AC SIDE (PPPL)

Q1 BUS

To XQT1(X)
4.16kV

Q1B5

50G
51G
AM
50
51
3

CLR 0.05 Ohms

CLR 0.05 Ohms

To IF Xfmr

AM
50
51
3
50G

AC SIDE (ROBICON)

51
HIGH/LOW LINE PHASE LOSS
PT
50G
Contactor

Tfmr. over-temp
49
+15
-15
Tfmr. over-temp
49

TO RECTIFIERS - SEE ABOVE RIGHT

ESTOP

PLC

PS ARM PERMISSIVE
- PS ENABLE COMMAND MUST BE HIGH
- PS ENABLED
- COIL - NO THERMAL TRIP
- DISC SW. READY & CLOSED
- COMPUTER ARM COMMAND HIGH
- COIL TEMP. NORMAL FOR START

PS ENABLE PERMISSIVE (TRIP ALL PS)
- PULSE DURATION > TBD SECS.
- PULSE PERIOD (INTERVAL) > TBD SECS.
- PLC NOT FAULTED
- COIL COOLING SYSTEM OK
- ALL PS IN REMOTE MODE
- TEST CELL DOOR INTERLOCK OK
- RSView COMPUTER ONLINE
- NO E-STOP

PS ENABLE PERMISSIVE (TRIP affected PS)
- SUMMED PERMISSIVE FROM PS OK
- NO GRD. FAULT ON PS
- 4.16 kV Bkr. CLOSED

MISC TEMP ETC.

Permissive

PDP TIMER
Timed window for pulsing on receipt of SOP

LOAD OC
(I^2)(t) dt
Thermal Simulation
COMPARISON

CONTROLS

COMPUTER

DC SIDE (ROBICON)

RECTIFIER

FROM CONV. TRANSFRS.

- SCT JCT. TEMP. HIGH
- RECT. DOOR OPEN
- PRIMARY OVER CURRENT*
- DC OVER CURRENT*
- DC OVER VOLTAGE
- RIGHT CONV. CLG. WTR. FLOW LOSS
- LEFT CONV. CLG. WTR. FLOW LOSS
- LEFT SCR OVERTEMP.
- RIGHT SCR OVERTEMP.

*DISABLE PS & TRIP AC
OTHERS - INVERT & TRIP AC

Isolator

Isolator

Shunt

SDS

STATUS

GRD FLT

Temp.

pressure?

COILS

Cryostat

COMPUTER GENERATED DRAWING - MANUAL CHANGES NOT PERMITTED

CADD FILE NUMBER

REV	DATE	BY	APPROVED	REV	DATE	BY	APPROVED
8				4			
7				3			
6				2			
5				1			

DIV WBS5
ENG S.RAMAKRISHNAN
DR ____ CH ____
DATE ____

APPROVED
S.RAMAKRISHNAN
CH | SUPV

PLASMA PHYSICS LABORATORY
PRINCETON UNIVERSITY
NCSX
PROTECTION
(Coils supplied by Robicons)

NSTX
B-4F1005
SH 1899A

PSCL = .413