MPS Logic:
2021-05-19-c

Contents

1 Ignored when Insertable Faraday Cup FC10241 Is In or PR10241 Is In **3**
1.1 TD11390 Position . . . 3

2 Ignored when Insertable Faraday Cup FC10241 Is In, PR10241 Is In, or TD11390 Is In **4**
2.1 Bunch Length Monitor 3014 Position . . . 4
2.2 Collimator LI20 2058 Klixon . . . 4
2.3 EPS Summary Fault . . . 4
2.4 OTRS LI20 3158 (Mirror 3158) Position . . . 5
2.5 Oven Beryllium Window Position . . . 5
2.6 Plasma Oven Position . . . 5
2.7 PMON Position Position . . . 6
2.8 Sector 20 Beam Dump Shutter Position . . . 6
2.9 VVFS LI20 1986 Position . . . 6
2.10 VVPG LI20 3076 Position . . . 6
2.11 VVPG LI20 3160 Position . . . 7
2.12 VVPG LI20 3250 Position . . . 7

3 Always Evaluated **8**
3.1 Bypass Recover . . . 8
3.2 Gun RF Peak Power 10-2 . . . 8
3.3 Gun Waveguide Vacuum Summary . . . 8
3.4 Insertable Faraday Cup FC10241 Position . . . 8
3.5 IOC-IN10-MP01 MPS Support IOC Heartbeat . . . 9
3.6 MPS Beam Permit: Gun RF . . . 9
3.7 MPS Beam Permit: Mechanical Shutter . . . 9
3.8 MPS Mechanical Shutter Inconsistent State . . . 9
3.9 MPS Mechanical Shutter Position . . . 10
3.10 PLC-IN10-MP01 MPS Support PLC Heartbeat . . . 10
3.11 Rate Request: Gun RF 1 Hz . . . 10
3.12 Rate Request: Gun RF 10 Hz . . . 11
3.13 VVPG IN10 155 Position . . . 11
3.14 VVPG IN10 215 Position . . . 11
3.15 YAG IN10 241 Position . . . 11

4 Ignore Logic **12**
4.1 Insertable Faraday Cup FC10241 Is In . . . 12
4.2 PR10241 Is In . . . 12
4.3 TD11390 Is In . . . 12

1 Ignored when Insertable Faraday Cup FC10241 Is In or PR10241 Is In

1.1 TD11390 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	30 Hz	30 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `DUMP_LI11_390_OUT_LMTSW_STATE`,
B = `DUMP_LI11_390_IN_LMTSW_STATE`

2 Ignored when Insertable Faraday Cup FC10241 Is In, PR10241 Is In, or TD11390 Is In

2.1 Bunch Length Monitor 3014 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	30 Hz	30 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `BLEN_LI20_3014_OUT_LMTSW_STATE`,
B = `BLEN_LI20_3014_IN_LMTSW_STATE`

2.2 Collimator LI20 2058 Klixon

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not OK	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `COLL_LI20_2058_KLIXON_STATE`

2.3 EPS Summary Fault

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not OK	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `EXPT_LI20_1_STATUS_STATE`

2.4 OTRS LI20 3158 (Mirror 3158) Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	0 Hz	0 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `OTRS_LI20_3158_OUT_LMTSW_STATE`,
B = `OTRS_LI20_3158_IN_LMTSW_STATE`

2.5 Oven Beryllium Window Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Open	F	T	30 Hz	30 Hz	–	–	–	–	–
Closed	T	F	30 Hz	30 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `VVPG_LI20_3208_OPEN_STATE`,
B = `VVPG_LI20_3208_CLOSED_STATE`

2.6 Plasma Oven Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	30 Hz	30 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `OVEN_LI20_3185_OUT_LMTSW_STATE`,
B = `OVEN_LI20_3185_IN_LMTSW_STATE`

2.7 PMON Position Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	30 Hz	30 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `PROF_LI20_45_OUT_LMTSW_STATE`,
B = `PROF_LI20_45_IN_LMTSW_STATE`

2.8 Sector 20 Beam Dump Shutter Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	0 Hz	0 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `LI20_MPS_14_DUMPSHTR_OUT_STATE`,
B = `LI20_MPS_14_DUMPSHTR_IN_STATE`

2.9 VVFS LI20 1986 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	–	–	–	–	–
Open	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `VVFS_LI20_1986_POSITION_STATE`

2.10 VVPG LI20 3076 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	–	–	–	–	–
Open	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = VVPG_LI20_3076_POSITION_STATE

2.11 VVPG LI20 3160 Position

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	–	–	–	–	–
Open	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = VVPG_LI20_3160_POSITION_STATE

2.12 VVPG LI20 3250 Position

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	–	–	–	–	–
Open	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = VVPG_LI20_3250_POSITION_STATE

3 Always Evaluated

3.1 Bypass Recover

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not recovered	F	0 Hz	0 Hz	–	–	–	–	–
Ok	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `LP_BYPASS_RECOVER`

3.2 Gun RF Peak Power 10-2

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Fault	F	0 Hz	0 Hz	–	–	–	–	–
Ok	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `KLYS_LI10_21_PEAKPOWER_STATE`

3.3 Gun Waveguide Vacuum Summary

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Ok	F	0 Hz	0 Hz	–	–	–	–	–
Ok	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `MKSU_LI10_61_WGVACSUM_STATE`

3.4 Insertable Faraday Cup FC10241 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	30 Hz	30 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = FARC_IN10_241_OUT_LMTSW_STATE,
B = FARC_IN10_241_IN_LMTSW_STATE

3.5 IOC-IN10-MP01 MPS Support IOC Heartbeat

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Ok	F	0 Hz	0 Hz	–	–	–	–	–
Ok	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = IOC_IN10_MP01_HEARTBEATSUM_STATE

3.6 MPS Beam Permit: Gun RF

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Permitted	F	0 Hz	–	–	–	–	–	–
Permitted	T	30 Hz	–	–	–	–	–	–

Where
A = LP_ALLOWS_BEAM_POCKELS_CELL

3.7 MPS Beam Permit: Mechanical Shutter

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Permitted	F	–	0 Hz	–	–	–	–	–
Permitted	T	–	30 Hz	–	–	–	–	–

Where
A = LP_ALLOWS_BEAM_MECH_SHUT

3.8 MPS Mechanical Shutter Inconsistent State

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Readback Does Not Match	F	0 Hz	0 Hz	–	–	–	–	–
Ok	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = SHUT_LT10_950_FAULT_STATE

3.9 MPS Mechanical Shutter Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	–	–	–	–	–	–
Out	F	T	30 Hz	–	–	–	–	–	–
In	T	F	30 Hz	–	–	–	–	–	–
Broken	T	T	0 Hz	–	–	–	–	–	–

Where
A = SHUT_LT10_950_OUT_POSITION,
B = SHUT_LT10_950_IN_POSITION

3.10 PLC-IN10-MP01 MPS Support PLC Heartbeat

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Ok	F	0 Hz	0 Hz	–	–	–	–	–
Ok	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = PLC_IN10_MP01_HEARTBEATSUM_STATE

3.11 Rate Request: Gun RF 1 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	30 Hz	–	–	–	–	–	–
Requested	T	1 Hz	–	–	–	–	–	–

Where
A = LP_MAX_RATE_PC_1_HZ

3.12 Rate Request: Gun RF 10 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	30 Hz	–	–	–	–	–	–
Requested	T	10 Hz	–	–	–	–	–	–

Where
A = `LP_MAX_RATE_PC_10_HZ`

3.13 VVPG IN10 155 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Out	F	0 Hz	0 Hz	–	–	–	–	–
Out	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `VVPG_IN10_155_POSITION_STATE`

3.14 VVPG IN10 215 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Out	F	0 Hz	0 Hz	–	–	–	–	–
Out	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `VVPG_IN10_215_POSITION_STATE`

3.15 YAG IN10 241 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	10 Hz	10 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `YAGS_IN10_241_OUT_LIMSW_POSITION`,
B = `YAGS_IN10_241_IN_LIMSW_POSITION`

4 Ignore Logic

4.1 Insertable Faraday Cup FC10241 Is In

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Is In	T	–	–	–	–	–	–	–

Where
A = `FARC_IN10_241_IN_LMTSW_STATE`

4.2 PR10241 Is In

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Is In	T	–	–	–	–	–	–	–

Where
A = `YAGS_IN10_241_IN_LIMSW_POSITION`

4.3 TD11390 Is In

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Is In	T	–	–	–	–	–	–	–

Where
A = `DUMP_LI11_390_IN_LMTSW_STATE`