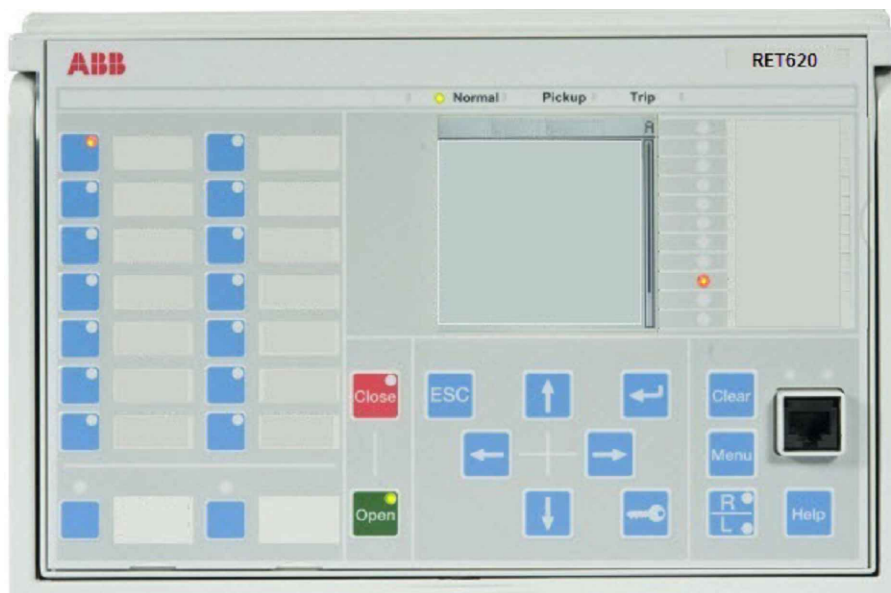
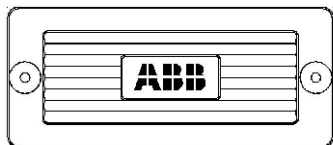


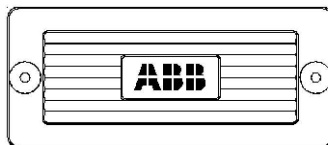
- Notes:**
1. Rotary Switch emulates drop down menu for "Pol Signal Sel" parameter setting in PCM600. Switch position shown for default setting (Neg Seq Volt).
 2. "Pol Signal Sel" parameter setting Calc Vo, 59N function not applicable for open delta connected VTs.



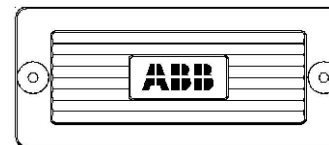
FT-1/TS1
Style No: 774B430G20
Code No: 171



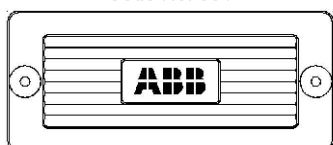
FT-1/TS2
Style No: 837A407G01
Code No: 083



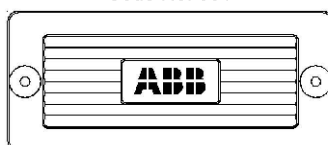
FT-1/TS3
Style No: 774B430G20
Code No: 171



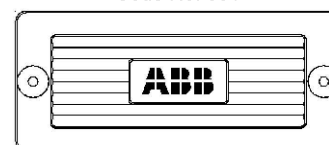
FT-1/TS4
Style No: 129A501G01
Code No: 001



FT-1/TS5
Style No: 129A501G01
Code No: 001



FT-1/TS6
Style No: 129A501G01
Code No: 001

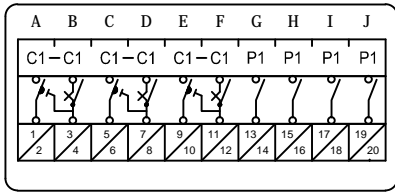


General Notes:

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 620 series ANSI Installation Manual for relay and cutout dimensions (Document ID: 1MAC457436-iB, Revision: A, Product version 2.0)

RET620_NATAABA2FFExxxNx1xx

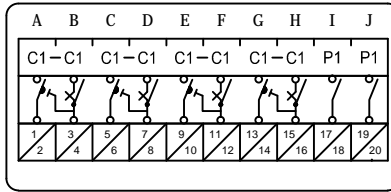
PHASE CURRENT
 ■ IA(1)
 PHASE CURRENT
 ■ IB(1)
 PHASE CURRENT
 ■ IC(1)
 PHASE VOLTAGE ■ VA(1)
 PHASE VOLTAGE ■ VB(1)
 PHASE VOLTAGE ■ VC(1)



FT-1/TS1

(CT(1) CURRENTS AND BUS 1 PHASE POTENTIALS)

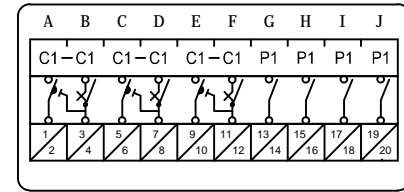
PHASE CURRENT
 ■ IA(2)
 PHASE CURRENT
 ■ IB(2)
 PHASE CURRENT
 ■ IC(2)
 GROUND CURRENT
 ■ IG



FT-1/TS2

(CT(2) CURRENTS AND TRANSFORMER NEUTRAL CURRENT)

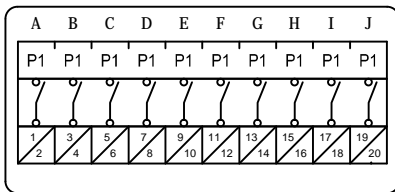
PHASE CURRENT
 ■ IA(3)
 PHASE CURRENT
 ■ IB(3)
 PHASE CURRENT
 ■ IC(3)



FT-1/TS3

(CT(3) CURRENTS)

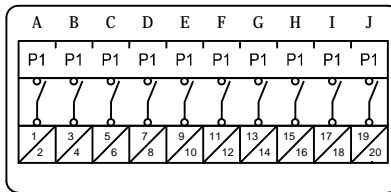
GROUND VOLTAGE ■ VG(1)
 87T_TRIP (PO1)/87LOZREF(2)_TRIP(PO1)
 50BF(1,2,3)_TRBU(PO2)
 86_94-1(1)_TRIP/52(1)_EXE_OP(PO3)
 52(1)_EXE_CL(SO1)
 86_94-1(1)_TRIP(HSO1)
 CB1_POSITION_CLOSE(IN7)
 CB1_POSITION_OPEN(IN8)



FT-1/TS4

(CB52(1) BINARY I/O AND BUS 1 GROUND POTENTIAL)

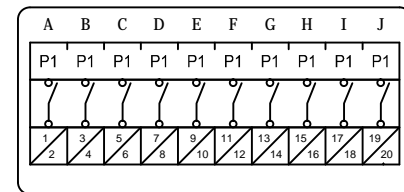
RELAY POS. VDC
 RELAY NEG. VDC
 86_94-1(2)_TRIP/52(2)_EXE_OP(PO4)
 52(2)_EXE_CL(HSO1)
 86_94-1(2)_TRIP(HSO2)
 CB2_POSITION_CLOSE (IN5)
 CB2_POSITION_OPEN (IN6)



FT-1/TS5

(CB 52(2) BINARY I/O) AND POWER SUPPLY)

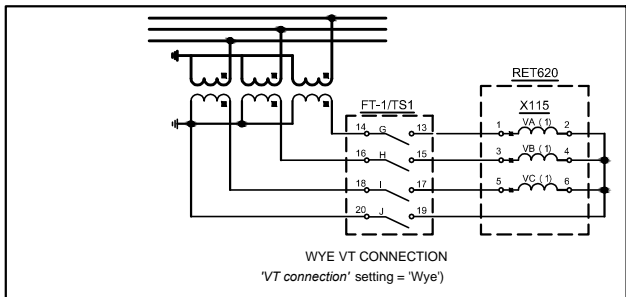
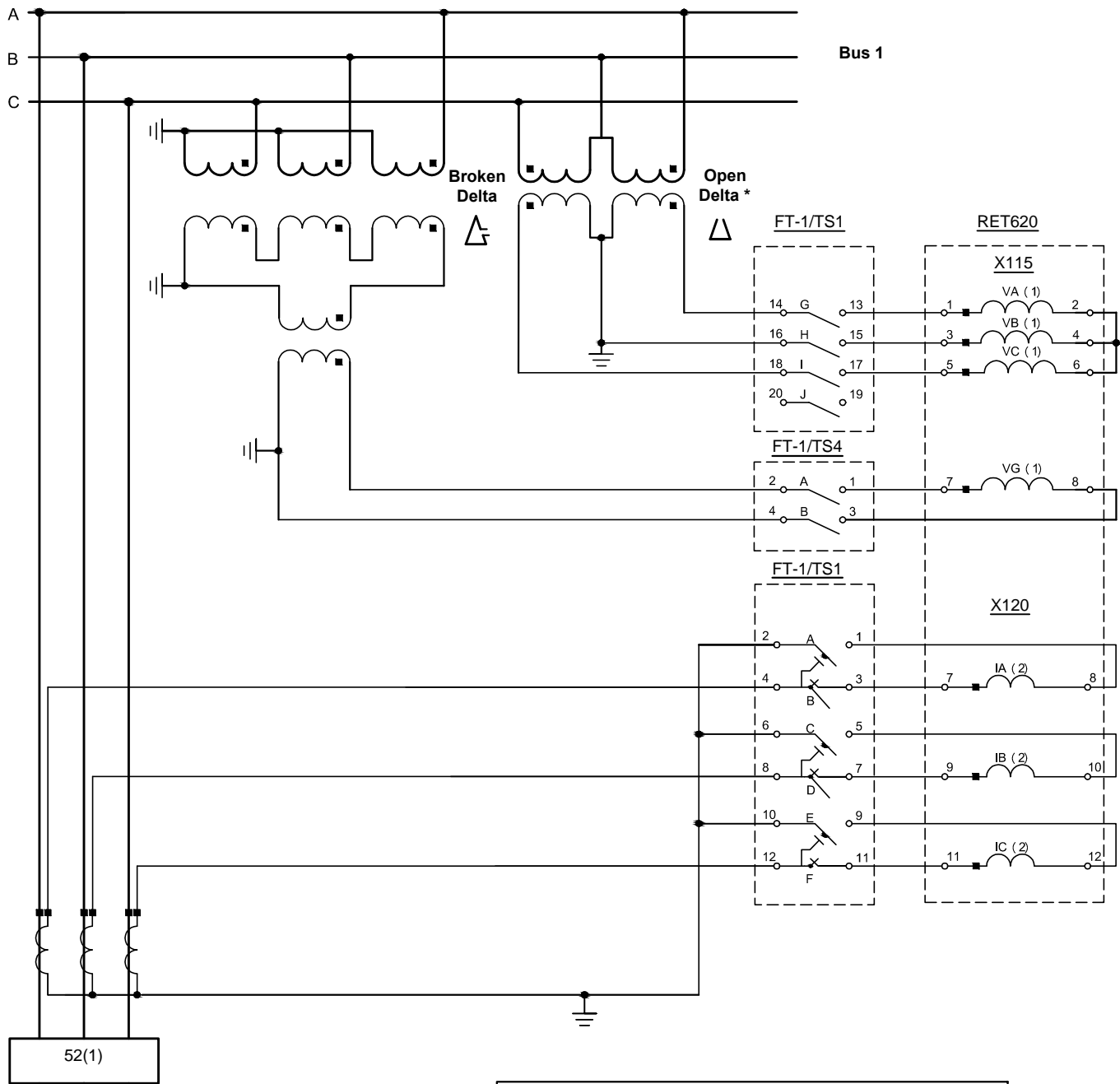
86_94-1(3)_TRIP/52(3)_EXE_OP(SO3)
 52(3)_EXE_CL (HSO2)
 86_94-1(3)_TRIP (HSO3)
 CB3_POSITION_CLOSE (IN3)
 CB3_POSITION_OPEN (IN4)



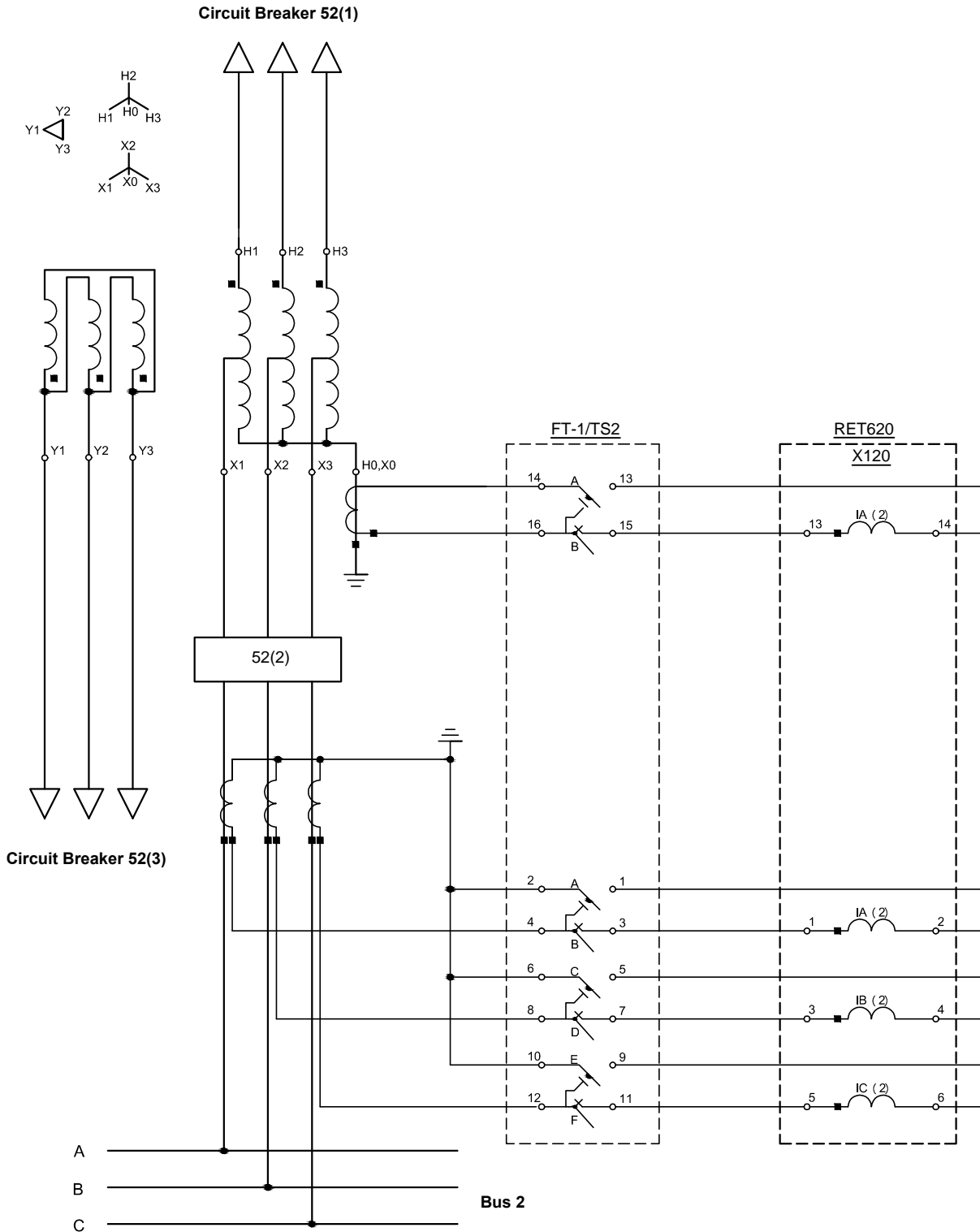
FT-1/TS6

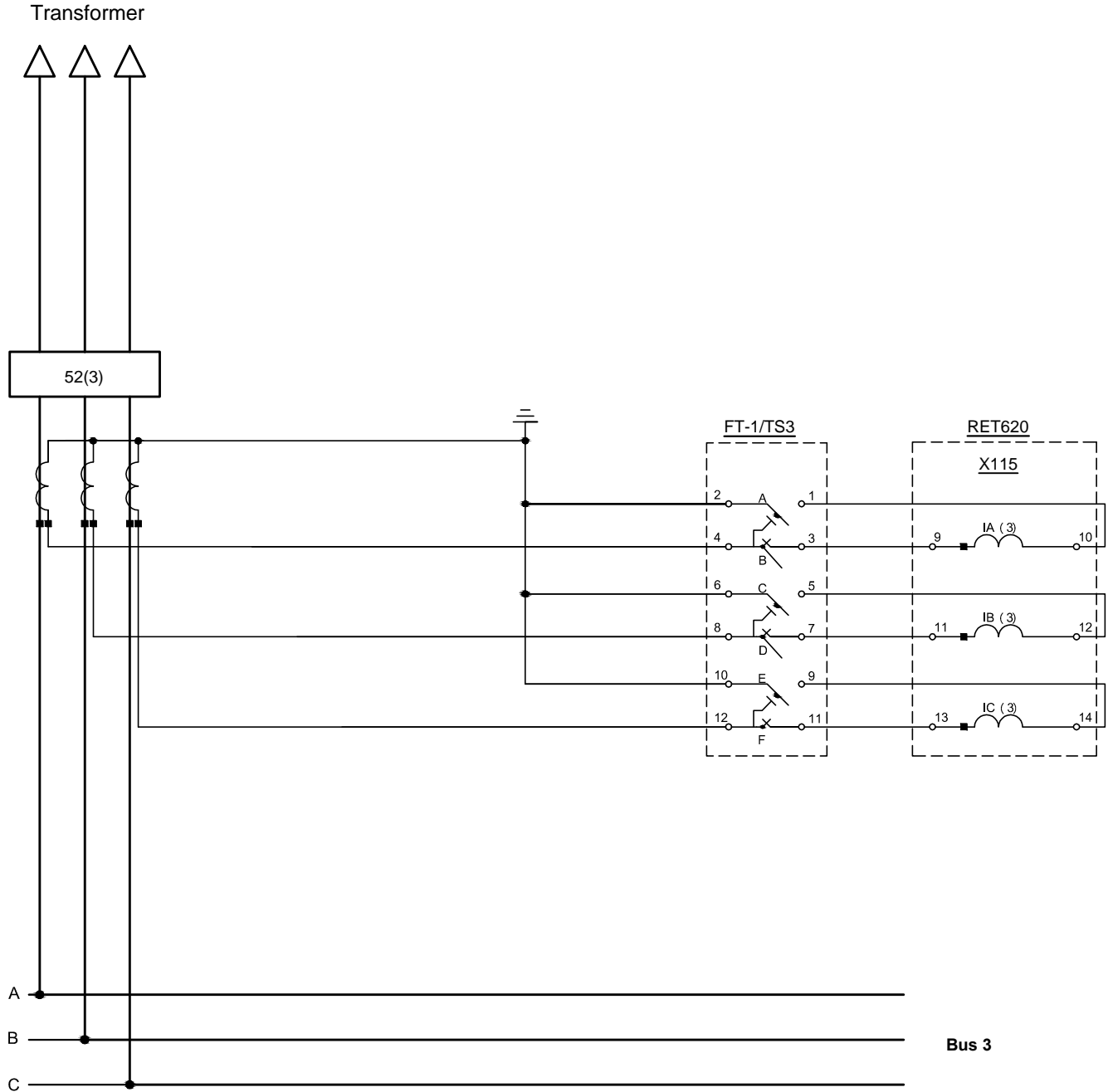
(CB 52(3) BINARY I/O)

RET620_NATAABA2FFExxxNx1xx



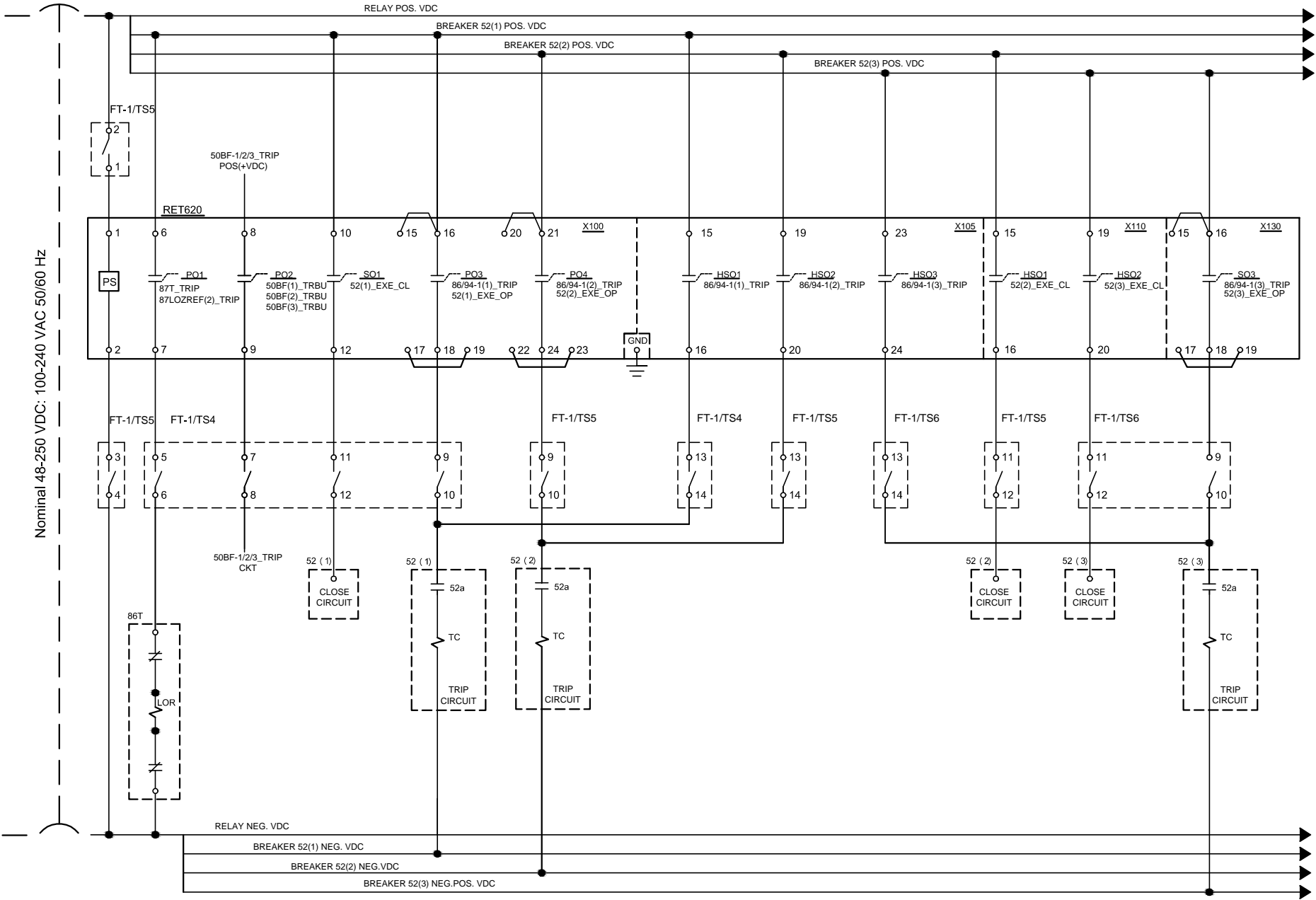
* For relay voltage connections shown set Analog input Voltage 'VT connection' setting to 'Wye' for metering to work correctly. Refer to application manual for alternate connections to relay for open delta connections using 'Delta' VT connection setting.





RET620_NATAABA2FFExxxNx1xx

DC SCHEMATIC: INPUTS AND COMMUNICATION BOARD



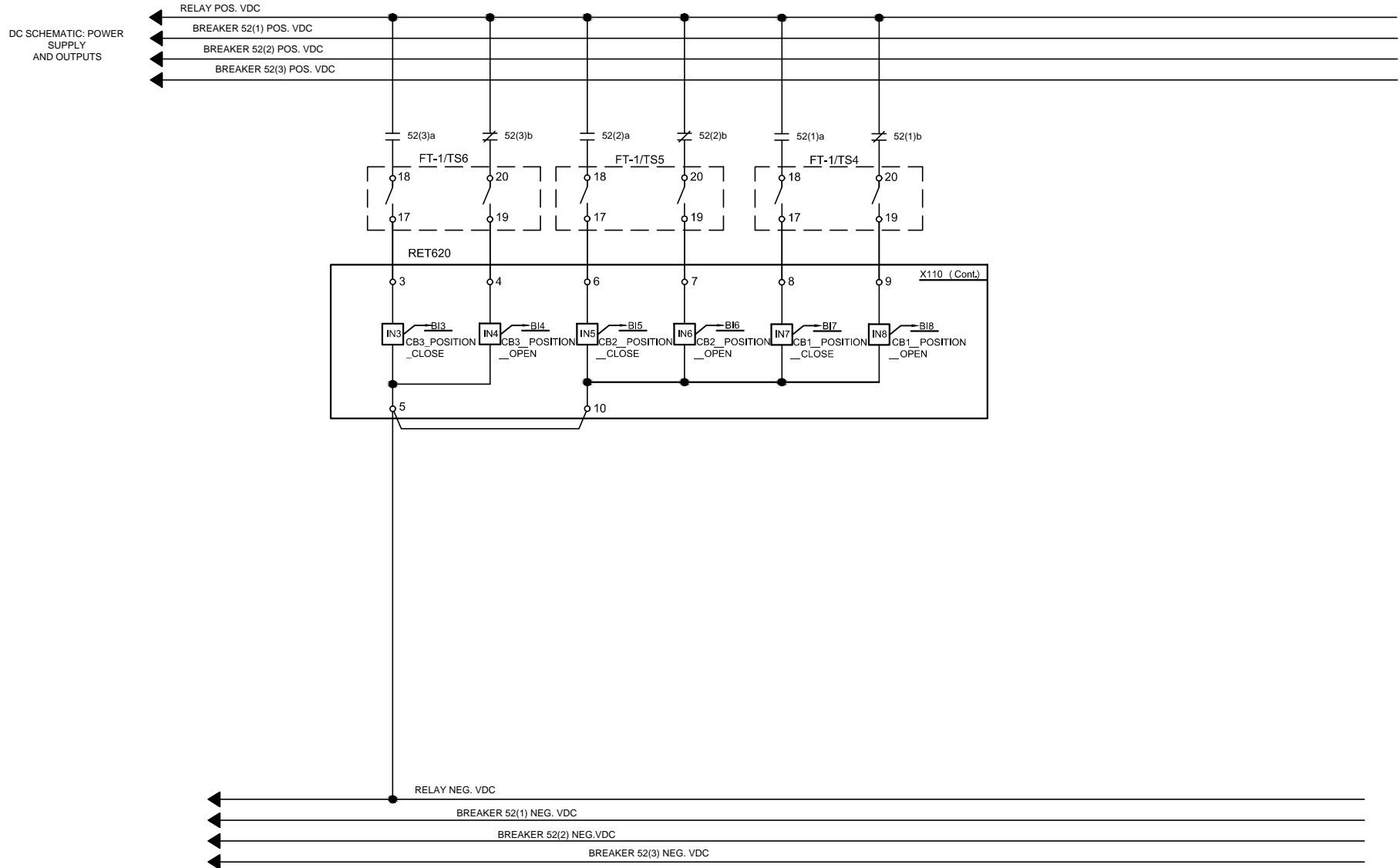
Nominal 48-250 VDC; 100-240 VAC 50/60 Hz

General Notes:

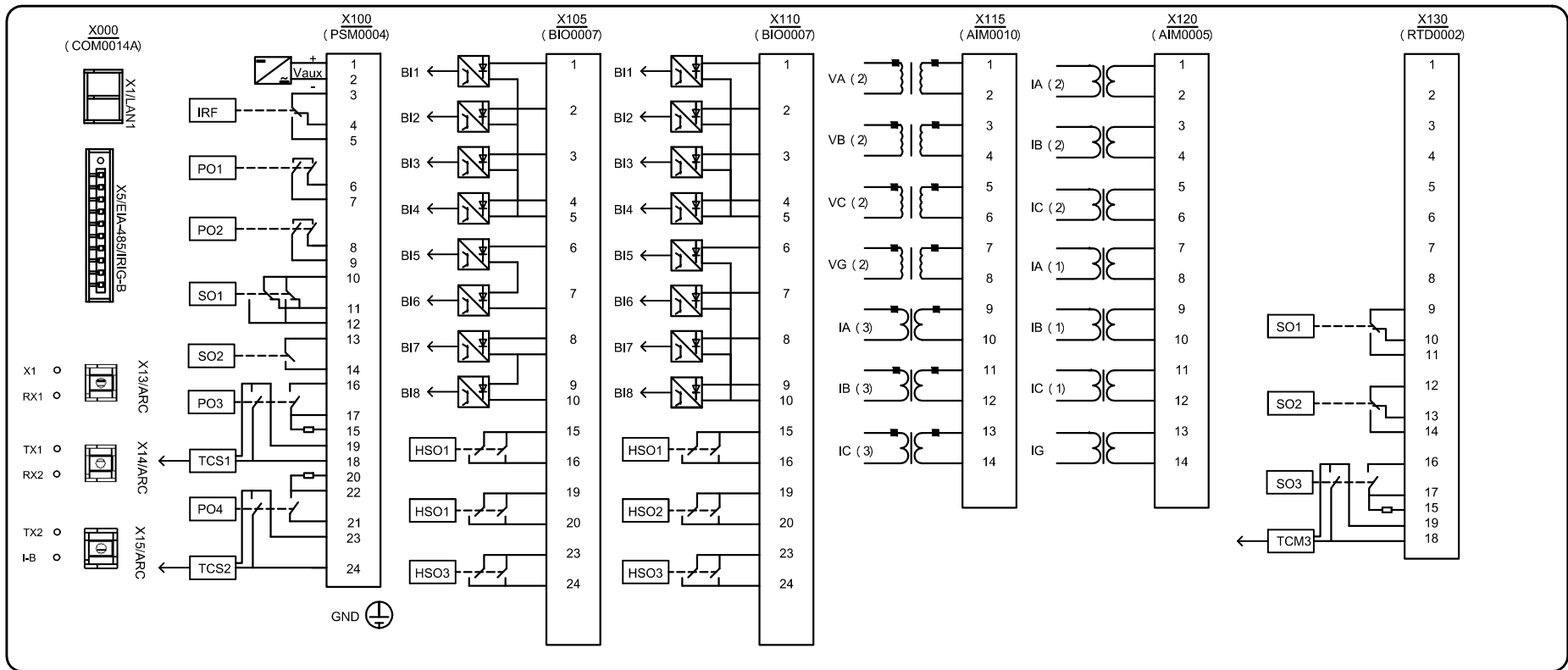
Binary I/O shown is from default PCM600 Application Configuration Tool (ACT) . Connections shown are typical though more connections may be needed for specific application.

TITLE: DC SCHEMATIC-OUTPUTS, PS (TYPICAL)	SOFTWARE TYPE: AUTOCAD 2014	© Copyright 2015 ABB All rights reserved	SIZE: A	DWG. NO. 1MACC555372-DR	REV. A
RELAY ORDER CODE: NATAABA2FFE1BNN1XF	ABB Protective Relays and Switches, Coral Springs FL, U.S.A.		SCALE:	SHEET 7 OF 10	ABB

RET620_NATAABA2FFExxxNx1xx



RET620_NATAABA2FFExxxNx1xx



RR
RET620

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

X100-1: WW1
X100-2: WW3
X100-3:
X100-4:
X100-5:
X100-6:
X100-7: XX5
X100-8:
X100-9: XX7
X100-10:
X100-11:
X100-12: XX11
X100-13:
X100-14:
X100-15: X100-16
X100-16: X100-15
X100-17: X100-19
X100-18: XX9
X100-19: X100-17
X100-20: X100-21
X100-21: X100-20
X100-22: X100-23
X100-23: X100-22
X100-24: WW9

X105-1:
X105-2:
X105-3:
X105-4:
X105-5:
X105-6:
X105-7:
X105-8:
X105-9:
X105-10:
X105-11:
X105-12:
X105-13:
X105-14:
X105-15:
X105-16: XX13
X105-17:
X105-18:
X105-19:
X105-20: WW13
X105-21:
X105-22:
X105-23:
X105-24: VV13

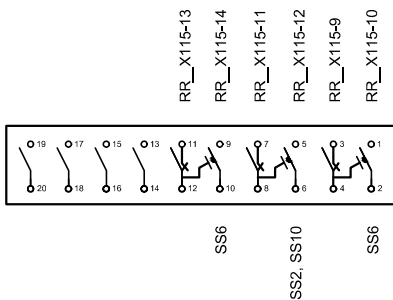
X110-1:
X110-2:
X110-3: VV17
X110-4: VV19
X110-5: X110-10
X110-6: WW17
X110-7: WW19
X110-8: XX17
X110-9: XX19
X110-10: X110-5
X110-11:
X110-12:
X110-13:
X110-14:
X110-15:
X110-16: WW11
X110-17:
X110-18:
X110-19:
X110-20: VV11
X110-21:
X110-22:
X110-23:
X110-24:

X115-1: UU13
X115-2: X115-4
X115-3: UU15
X115-4: X115-2, X115-6
X115-5: UU17
X115-6: X115-4
X115-7: XX1
X115-8: XX3
X115-9: SS3
X115-10: SS1
X115-11: SS7
X115-12: SS5
X115-13: SS11
X115-14: SS9

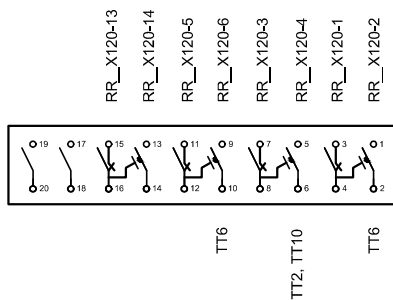
X120-1: TT3
X120-2: TT1
X120-3: TT7
X120-4: TT5
X120-5: TT11
X120-6: TT9
X120-7: UU3
X120-8: UU1
X120-9: UU7
X120-10: UU5
X120-11: UU11
X120-12: UU9
X120-13: UU15
X120-14: UU13

X130-1:
X130-2:
X130-3:
X130-4:
X130-5:
X130-6:
X130-7:
X130-8:
X130-9:
X130-10:
X130-11:
X130-12:
X130-13:
X130-14:
X130-15: X130-16
X130-16: X130-15
X130-17: 130-19, VV9
X130-18: VV9
X130-19: X130-17
GND:

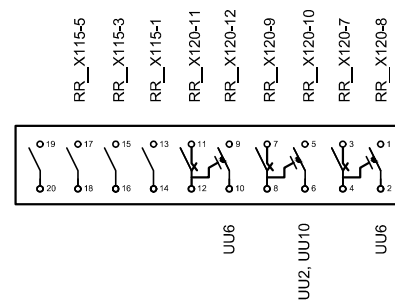
RET620_NATAABA2FFExxNx1xx



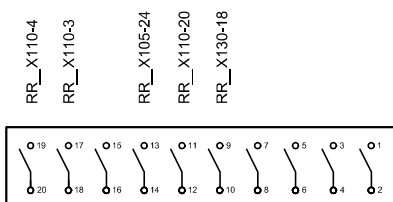
SS
FT-1/TS3



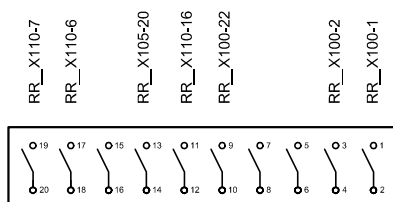
TT
FT-1/TS2



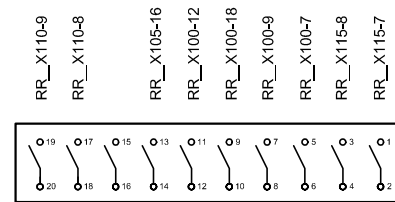
UU
FT-1/TS1



VV
FT-1/TS6



WW
FT-1/TS5



XX
FT-1/TS4