JUNE 2020

MDGF, Modified Differential Ground Fault

New feature for Emax 2 and New Tmax XT

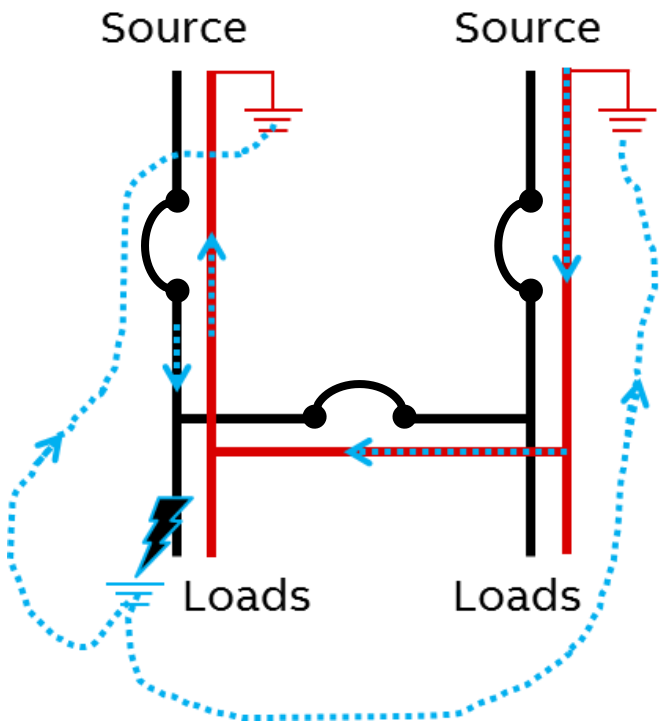
What is MDGF

Modified Differential Ground Fault

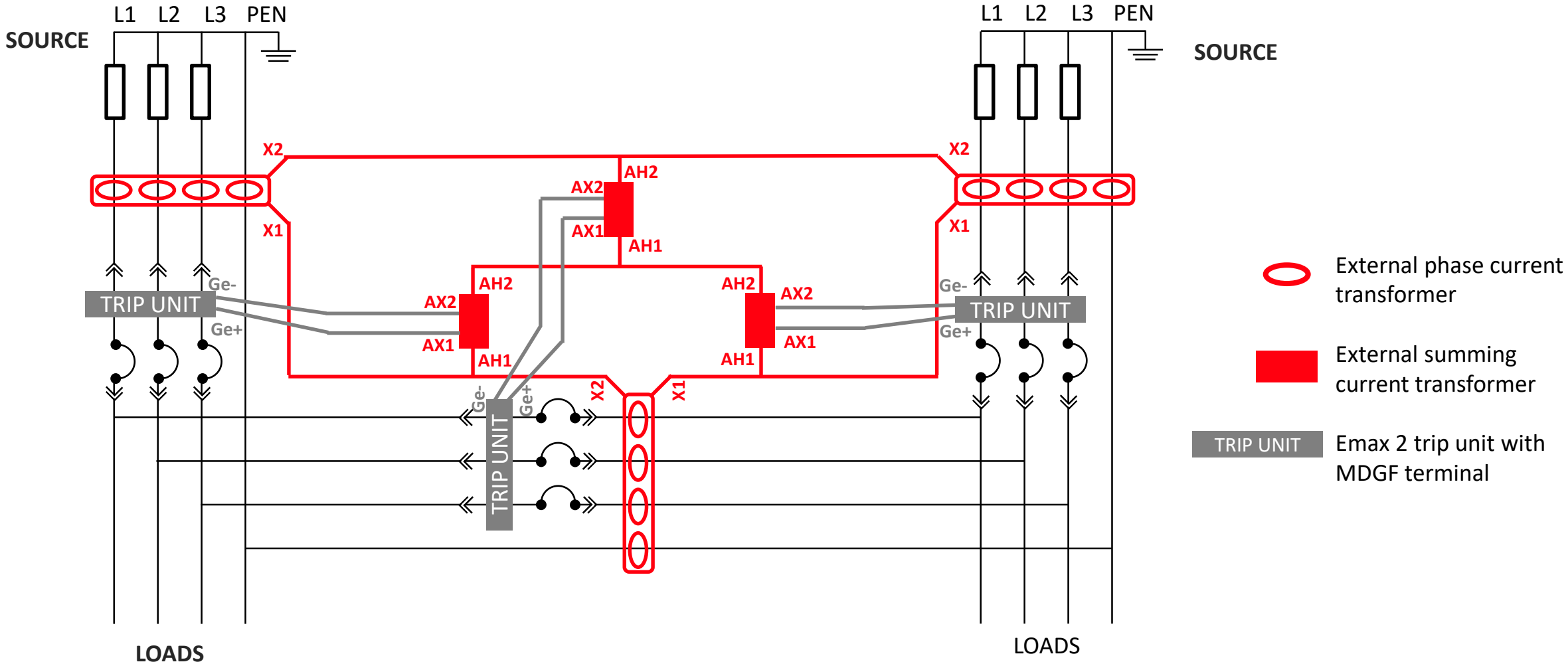
The challenge: Multi-sourced electrical system with a solidly grounded common neutral conductor make ground fault protection very challenging. These systems are often found in double ended substation and generation paralleling gear applications.

In these cases, it is not enough to use traditional zero sequence ground fault protection because it is virtually impossible to isolate and identify the ground fault current.

The Emax 2 offers **M**odified **D**ifferential **G**round **F**ault, or MDGF, protection to solve this paradigm. The solution includes Emax 2's Gext protection algorithm as well as some external hardware to interconnect the system.



Wiring Schematic



MDGF

Shopping list

ABB

Emax 2 or XT7

With touch trip unit

Terminal for MDGF

Two different versions available: fixed and withdrawable breaker

External components

MDGF scheme is compatible with phase CTs and summing CTs supplied by Amran (to be purchased separately)

http://www.amranit.com/

Summing CTs

Phase CTs

CTs picture may not reflect actual product

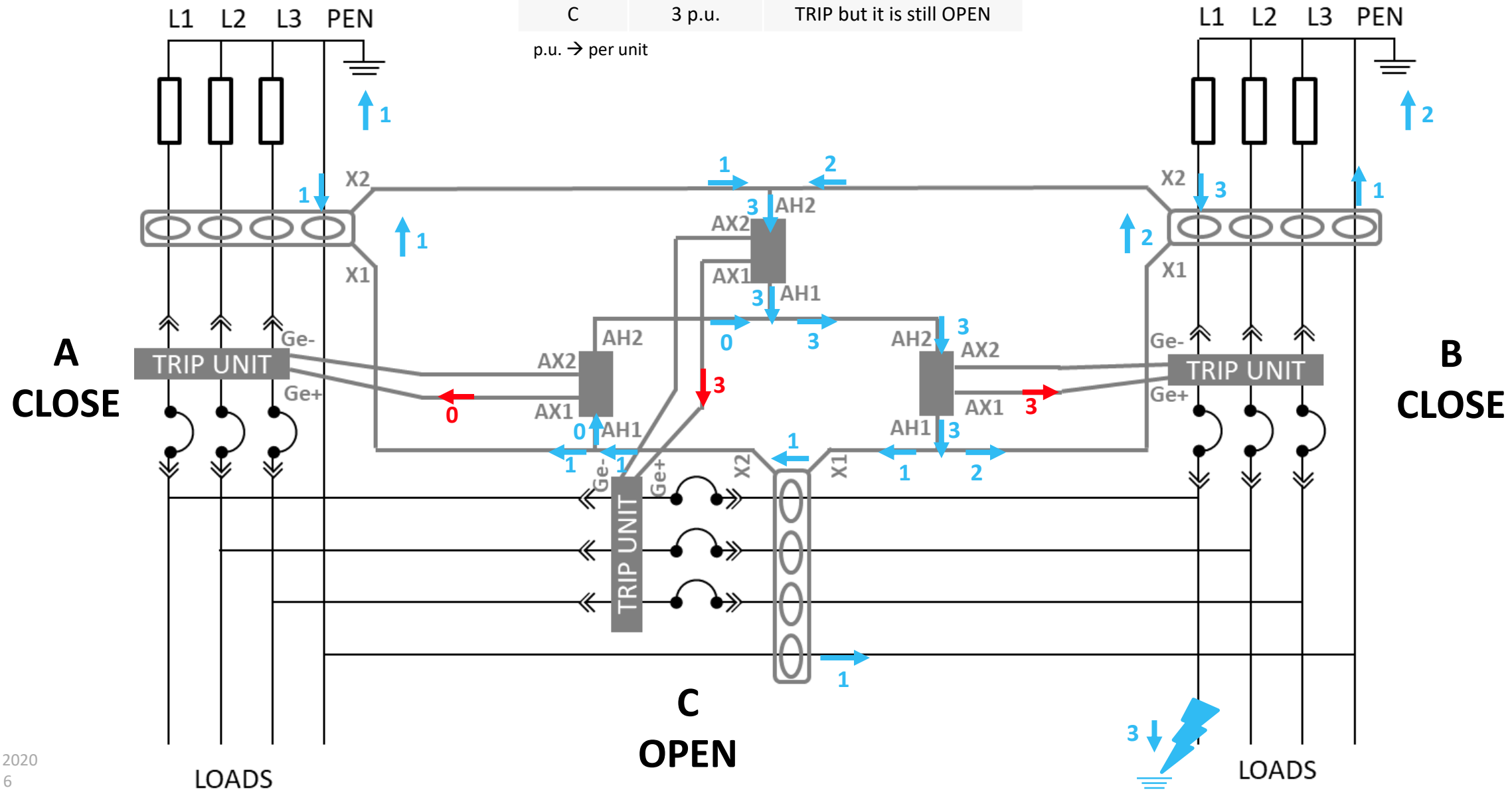
MGDF

Application cases

MDGF

Circuit Breaker	Current Measured	Action
A	0 p.u.	NO TRIP
B	3 p.u.	TRIP
C	3 p.u.	TRIP but it is still OPEN

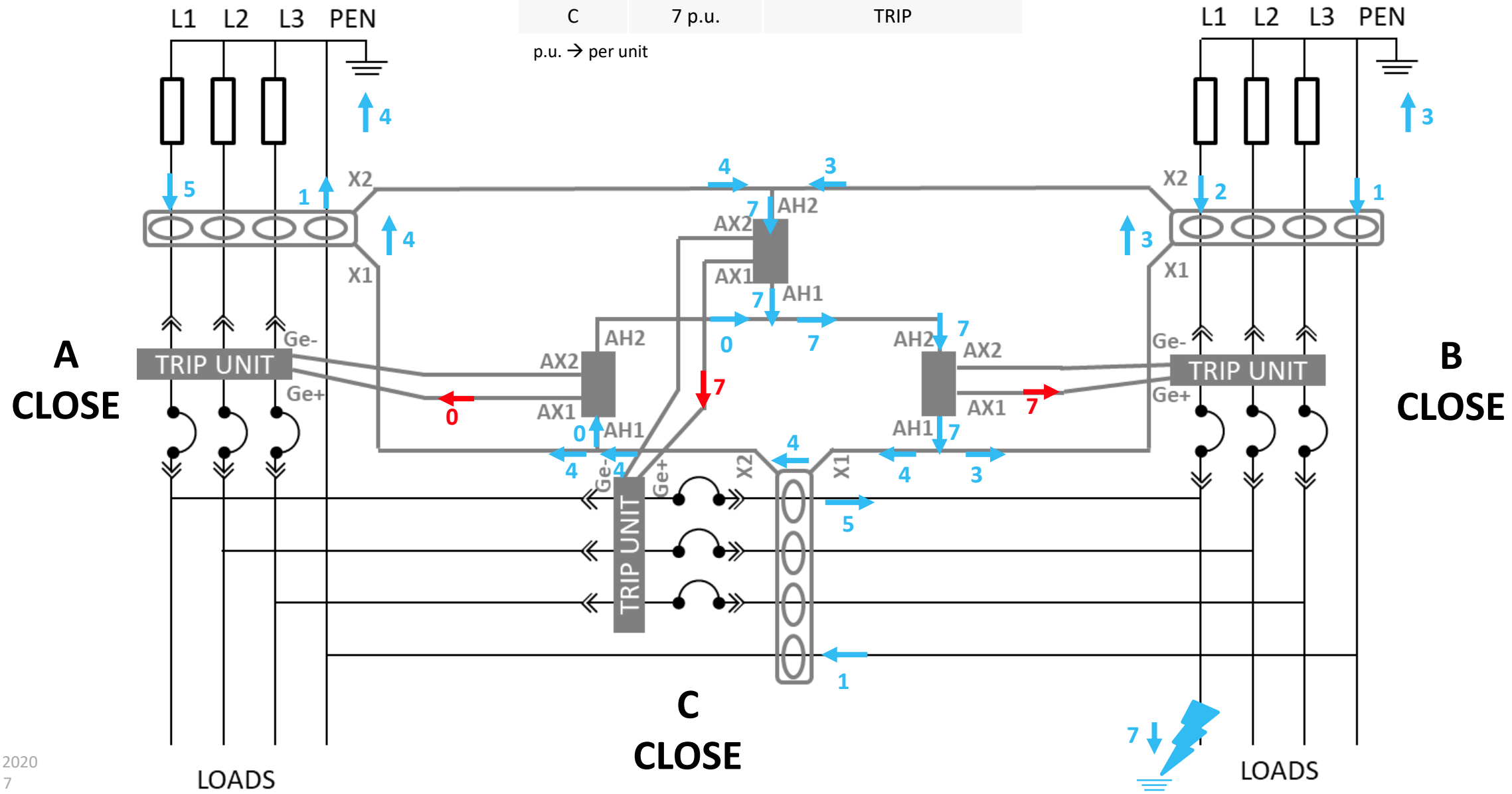
p.u. → per unit



MDGF

Circuit Breaker	Current Measured	Action
A	0 p.u.	NO TRIP
B	7 p.u.	TRIP
C	7 p.u.	TRIP

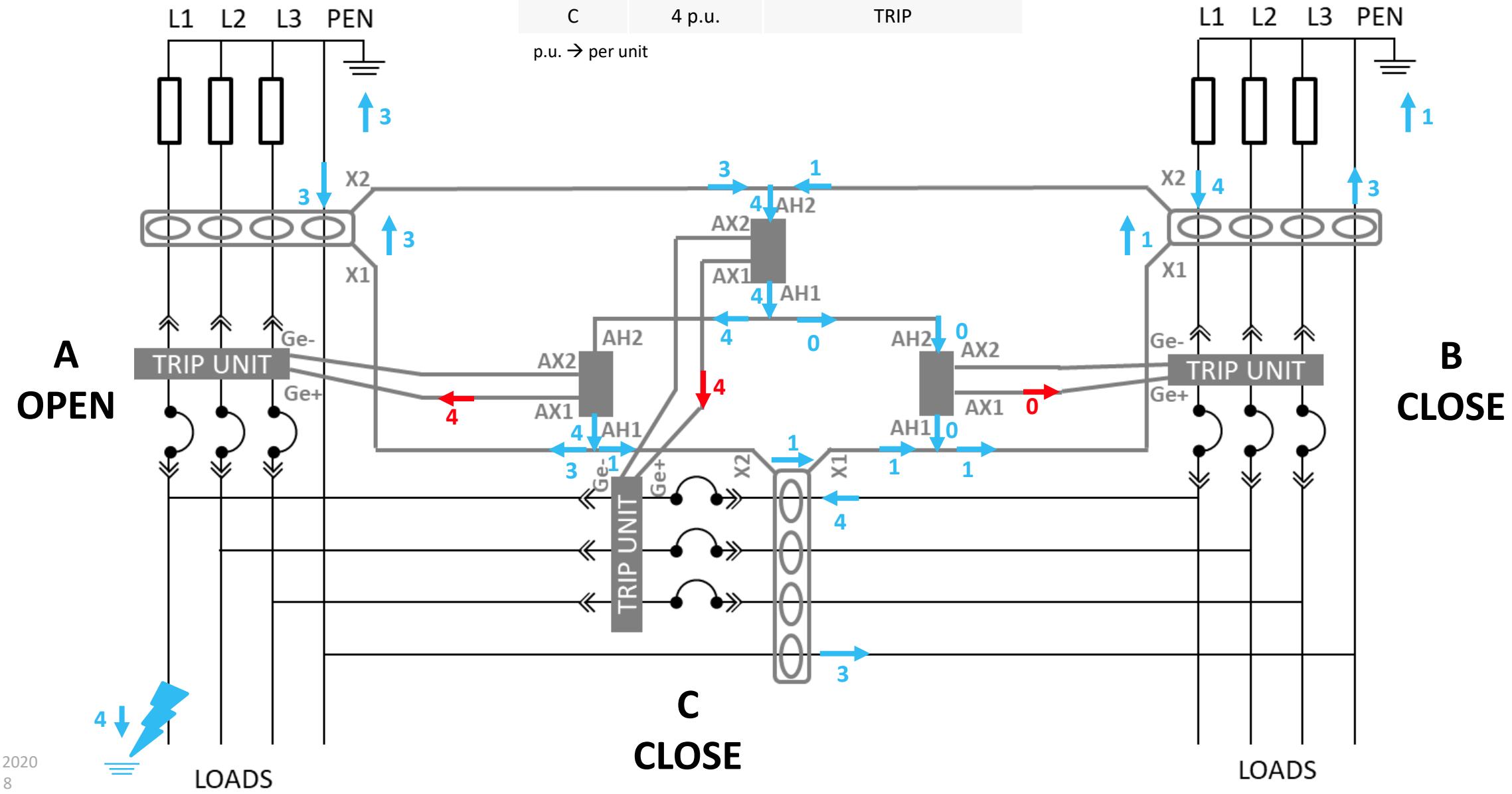
p.u. → per unit



MDGF

Circuit Breaker	Current Measured	Action
A	4 p.u.	TRIP but it is still OPEN
B	0 p.u.	NO TRIP
C	4 p.u.	TRIP

p.u. → per unit



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

Phase CTs and Summing CTs

LINK


ABB