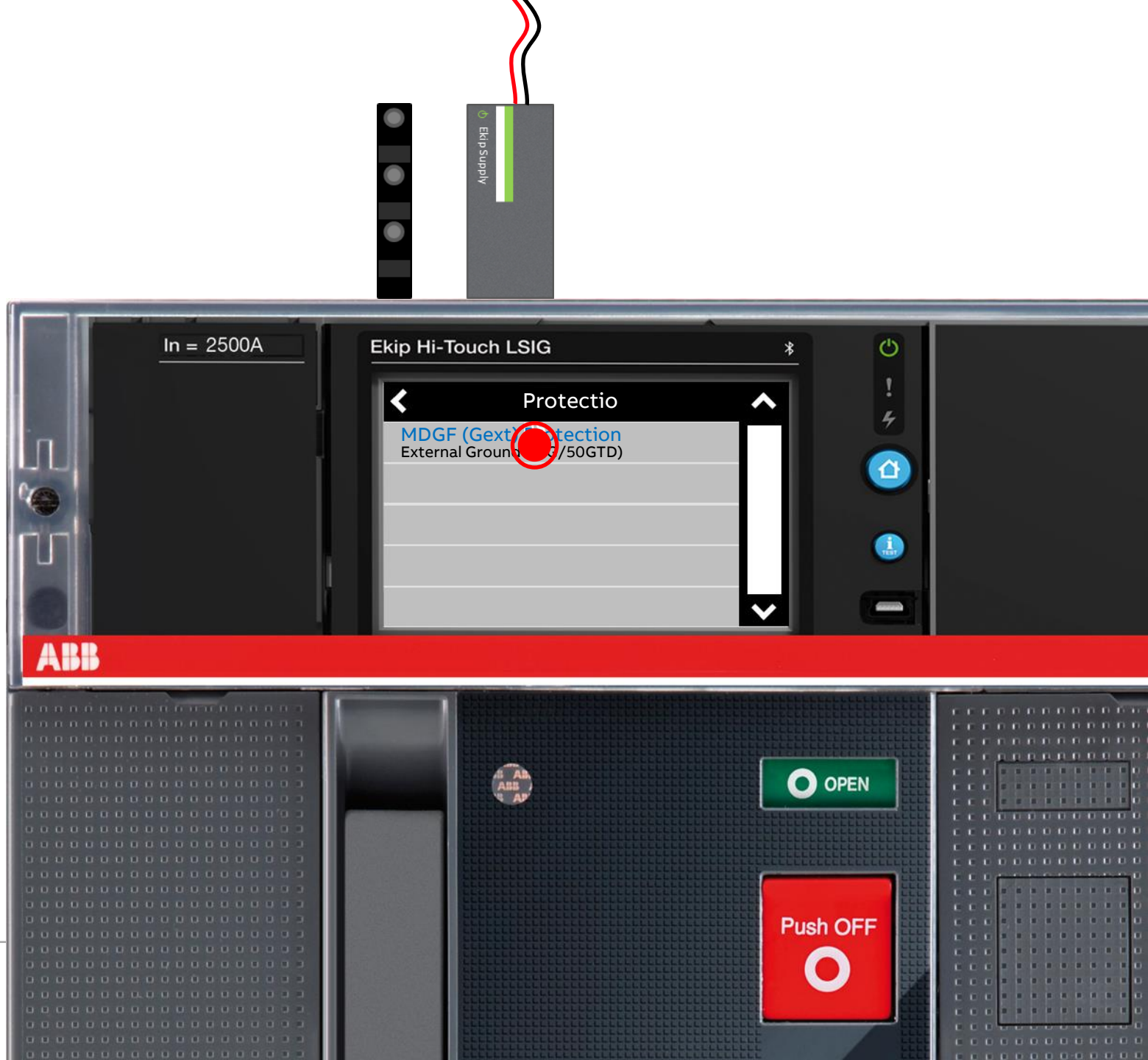
MDGF

Setting the pickup value

Navigate to the protection settings menu.

Click protection settings.

Scroll down and click on MDGF (Gext) Protection.



MDGF

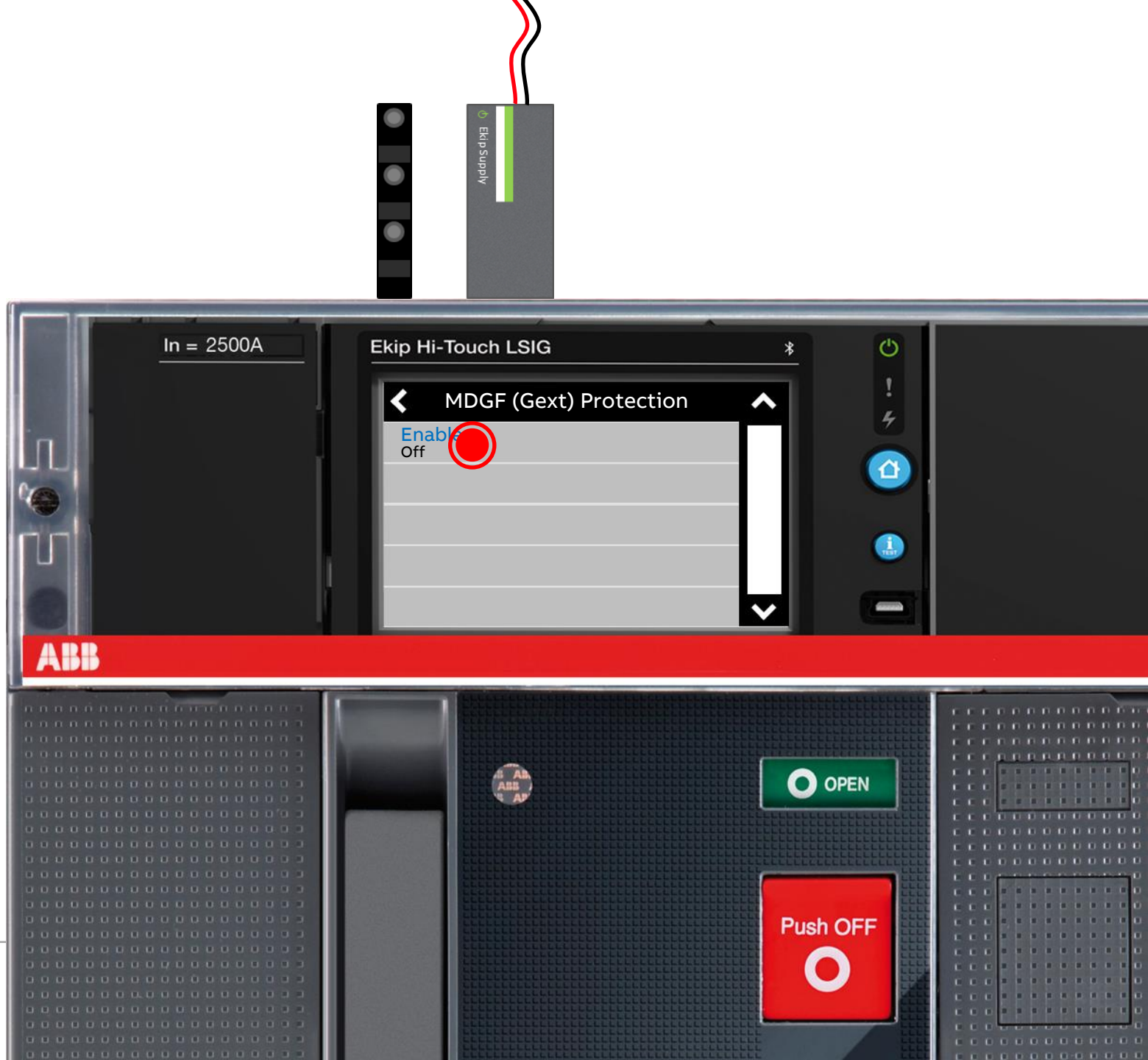
Setting the pickup value

Navigate to the protection settings menu.

Click protection settings.

Scroll down and click on MDGF (Gext) Protection.

Select ON for Enable.



MDGF

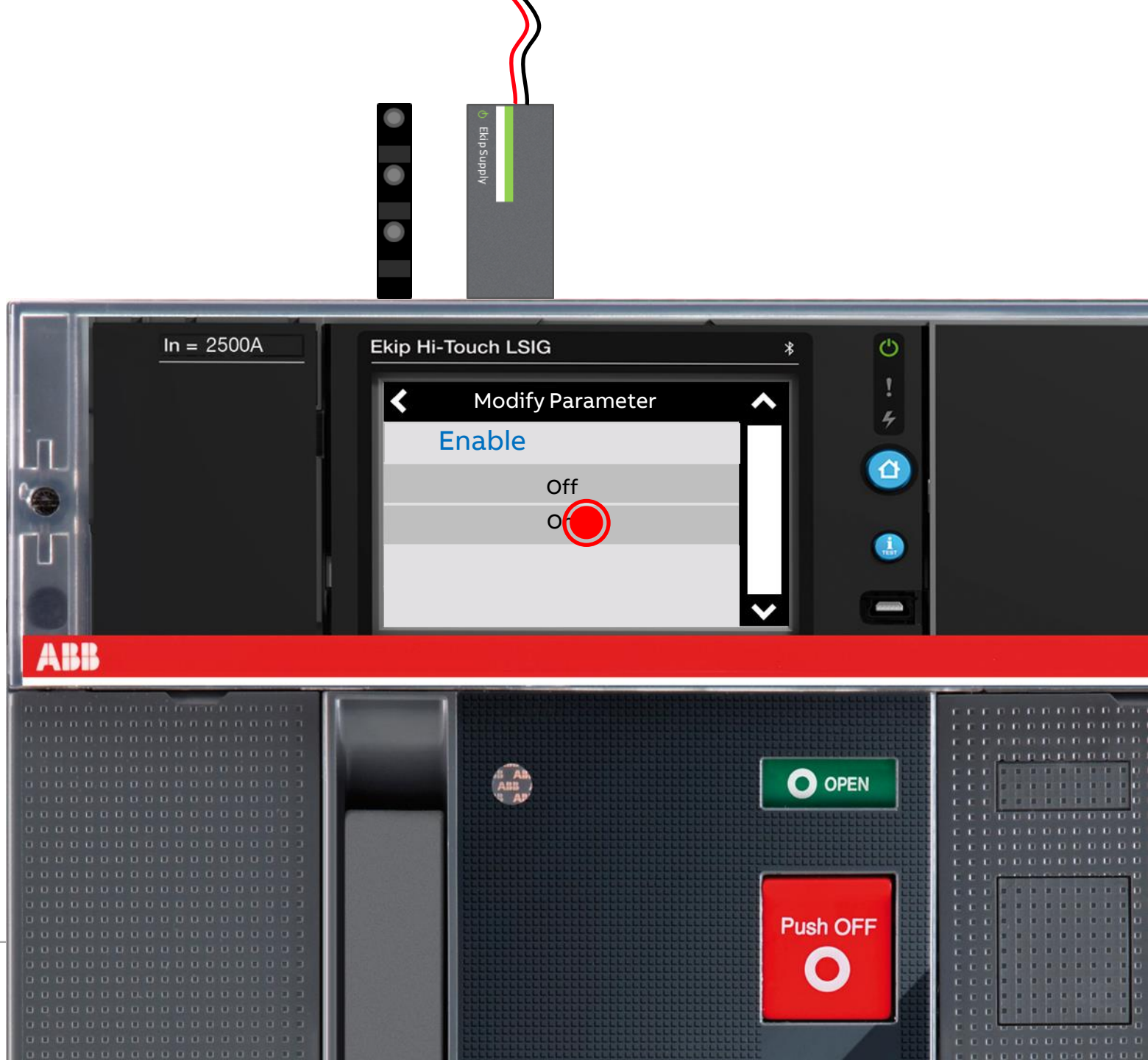
Setting the pickup value

Navigate to the protection settings menu.

Click protection settings.

Scroll down and click on MDGF (Gext) Protection.

Select ON for Enable.



MDGF

Setting the pickup value

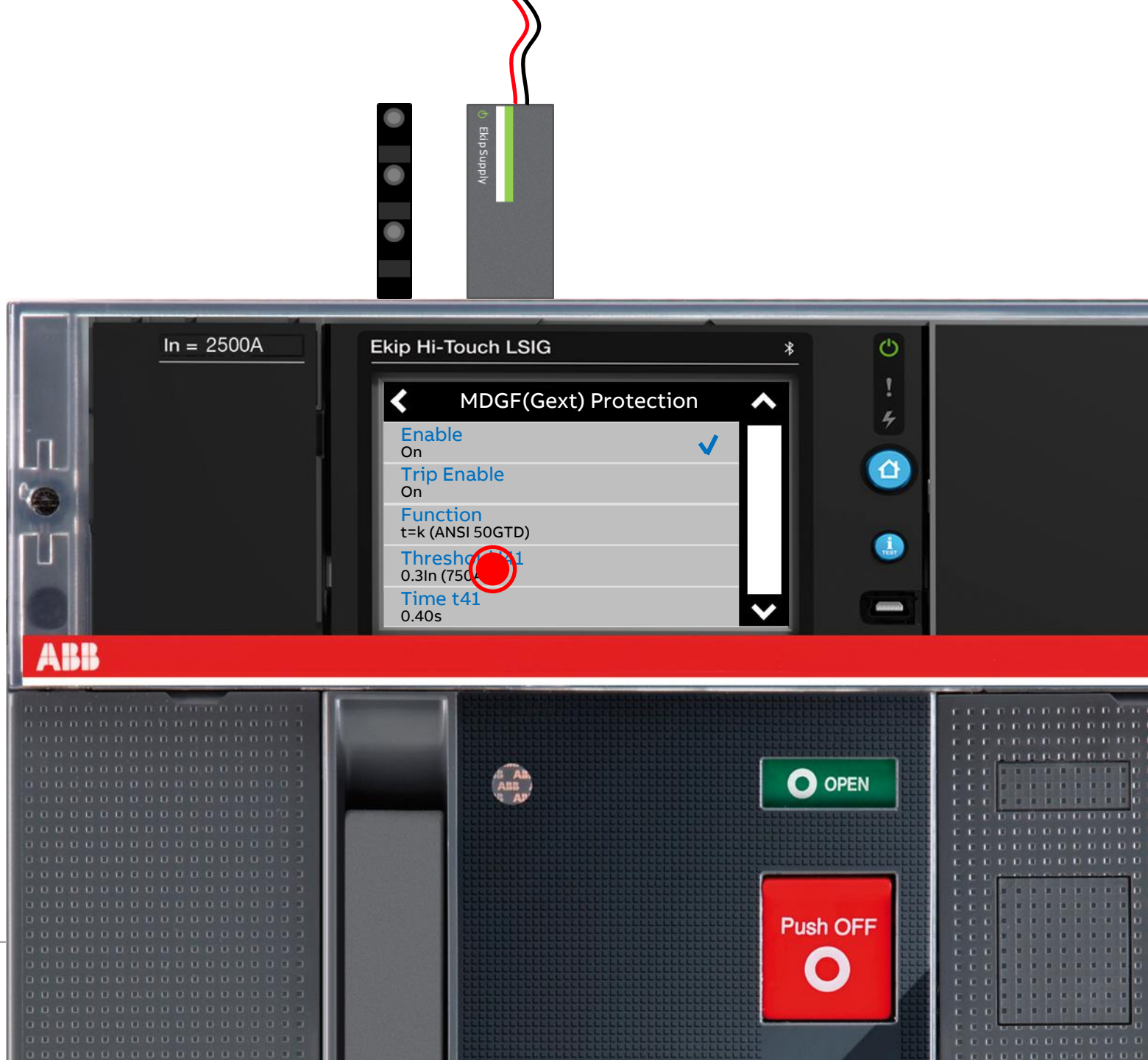
Navigate to the protection settings menu.

Click protection settings.

Scroll down and click on MDGF (Gext) Protection.

Select ON for Enable.

Click on Threshold.



MDGF

Setting the pickup value

Set the Ground Fault Protection with a $0.2I_n$ threshold. This is the same value recommended for testing.

Change the value to $0.2I_n$.

(in this example the nominal value will be $500A = 2500 \times 0.2$)

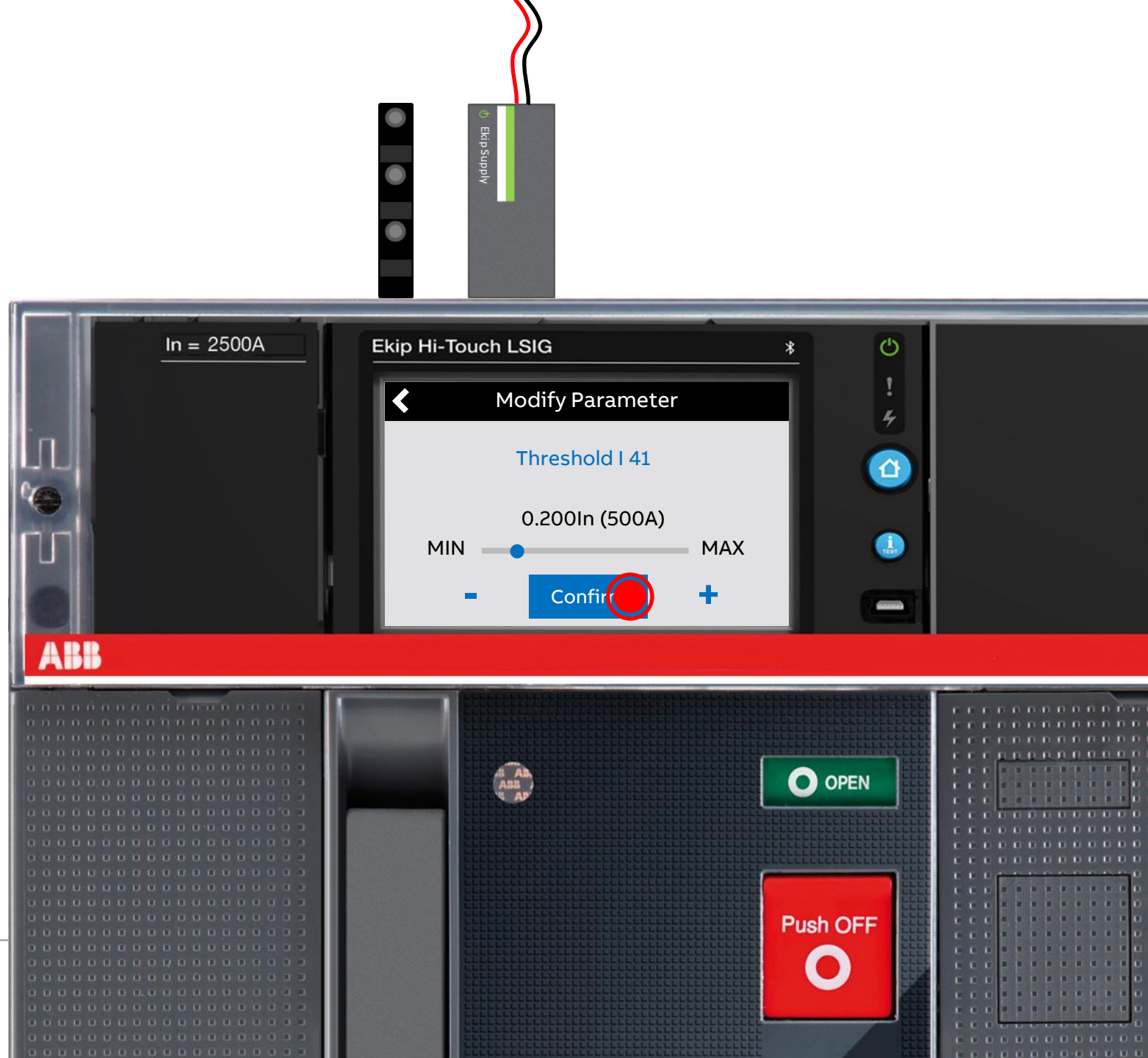


MDGF

Setting the pickup value

Set the Ground Fault Protection with a $0.2I_n$ threshold. This is the same value recommended for testing.

Click Confirm.



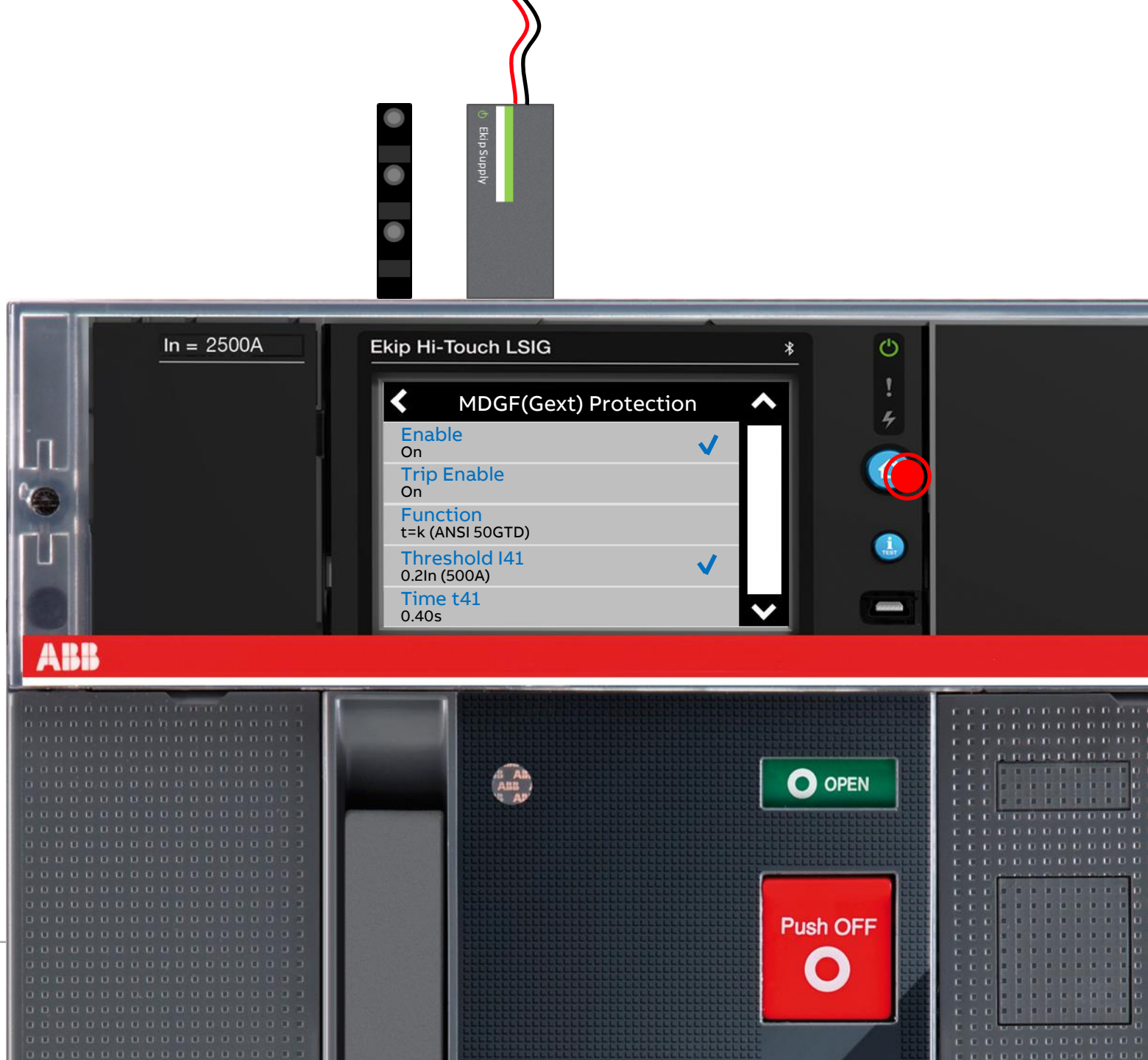
MDGF

Setting the pickup value

Set the Ground Fault Protection with a $0.2I_n$ threshold. This is the same value recommended for testing.

Click Confirm.

Press home button.



MDGF

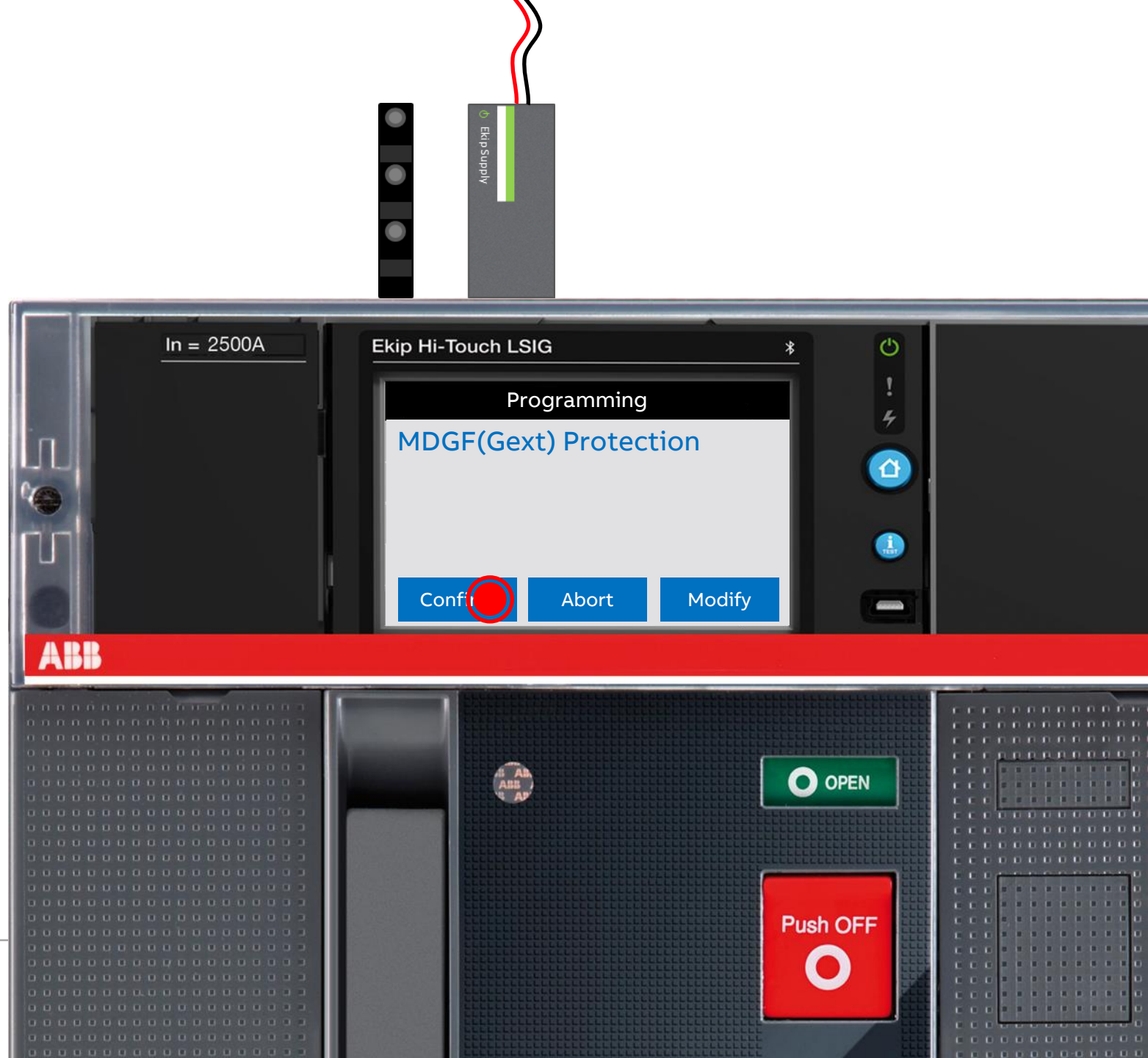
Setting the pickup value

Set the Ground Fault Protection with a 0.2In threshold. This is the same value recommended for testing.

Click Confirm.

Press home button.

Click confirm to finalize the configuration.





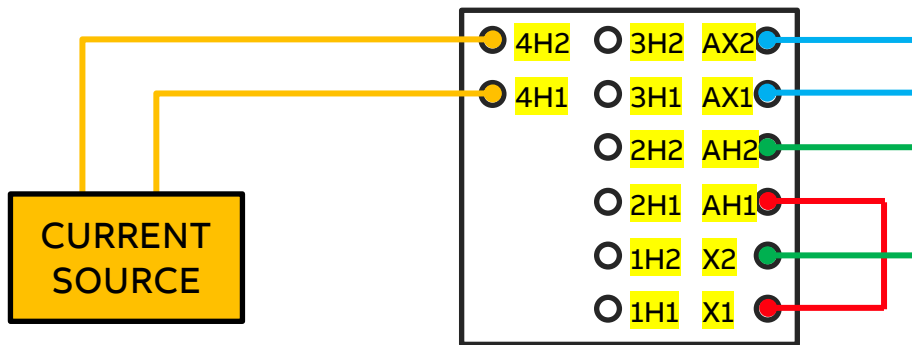
MDGF

Testing

MDGF testing

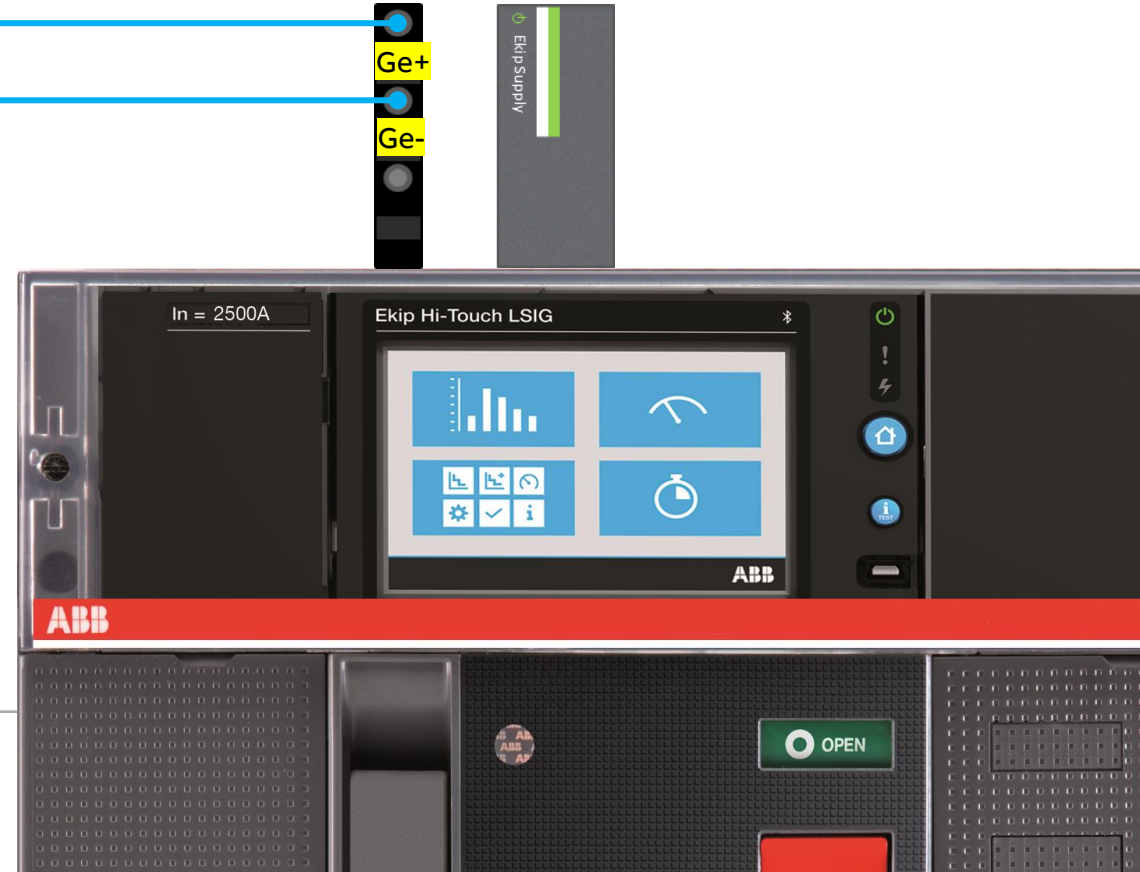
After setting the pickup threshold to 0.2In

- Provide power to the Ekip Supply module (using 110-240V AC/DC or 24-48Vdc) or directly with 24Vdc.
- Connect X1 to AH1, connect X2 to AH2
- Connect AX1 to Ge+, connect AX2 to Ge-
- Inject 0.85A on input 4H1 & 4H2, check to make sure the circuit breaker **DOES NOT TRIP**
- Inject 1.15A on input 4H1 & 4H2, check to make sure the circuit breaker **DOES TRIP**
- Repeat the same test for all other summing CT inputs



Current source is a simulated representation of external phase and neutral sensor

SUMMING CT
(as mention in product catalogue)





Documentation

Documentation



Emax 2 IEC Catalogue

[LINK](#)



Emax 2 UL catalogue

[LINK](#)



Emax 2 Installation Manual

[LINK](#)



Instruction sheet MDGF terminal

[LINK](#)



Application wiring diagram

[LINK](#)



Amran
Phase CTs and Summing CTs

[LINK](#)



MDGF Brief Presentation

[LINK](#)



ABB