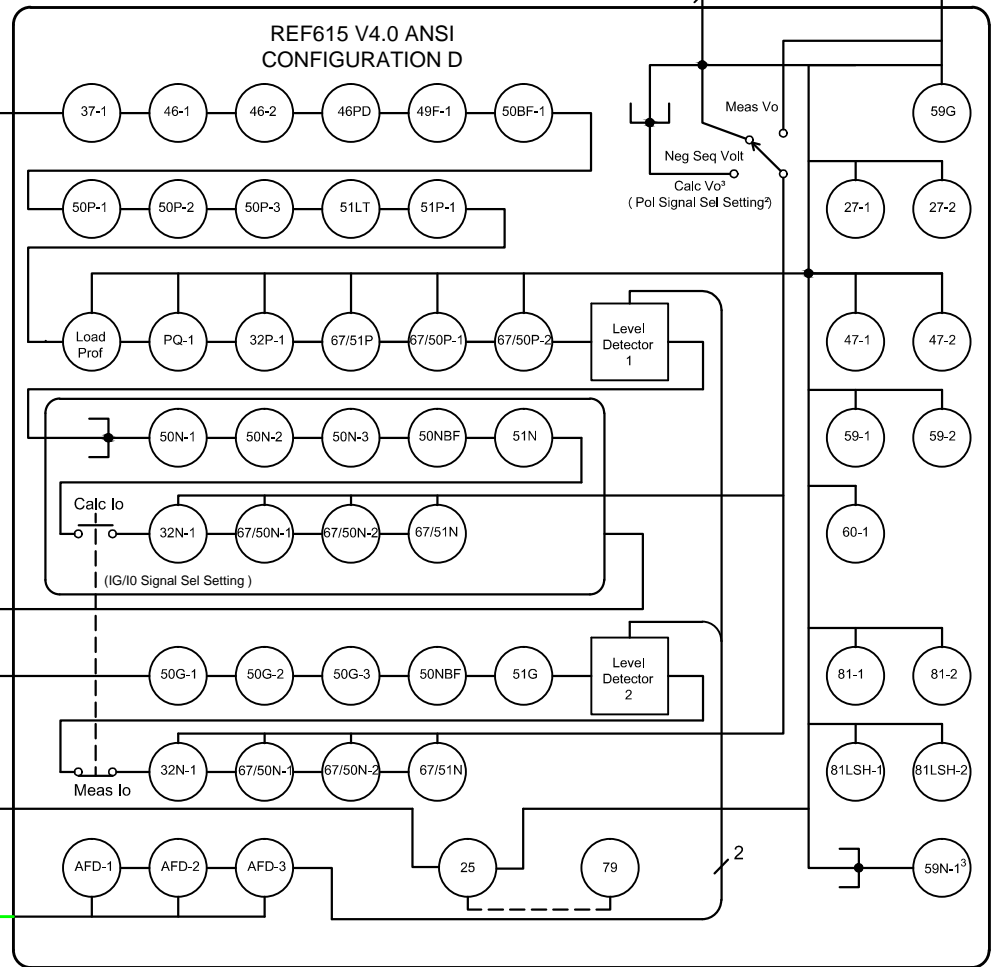
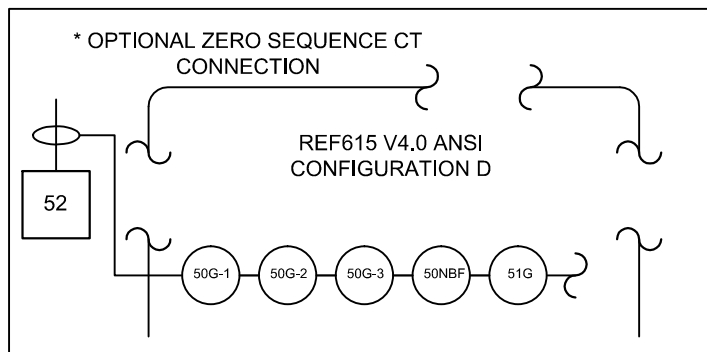
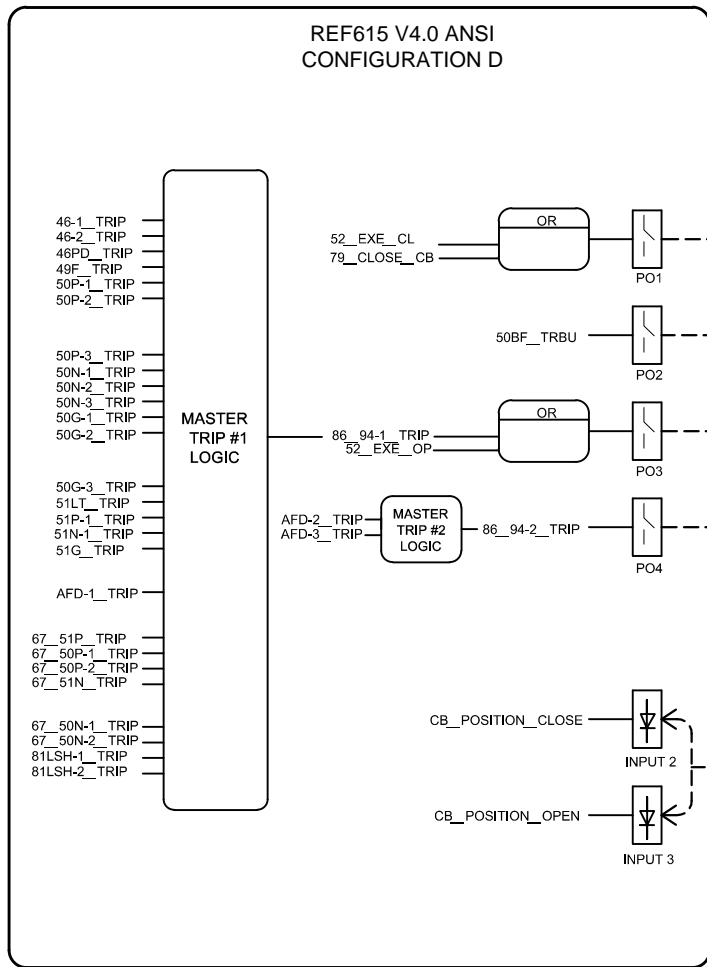


REF615_HAFDDADAF1BCN1XE



Notes:

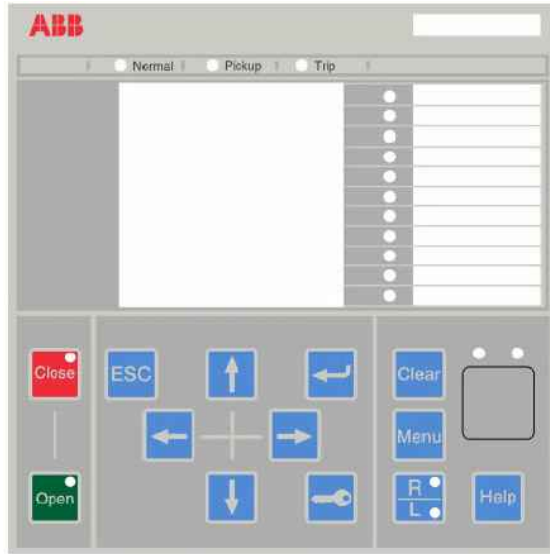
- Latched pushbutton switch emulates drop down menu for "IG/IO signal Sel" parameter in PCM600 Switch position shown for recommended setting (Meas Io) . Switch is typical for all connected functions. Position can be set individually for each function .
- Rotary Switch emulates drop down menu for "Pol Signal Sel" parameter setting in PCM600. Switch position shown for default setting (Neg Seq Volt) . Switch is typical for all connected functions. Position can be set individually for each function.
- "Pol Signal Sel" parameter setting "Calc Vo", and 59N-1 functions not applicable for open delta connected VTs.

General Notes:

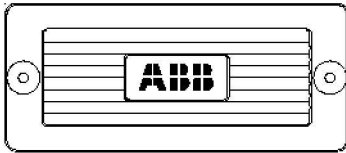
- This drawing does not show all functions available in REF615 configuration D relay. The functions shown are for a distribution feeder application.
- PCM600 ACT (Application Configuration Tool) logic is shown in default state.



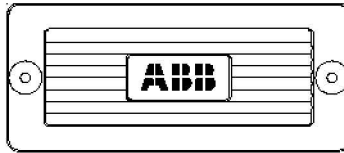
REF615_HAFDDADAFE1BCN1XE



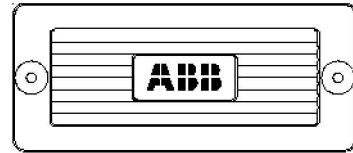
FT-1/TS1
Style No: 837A407G01
Code No: 083



FT-1/TS2
Style No: 129A501G01
Code No: 001



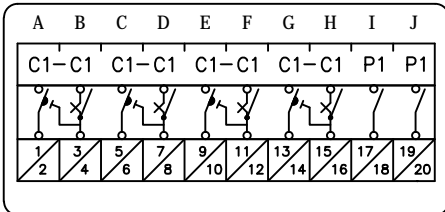
FT-1/TS3
Style No: 129A501G01
Code No: 001



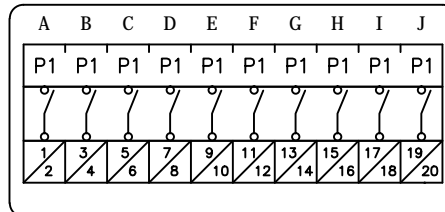
PHASE CURRENT ■ (IA)
PHASE CURRENT ■ (IB)
PHASE CURRENT ■ (IC)
GROUND CURRENT ■ (IG)

PHASE VOLTAGE ■ (VA)
PHASE VOLTAGE ■ (VB)
PHASE VOLTAGE ■ (VC)
GROUND VOLTAGE ■ (VG)
SYNCH VOLTAGE ■ (VS)

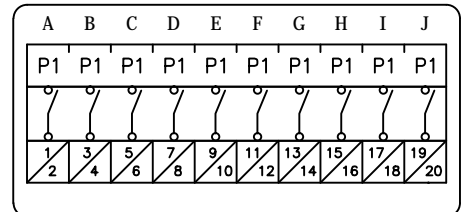
RELAY POS.VDC
RELAY NEG.VDC
52_EXE_CL/79_CLOSE_CB (PO1)
50BF_TRBU (PO2)
86_94-1_TRIP/52_EXE_OP (PO3)
86_94-2_TRIP (PO4)
GROUND_BLOCKING (IN1)
CB_POSITION_CLOSE (IN2)
CB_POSITION_OPEN (IN3)
EXTERNAL_AR_BLOCKING (IN4)



(CURRENTS)



(POTENTIALS)

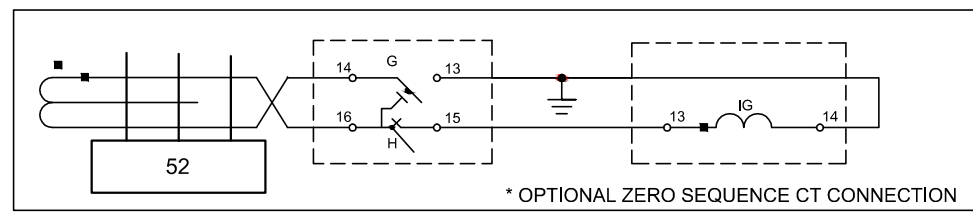
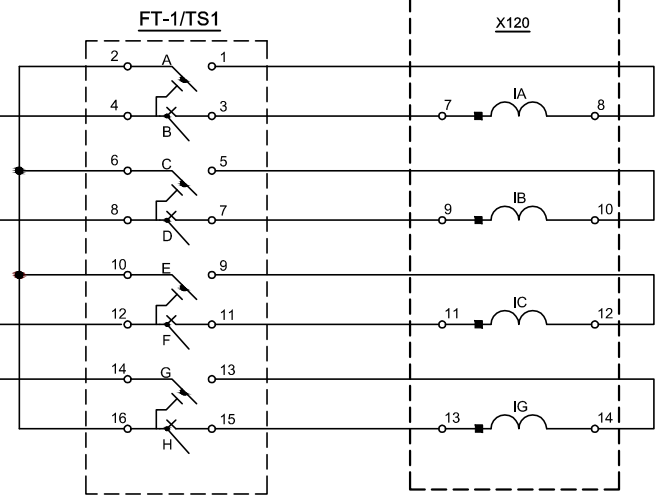
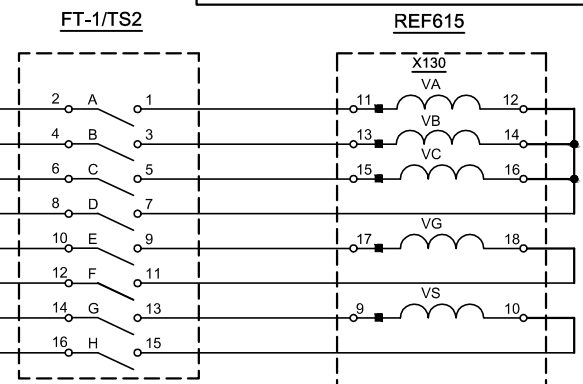
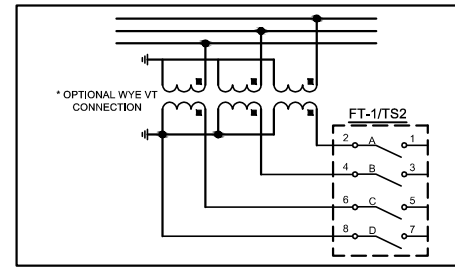
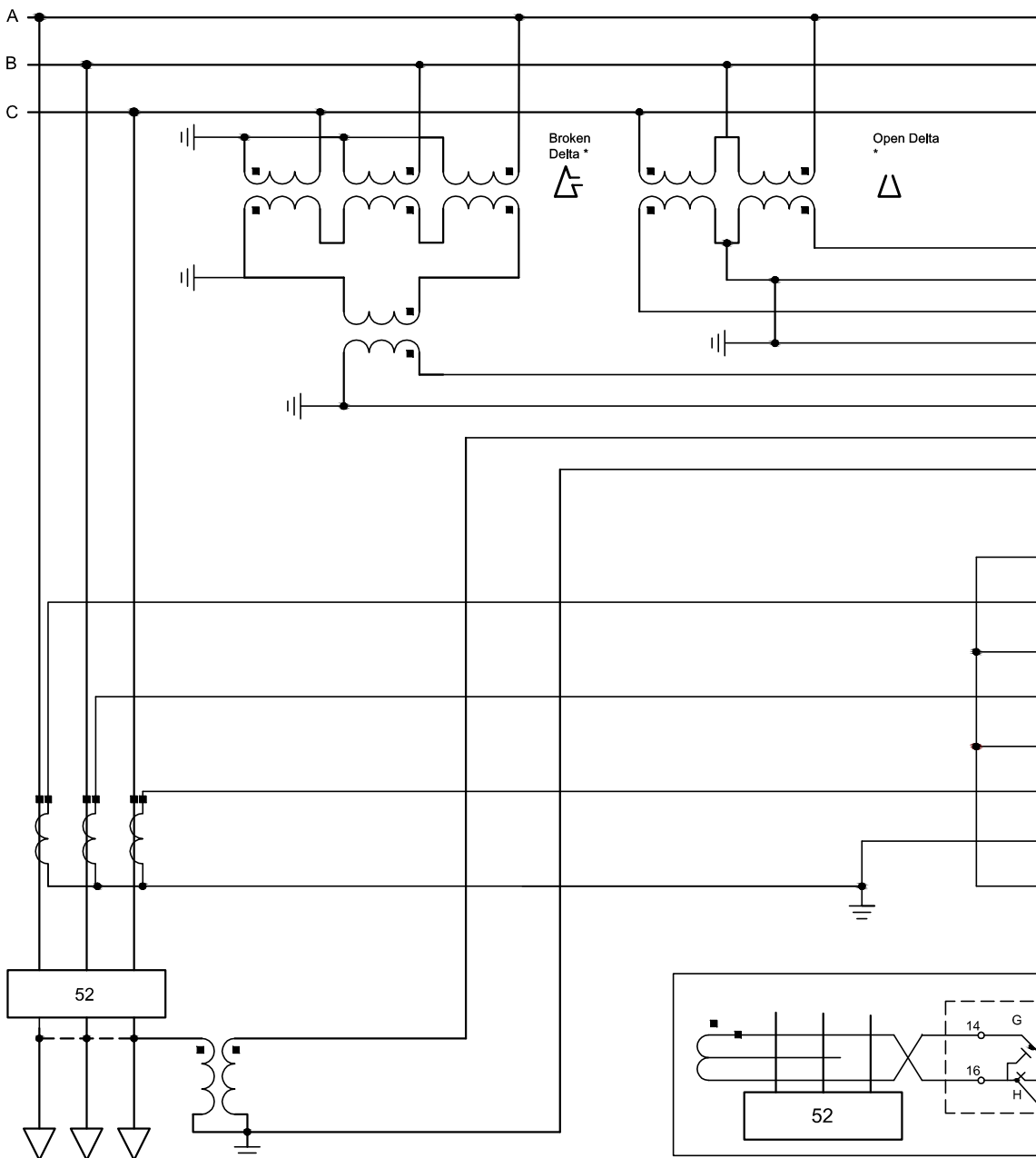


(BINARY I/O)

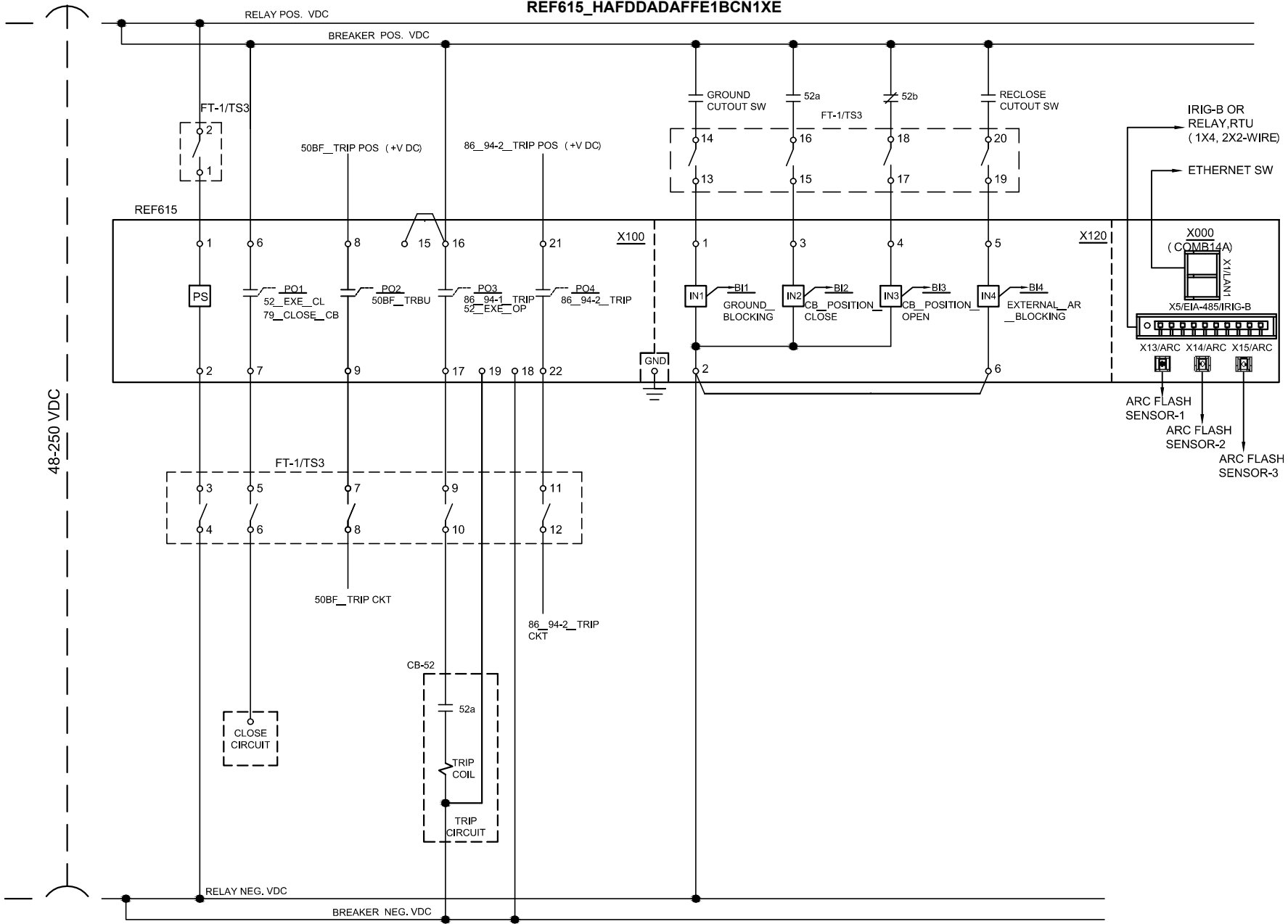
General Notes:

1. Style and code numbers for FT-1 switches provide black covers and handles, screw terminals and standard depth. Poles selection follows arrangement shown in this drawing set. For custom designs, different selection options can be made by using FT-1 configurator at ft1switch.com.
2. Refer to 615 series ANSI Installation Manual for relay and cutout dimensions (Document ID: MACCO51065-MB, Revision: D, Product version 4.0)

REF615_HAFDDADAFE1BCN1XE



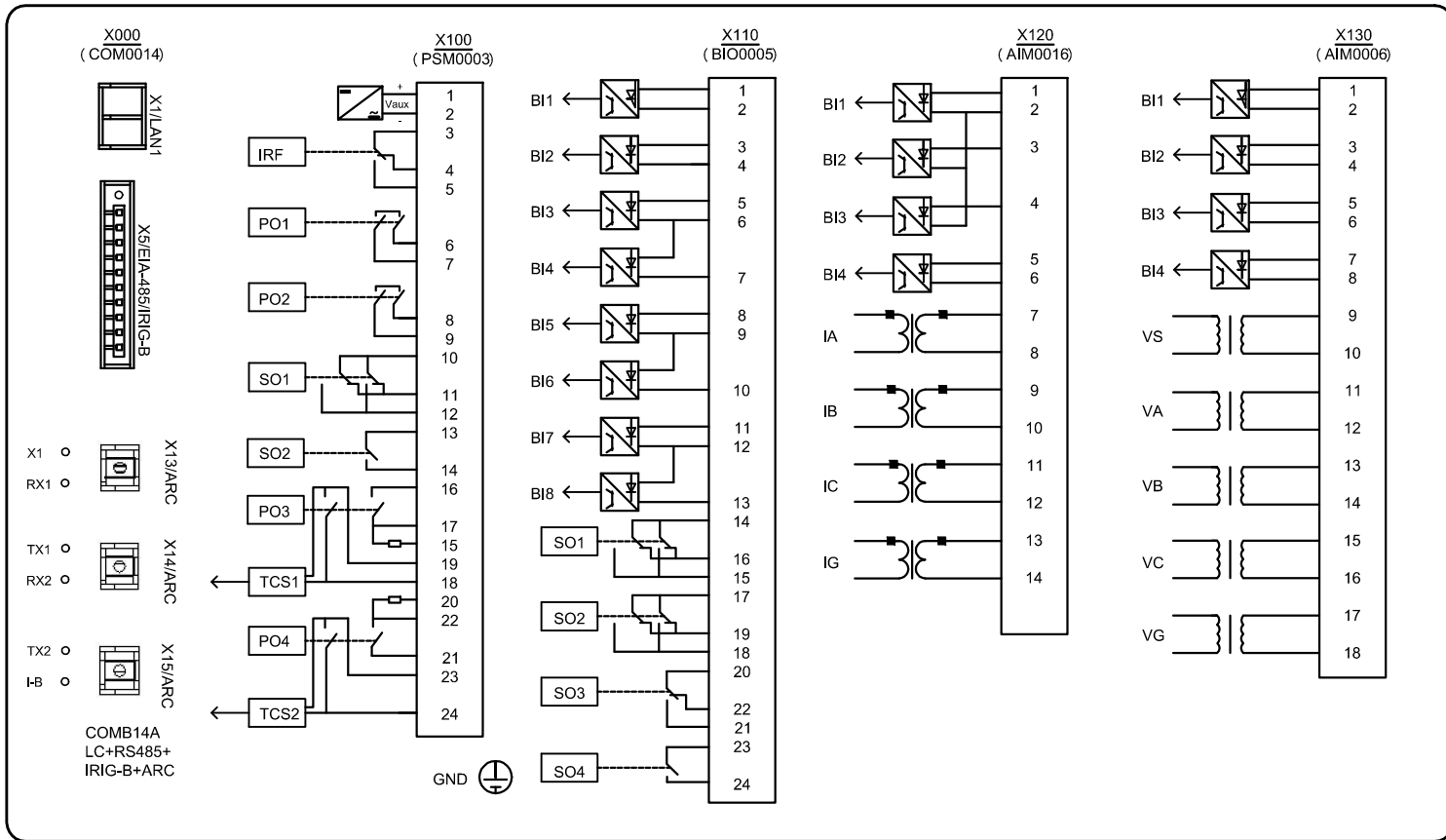
REF615_HAFDDADAF1BCN1XE



General Notes:

Binary I/O shown is from default PCM600 Application Configuration Tool (ACT).
 Connections shown are typical though more connections may be needed for specific application.

REF615_HAFDDADAFE1BCN1XE



RR
REF615

X000-X1:
X000-X5:
X000-X13:
X000-X14:
X000-X15:

X100-1: SS1
X100-2: SS3
X100-3:
X100-4:
X100-5:
X100-6:
X100-7: SS5
X100-8:
X100-9: SS7
X100-10:
X100-11:
X100-12:
X100-13:
X100-14:
X100-15: X100-16
X100-16: X100-15
X100-17: SS9
X100-18:
X100-19:
X100-20:
X100-21:
X100-22: SS11
X100-23:
X100-24:

X110-1:
X110-2:
X110-3:
X110-4:
X110-5:
X110-6:
X110-7:
X110-8:
X110-9:
X110-10:
X110-11:
X110-12:
X110-13:
X110-14:
X110-15:
X110-16:
X110-17:
X110-18:
X110-19:
X110-20:
X110-21:
X110-22:
X110-23:
X110-24:

X120-1: SS13
X120-2: X120-6
X120-3: SS15
X120-4: SS17
X120-5: SS19
X120-6: X120-2
X120-7: UU3
X120-8: UU1
X120-9: UU7
X120-10: UU5
X120-11: UU11
X120-12: UU9
X120-13: UU15
X120-14: UU13

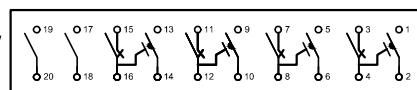
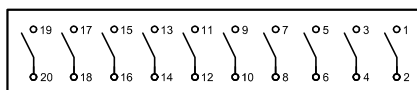
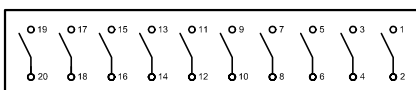
X130-1:
X130-2:
X130-3:
X130-4:
X130-5:
X130-6:
X130-7:
X130-8:
X130-9: TT13
X130-10: TT15
X130-11: TT1
X130-12: X130-14
X130-13: TT3
X130-14: X130-12, X130-16
X130-15: TT5
X130-16: X130-14, TT7
X130-17: TT9
X130-18: TT11

GND:

RR_X120-5
RR_X120-4
RR_X120-3
RR_X120-1
RR_X100-22
RR_X100-17
RR_X100-9
RR_X100-7
RR_X100-2
RR_X100-1

RR_X130-10
RR_X130-9
RR_X130-18
RR_X130-17
RR_X130-16
RR_X130-15
RR_X130-13
RR_X130-11

RR_X120-13
RR_X120-14
RR_X120-11
RR_X120-12
RR_X120-9
RR_X120-10
RR_X120-7
RR_X120-8



UU10
UU6, UU16
UU2, UU10
UU6