MPS Logic:
2020-03-19-b

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1 Ignored when A-Line Kicker Is Not Enabled, A-Line SL10 Is Closed, TD11 Is In, YAG01 Is In, or YAG02 Is In

1.1 Flowswitch: COLL BSYA 2060 (PC20)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `COLL_BSYA_2060_FLOW_SW_STATE`

1.2 Flowswitch: COLL BSYA 2410 (COLL24H)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `COLL_BSYA_2470_H_FLOW_SW_STATE`

1.3 Flowswitch: COLL BSYA 2410 (COLL24V)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `COLL_BSYA_2470_V_FLOW_SW_STATE`

1.4 Flowswitch: COLL BSYA 2410 (PC24)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = COLL_BSYA_2410_FLOW_SW_STATE

1.5 Flowswitch: COLL BSYA 2600 (PC26)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = COLL_BSYA_2600_FLOW_SW_STATE

1.6 Flowswitch: COLL BSYA 2990 (PC29)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = COLL_BSYA_2990_FLOW_SW_STATE

1.7 Flowswitch: COLL BSYA 3710 (C37)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = COLL_BSYA_3710_FLOW_SW_STATE

1.8 Flowswitch: COLL BSYA 4120 (3C1A)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = COLL_ESA0_4120_FLOW_SW_STATE

1.9 PIC Raw Charge Thresholds: BSYA 2061

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2061_LOSSL_THRESHOLD`,
B = `PICM_BSYA_2061_LOSSH_THRESHOLD`

1.10 PIC Raw Charge Thresholds: BSYA 2120

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2120_LOSSL_THRESHOLD`,
B = `PICM_BSYA_2120_LOSSH_THRESHOLD`

1.11 PIC Raw Charge Thresholds: BSYA 2220

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2220_LOSSL_THRESHOLD`,
B = `PICM_BSYA_2220_LOSSH_THRESHOLD`

1.12 PIC Raw Charge Thresholds: BSYA 2321

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2321_LOSSL_THRESHOLD`,
B = `PICM_BSYA_2321_LOSSH_THRESHOLD`

1.13 PIC Raw Charge Thresholds: BSYA 2411

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2411_LOSSL_THRESHOLD`,
B = `PICM_BSYA_2411_LOSSH_THRESHOLD`

1.14 PIC Raw Charge Thresholds: BSYA 2472

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2472_LOSSL_THRESHOLD`,
B = `PICM_BSYA_2472_LOSSH_THRESHOLD`

1.15 PIC Raw Charge Thresholds: BSYA 2473

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2473_LOSSL_THRESHOLD`,
B = `PICM_BSYA_2473_LOSSH_THRESHOLD`

1.16 PIC Raw Charge Thresholds: BSYA 2474

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2474_LOSSL_THRESHOLD`,
B = `PICM_BSYA_2474_LOSSH_THRESHOLD`

1.17 PIC Raw Charge Thresholds: BSYA 2475

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2475_LOSSL_THRESHOLD`,
B = `PICM_BSYA_2475_LOSSH_THRESHOLD`

1.18 PIC Raw Charge Thresholds: BSYA 2520

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2520_LOSSL_THRESHOLD`,
B = `PICM_BSYA_2520_LOSSH_THRESHOLD`

1.19 PIC Raw Charge Thresholds: BSYA 2601

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2601_LOSSL_THRESHOLD`,
B = `PICM_BSYA_2601_LOSSH_THRESHOLD`

1.20 PIC Raw Charge Thresholds: BSYA 2861

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2861_LOSSL_THRESHOLD`,
B = `PICM_BSYA_2861_LOSSH_THRESHOLD`

1.21 PIC Raw Charge Thresholds: BSYA 2990

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2990_LOSSL_THRESHOLD`,
B = `PICM_BSYA_2990_LOSSH_THRESHOLD`

1.22 PIC Raw Charge Thresholds: BSYA 3320

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_3320_LOSSL_THRESHOLD`,
B = `PICM_BSYA_3320_LOSSH_THRESHOLD`

1.23 PIC Raw Charge Thresholds: BSYA 3720

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_3720_LOSSL_THRESHOLD`,
B = `PICM_BSYA_3720_LOSSH_THRESHOLD`

1.24 PIC Raw Charge Thresholds: BSYA 3721

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_3721_LOSSL_THRESHOLD`,
B = `PICM_BSYA_3721_LOSSH_THRESHOLD`

1.25 PIC Raw Charge Thresholds: BSYA 3890

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_3890_LOSSL_THRESHOLD`,
B = `PICM_BSYA_3890_LOSSH_THRESHOLD`

1.26 PIC Trigger Missed (LN42)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Missed	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYA_2061_NO_TRIG_MISSED`

1.27 Stopper BSYA 2275 (ST22) Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
MOVING	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OUT	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
IN	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
BROKEN	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `STPR_BSYA_2275_ST22_OUT_LIM_STATE`,
B = `STPR_BSYA_2275_ST22_IN_LIM_STATE`

1.28 Stopper BSYA 2930 (ST29) Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
MOVING	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OUT	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
IN	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `STPR_BSYA_2930_ST29_OUT_LIM_STATE`,
B = `STPR_BSYA_2930_ST29_IN_LIM_STATE`

1.29 Temperature RTD Summary: A-line Past SL10

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `RTD_BSYA_2060_PASTSL10SUM_STATUS`

1.30 Vac Valve BSYA 4005 (IV40)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = VVPG_BSYA_4005_POSITION_STATE

1.31 Vac Valve: VVFS BSYA 2855 (FV28)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OPEN	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = VVFS_BSYA_2855_POSITION_STATE

1.32 Vac Valve: VVPG BSYA 2635 (IV26)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OPEN	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = VVPG_BSYA_2635_POSITION_STATE

1.33 Vac Valve: VVPG ESA0 4195 POSITION (IV41)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = VVPG_ESA0_4195_POSITION_STATE

2 Ignored when A-Line Kicker Is Not Enabled, TD11 Is In, YAG01 Is In, or YAG02 Is In

2.1 A-Line SL10 Position

The following code assigns the truth table's state number to the `unsigned int` variable `state`.

```
state = (unsigned int) -1;

if ( SLIT_BSYA_2010_SL10_FB_IN_STATE &&
        SLIT_BSYA_2010_SL10_FT_IN_STATE &&
        SLIT_BSYA_2010_SL10_RB_IN_STATE &&
        SLIT_BSYA_2010_SL10_RT_IN_STATE )
{
    state = 0; /* SL10 is Closed */
}

else
{
    state = 1; /* SL10 is Not Closed */
}
```

Name	State	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Closed	0	120 Hz	120 Hz	120 Hz	–	–	–	–
Not_Closed	1	120 Hz	120 Hz	120 Hz	–	–	–	–

2.2 Flowswitch: BPM BSYA 1020 (BPM10)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
IS_NOT_OK	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `BPM_BSYA_1020_FLOW_SW_STATE`

2.3 Flowswitch: BPM BSYA 1240 (BPM12)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
IS_NOT_OK	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `BPM_BSYA_1240_FLOW_SW_STATE`

2.4 Flowswitch: COLL BSYA 1015 (PC10)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
IS_NOT_OK	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `COLL_BSYA_1015_FLOW_SW_STATE`

2.5 Flowswitch: COLL BSYA 1230 (PC12)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
IS_NOT_OK	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `COLL_BSYA_1230_FLOW_SW_STATE`

2.6 Flowswitch: COLL BSYA 1490 (PC14)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `COLL_BSYA_1490_FLOW_SW_STATE`

2.7 Flowswitch: COLL BSYA 1700 (PC17)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `COLL_BSYA_1700_FLOW_SW_STATE`

2.8 PIC Raw Charge Thresholds: BSYA 1016

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	–	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	–	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `PICM_BSYA_1016_LOSSL_THRESHOLD`,
B = `PICM_BSYA_1016_LOSSH_THRESHOLD`

2.9 PIC Raw Charge Thresholds: BSYA 1021

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	–	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	–	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `PICM_BSYA_1021_LOSSL_THRESHOLD`,
B = `PICM_BSYA_1021_LOSSH_THRESHOLD`

2.10 PIC Raw Charge Thresholds: BSYA 1120

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	–	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	–	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `PICM_BSYA_1120_LOSSL_THRESHOLD`,
B = `PICM_BSYA_1120_LOSSH_THRESHOLD`

2.11 PIC Raw Charge Thresholds: BSYA 1320

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	–	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	–	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `PICM_BSYA_1320_LOSSL_THRESHOLD`,
B = `PICM_BSYA_1320_LOSSH_THRESHOLD`

2.12 PIC Raw Charge Thresholds: BSYA 1520

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	–	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	–	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `PICM_BSYA_1520_LOSSL_THRESHOLD`,
B = `PICM_BSYA_1520_LOSSH_THRESHOLD`

2.13 PIC Raw Charge Thresholds: BSYA 1701A

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	–	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	–	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `PICM_BSYA_1701A_LOSSL_THRESHOLD`,
B = `PICM_BSYA_1701A_LOSSH_THRESHOLD`

2.14 PIC Raw Charge Thresholds: BSYA 1701B

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	–	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	–	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `PICM_BSYA_1701B_LOSSL_THRESHOLD`,
B = `PICM_BSYA_1701B_LOSSH_THRESHOLD`

2.15 PIC Raw Charge Thresholds: BSYA 1980

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	–	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	–	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `PICM_BSYA_1980_LOSSL_THRESHOLD`,
B = `PICM_BSYA_1980_LOSSH_THRESHOLD`

2.16 Temperature RTD Summary: A-Line Before SL10

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Faulted	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `RTD_BSYA_1015_PRESL10SUM_STATUS`

2.17 Vac Valve: VVFS BSYA 1030 (FV10)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	0 Hz	0 Hz	–	–	–	–	–
OPEN	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `VVFS_BSYA_1030_POSITION_STATE`

2.18 Vac Valve: VVPG BSYA 1018 (IV10)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	0 Hz	0 Hz	–	–	–	–	–
OPEN	T	120 Hz	120 Hz	–	–	–	–	–

Where
A = `VVPG_BSYA_1018_POSITION_STATE`

2.19 VVPG BSYA 340 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `VVPG_BSYA_340_OPEN_LIMSW_POSITION`

3 Ignored when BKRCUS Is On, STCLTS Is In, TD11 Is In, YAG01 Is In, or YAG02 Is In

3.1 BRCUS1 and BRCUSDC Consistent

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Faulted	F	F	–	–	–	–	–	–	–
BRCUS1 Not On BRCUSDC On	F	T	0 Hz	0 Hz	0 Hz	–	0 Hz	0 Hz	0 Hz
BRCUS1 On BRCUSDC Not On	T	F	0 Hz	0 Hz	0 Hz	–	0 Hz	0 Hz	0 Hz
BRCUS1 and BRCUSDC On	T	T	–	–	–	–	–	–	–

Where
A = `BEND_CLTS_180_ON_STATE`,
B = `BEND_CLTS_765_ON_STATE`

4 Ignored when BKRCUS Is On, TD11 Is In, YAG01 Is In, or YAG02 Is In

4.1 BRCUSDC and BLRCUS On

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Faulted	F	F	–	–	–	–	–	–	–
BRCUSDC On BLUCUSDC Not On	F	T	0 Hz	0 Hz	0 Hz	–	0 Hz	0 Hz	0 Hz
BRCUSDC Not On BLRCUS On	T	F	0 Hz	0 Hz	0 Hz	–	0 Hz	0 Hz	0 Hz
BLRCUS and BRCUSDC On	T	T	–	–	–	–	–	–	–

Where
A = `BEND_CLTS_180_ON_STATE`,
B = `BEND_CLTS_280_ON_STATE`

5 Ignored when BRCUSDC Is On, STCLTS Is In, TD11 Is In, YAG01 Is In, or YAG02 Is In

5.1 BRCUS1 and BKRCUS Consistent

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Faulted	F	F	–	–	–	–	–	–	–
BRCUS1 Not On BKRCUS On	F	T	0 Hz	0 Hz	0 Hz	–	0 Hz	0 Hz	0 Hz
BRCUS1 On BKRCUS Not On	T	F	0 Hz	0 Hz	0 Hz	–	0 Hz	0 Hz	0 Hz
BRCUS1 and BKRCUS On	T	T	–	–	–	–	–	–	–

Where
A = `KICK_CLTS_185_ON_STATE`,
B = `BEND_CLTS_765_ON_STATE`

6 Ignored when BRCUSDC Is On, TD11 Is In, YAG01 Is In, or YAG02 Is In

6.1 BKRCUS and BLRCUS On

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Faulted	F	F	–	–	–	–	–	–	–
BLRCUS Not On BKRCUS On	F	T	0 Hz	0 Hz	0 Hz	–	0 Hz	0 Hz	0 Hz
BLRCUS On BKRCUS Not On	T	F	0 Hz	0 Hz	0 Hz	–	0 Hz	0 Hz	0 Hz
BLRCUS and BKRCUS On	T	T	–	–	–	–	–	–	–

Where
A = `KICK_CLTS_185_ON_STATE`,
B = `BEND_CLTS_280_ON_STATE`

7 Ignored when BX01/BX02 Is Off, YAG01 Is In, or YAG02 Is In

7.1 Toroid Comparator Dogleg 1 (IM02 vs IM03)

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Downstream > Upstream	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Upstream > Downstream	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `TC203L1_STATE`,
B = `TC203L2_STATE`

8 Ignored when BX01/BX02 Is On, YAG01 Is In, or YAG02 Is In

8.1 BXS Status

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Fault	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `BEND_IN20_931_OK_STATE`

8.2 Toroid Comparator Inj Spectrometer (IM02 vs IMS1)

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Downstream > Upstream	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Upstream > Downstream	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `TC2S1L1_STATE`,
B = `TC2S1L2_STATE`

9 Ignored when BXG Is Off or YAG01 Is In

9.1 Wakefield Shield Gun Spectrometer

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `WL_BL231_IN_STATE`

10 Ignored when BXG Is On or YAG01 Is In

10.1 Wakefield Shield Straight Ahead

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `WL_BL231_OUT_STATE`

11 Ignored when Destination HXR, STCLTS Is In, TD11 Is In, TDUNDB Is In, YAG01 Is In, or YAG02 Is In

11.1 BLMH13 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_1375_I0_THRESHOLD

11.2 BLMH14 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_1475_I0_THRESHOLD

11.3 BLMH15 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_1575_I0_THRESHOLD

11.4 BLMH16 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_1675_I0_THRESHOLD

11.5 BLMH17 SXR Threshold I0

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_1775_I0_THRESHOLD

11.6 BLMH18 SXR Threshold I0

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_1875_I0_THRESHOLD

11.7 BLMH19 SXR Threshold I0

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_1975_I0_THRESHOLD

11.8 BLMH20 SXR Threshold I0

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_2075_I0_THRESHOLD

11.9 BLMH21 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_2175_I0_THRESHOLD

11.10 BLMH22 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_2275_I0_THRESHOLD

11.11 BLMH23 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_2375_I0_THRESHOLD

11.12 BLMH24 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_2475_I0_THRESHOLD

11.13 BLMH25 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_2575_I0_THRESHOLD

11.14 BLMH26 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_2675_I0_THRESHOLD

11.15 BLMH27 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_2775_I0_THRESHOLD

11.16 BLMH28 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_2875_I0_THRESHOLD

11.17 BLMH29 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_2975_I0_THRESHOLD

11.18 BLMH30 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_3075_I0_THRESHOLD

11.19 BLMH31 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_3175_I0_THRESHOLD

11.20 BLMH32 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_3275_I0_THRESHOLD

11.21 BLMH33 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_3375_I0_THRESHOLD

11.22 BLMH34 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_3475_I0_THRESHOLD

11.23 BLMH35 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_3575_I0_THRESHOLD

11.24 BLMH36 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_3675_I0_THRESHOLD

11.25 BLMH37 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_3775_I0_THRESHOLD

11.26 BLMH38 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_3875_I0_THRESHOLD

11.27 BLMH39 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_3975_I0_THRESHOLD

11.28 BLMH40 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_4075_I0_THRESHOLD

11.29 BLMH41 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_4175_I0_THRESHOLD

11.30 BLMH42 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_4275_I0_THRESHOLD

11.31 BLMH43 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_4375_I0_THRESHOLD

11.32 BLMH44 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_4475_I0_THRESHOLD

11.33 BLMH45 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_4575_I0_THRESHOLD

11.34 BLMH46 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDH_4675_I0_THRESHOLD

11.35 BLMS26 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_2610_I0_THRESHOLD

11.36 BLMS27 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_2710_I0_THRESHOLD

11.37 BLMS28 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_2810_I0_THRESHOLD

11.38 BLMS29 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_2910_I0_THRESHOLD

11.39 BLMS30 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_3010_I0_THRESHOLD

11.40 BLMS31 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_3110_I0_THRESHOLD

11.41 BLMS33 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_3310_I0_THRESHOLD

11.42 BLMS34 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_3410_I0_THRESHOLD

11.43 BLMS35 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_3510_I0_THRESHOLD

11.44 BLMS36 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_3610_I0_THRESHOLD

11.45 BLMS37 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_3710_I0_THRESHOLD

11.46 BLMS38 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_3810_I0_THRESHOLD

11.47 BLMS39 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_3910_I0_THRESHOLD

11.48 BLMS40 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_4010_I0_THRESHOLD

11.49 BLMS41 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_4110_I0_THRESHOLD

11.50 BLMS42 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_4210_I0_THRESHOLD

11.51 BLMS43 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_4310_I0_THRESHOLD

11.52 BLMS44 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_4410_I0_THRESHOLD

11.53 BLMS45 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_4510_I0_THRESHOLD

11.54 BLMS46 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_4610_I0_THRESHOLD

11.55 BLMS47 SXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = CBLM_UNDS_4710_I0_THRESHOLD

12 Ignored when Destination SXR, Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, YAG01 Is In, or YAG02 Is In

12.1 BLMH13 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `CBLM_UNDH_1375_I0_THRESHOLD`

12.2 BLMH14 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `CBLM_UNDH_1475_I0_THRESHOLD`

12.3 BLMH15 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `CBLM_UNDH_1575_I0_THRESHOLD`

12.4 BLMH16 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_1675_I0_THRESHOLD

12.5 BLMH17 HXR Threshold I0

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_1775_I0_THRESHOLD

12.6 BLMH18 HXR Threshold I0

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_1875_I0_THRESHOLD

12.7 BLMH19 HXR Threshold I0

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_1975_I0_THRESHOLD

12.8 BLMH20 HXR Threshold I0

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_2075_I0_THRESHOLD

12.9 BLMH21 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_2175_I0_THRESHOLD

12.10 BLMH22 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_2275_I0_THRESHOLD

12.11 BLMH23 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_2375_I0_THRESHOLD

12.12 BLMH24 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_2475_I0_THRESHOLD

12.13 BLMH25 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_2575_I0_THRESHOLD

12.14 BLMH26 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_2675_I0_THRESHOLD

12.15 BLMH27 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_2775_I0_THRESHOLD

12.16 BLMH28 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_2875_I0_THRESHOLD

12.17 BLMH29 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_2975_I0_THRESHOLD

12.18 BLMH30 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_3075_I0_THRESHOLD

12.19 BLMH31 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_3175_I0_THRESHOLD

12.20 BLMH32 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_3275_I0_THRESHOLD

12.21 BLMH33 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_3375_I0_THRESHOLD

12.22 BLMH34 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_3475_I0_THRESHOLD

12.23 BLMH35 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_3575_I0_THRESHOLD

12.24 BLMH36 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_3675_I0_THRESHOLD

12.25 BLMH37 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_3775_I0_THRESHOLD

12.26 BLMH38 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_3875_I0_THRESHOLD

12.27 BLMH39 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_3975_I0_THRESHOLD

12.28 BLMH40 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_4075_I0_THRESHOLD

12.29 BLMH41 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_4175_I0_THRESHOLD

12.30 BLMH42 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_4275_I0_THRESHOLD

12.31 BLMH43 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_4375_I0_THRESHOLD

12.32 BLMH44 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_4475_I0_THRESHOLD

12.33 BLMH45 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_4575_I0_THRESHOLD

12.34 BLMH46 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDH_4675_I0_THRESHOLD

12.35 BLMS26 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_2610_I0_THRESHOLD

12.36 BLMS27 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_2710_I0_THRESHOLD

12.37 BLMS28 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_2810_I0_THRESHOLD

12.38 BLMS29 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_2910_I0_THRESHOLD

12.39 BLMS30 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_3010_I0_THRESHOLD

12.40 BLMS31 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_3110_I0_THRESHOLD

12.41 BLMS33 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_3310_I0_THRESHOLD

12.42 BLMS34 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_3410_I0_THRESHOLD

12.43 BLMS35 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_3510_I0_THRESHOLD

12.44 BLMS36 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_3610_I0_THRESHOLD

12.45 BLMS37 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_3710_I0_THRESHOLD

12.46 BLMS38 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_3810_I0_THRESHOLD

12.47 BLMS39 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_3910_I0_THRESHOLD

12.48 BLMS40 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_4010_I0_THRESHOLD

12.49 BLMS41 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_4110_I0_THRESHOLD

12.50 BLMS42 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_4210_I0_THRESHOLD

12.51 BLMS43 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_4310_I0_THRESHOLD

12.52 BLMS44 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_4410_I0_THRESHOLD

12.53 BLMS45 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_4510_I0_THRESHOLD

12.54 BLMS46 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_4610_I0_THRESHOLD

12.55 BLMS47 HXR Threshold I0

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = CBLM_UNDS_4710_I0_THRESHOLD

13 Ignored when Diag Stopper HFX DG2 Is In, Diag Stopper HFX UM6 Is In, Diag Stopper XCS SB1 Is In, Stopper SH1 Is In, Stopper SH2 Is In, Stopper XRT S5 Is In, Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, YAG01 Is In, or YAG02 Is In

13.1 XCS SB1 VGC 02 Gate Valve Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
Closed	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `XCS_SB1_VGC_02_OPN_DI_POSITION`,
B = `XCS_SB1_VGC_02_CLS_DI_POSITION`

13.2 XCS SB2 VGC 01 Gate Valve Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
Closed	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `XCS_SB2_VGC_01_OPN_DI_POSITION`,
B = `XCS_SB2_VGC_01_CLS_DI_POSITION`

14 Ignored when Diag Stopper HFX DG2 Is In, Diag Stopper HFX UM6 Is In, Stopper S5B Is In, Stopper SH1 Is In, Stopper SH2 Is In, Stopper XRT S5 Is In, Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, YAG01 Is In, or YAG02 Is In

14.1 CXI Configuration 1 Summary

The following code assigns the truth table's state number to the `unsigned int` variable `state`.

```
/*
state = 0 beam dump
state = 1 beam allowed
state = 2 other, beam allowed
*/

/* Initialize to a guard value */
state = (unsigned int) -1;
{
int evalCXIConfigOne = -1;
{
        if ( CXI_MPS_CFG_1_CONFID ) /* EPS PLC asserts we are in config
            1 */
        {
                /* Evaluate inputs to identify if we're in beam dump
                    state for Cfg 1 */
                if ((! CXI_DG1_MMS_03_A_POSITION) ||
                (! CXI_DG2_MMS_06_B_POSITION) ||
                (! CXI_SC1_VGC_02_OPN_DI_POSITION) )
                {
                        evalCXIConfigOne = 0;
                }
                else
                {
                        evalCXIConfigOne = 1;
                }
        }
}
```

```
switch( evalCXIConfigOne )
{
        case 0: state = 0; break;
        case 1: state = 1; break;
        default: state = 2; break;
}
}
```

Name	State	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Config 1 Fault	0	0 Hz	0 Hz	0 Hz	–	–	–	–
Config 1 Ok	1	120 Hz	120 Hz	120 Hz	–	–	–	–
Not In Config 1	2	120 Hz	120 Hz	120 Hz	–	–	–	–

14.2 CXI Configuration 2 Summary

The following code assigns the truth table's state number to the `unsigned int` variable `state`.

```
/*
state = 0 beam dump
state = 1 beam allowed
state = 2 other, beam allowed
*/

/* Initialize to a guard value */
state = (unsigned int) -1;
{
int evalCXIConfigTwo = -1;
{
        if ( CXI_MPS_CFG_2_CONFID ) /* EPS PLC asserts we are in config
            2 */
        {
                /* Evaluate inputs to identify if we're in beam dump
                   state for Cfg 2 */
                if (    (! CXI_DG1_MMS_03_A_POSITION) ||
                        (! CXI_SC1_VGC_02_OPN_DI_POSITION) || /* If the
                            valve is not open, trip */
                        (       (! CXI_DIA_ATTEN_OK_POSITION) && /* DIA
                            attenuation */
                                (! (    CXI_DG1_MMS_08_B_POSITION &&
                                                CXI_DG1_MMS_08_B_POSITION
                                                    &&
```

```
                                                        CXI_DG2_MMS_08_B_POSITION
                                                            &&
                                                        CXI_DG2_MMS_09_B_POSITION
                                                            &&
                                                        CXI_DG2_MMS_10_B_POSITION
                                                            &&
                                                        CXI_DG4_MMS_05_B_POSITION
                                                            &&
                                                        CXI_DG4_MMS_03_B_POSITION

                                                    )
                                                )
                                            )
                                            )
                        {
                                            evalCXIConfigTwo = 0;
                        }
                        else
                        {
                                            evalCXIConfigTwo = 1;
                        }
        }
}

switch( evalCXIConfigTwo )
{
        case 0: state = 0; break;
        case 1: state = 1; break;
        default: state = 2; break;
}
}
```

Name	State	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Faulted	0	0 Hz	0 Hz	0 Hz	–	–	–	–
Ok	1	120 Hz	120 Hz	120 Hz	–	–	–	–
Not In Config 2	2	120 Hz	120 Hz	120 Hz	–	–	–	–

14.3 CXI Configuration 3 Summary

The following code assigns the truth table's state number to the `unsigned int` variable `state`.

```
/*
```

```
state = 0 beam dump
state = 1 beam allowed
state = 2 other, beam allowed
*/

/* Initialize to a guard value */
state = (unsigned int) -1;
{
int evalCXIConfigThree = -1;
{
        if ( CXI_MPS_CFG_3_CONFID ) /* EPS PLC asserts we are in config
            3 */
        {
                /* Evaluate inputs to identify if we're in beam dump
                   state for Cfg 3 */
                if ((! CXI_DG1_MMS_03_A_POSITION) ||
                (! CXI_SC1_VGC_02_OPN_DI_POSITION) )
                {
                        evalCXIConfigThree = 0;
                }
                else
                {
                        evalCXIConfigThree = 1;
                }
        }
}

switch( evalCXIConfigThree )
{
        case 0: state = 0; break;
        case 1: state = 1; break;
        default: state = 2; break;
}
}
```

Name	State	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Faulted	0	0 Hz	0 Hz	0 Hz	–	–	–	–
Ok	1	120 Hz	120 Hz	120 Hz	–	–	–	–
Not in Config 3	2	120 Hz	120 Hz	120 Hz	–	–	–	–

14.4 CXI Configuration 4 Summary

The following code assigns the truth table's state number to the `unsigned int` variable `state`.

```
/*
state = 0 beam dump
state = 1 beam allowed
state = 2 other, beam allowed
*/

/* Initialize to a guard value */
state = (unsigned int) -1;
{
int evalCXIConfigFour = -1;
{
        if ( CXI_MPS_CFG_4_CONFID ) /* EPS PLC asserts we are in config
            4 */
        {
                /* Evaluate inputs to identify if we're in beam dump
                   state for Cfg 4 */
                if ((! CXI_DG1_MMS_03_A_POSITION) ||
                (! CXI_SC1_VGC_02_OPN_DI_POSITION) )
                {
                        evalCXIConfigFour = 0;
                }
                else
                {
                        evalCXIConfigFour = 1;
                }
        }
}

switch( evalCXIConfigFour )
{
        case 0: state = 0; break;
        case 1: state = 1; break;
        default: state = 2; break;
}
}
```

Name	State	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Faulted	0	0 Hz	0 Hz	0 Hz	–	–	–	–
Ok	1	120 Hz	120 Hz	120 Hz	–	–	–	–
Not In Config 4	2	120 Hz	120 Hz	120 Hz	–	–	–	–

14.5 CXI Configuration 5 Summary

The following code assigns the truth table's state number to the `unsigned int` variable `state`.

```
/*
state = 0 beam dump
state = 1 beam allowed
state = 2 other, beam allowed
*/

/* Initialize to a guard value */
state = (unsigned int) -1;
{
int evalCXIConfigFive = -1;
{
        if ( CXI_MPS_CFG_5_CONFID ) /* EPS PLC asserts we are in config
            5 */
        {
                /* Evaluate inputs to identify if we're in beam dump
                   state for Cfg 5 */
                if ((! CXI_DG1_MMS_03_A_POSITION) ||
                (! CXI_SC1_VGC_02_OPN_DI_POSITION) )
                {
                        evalCXIConfigFive = 0;
                }
                else
                {
                        evalCXIConfigFive = 1;
                }
        }
}

switch( evalCXIConfigFive )
{
        case 0: state = 0; break;
        case 1: state = 1; break;
        default: state = 2; break;
```

```
}
}
```

Name	State	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Faulted	0	0 Hz	0 Hz	0 Hz	–	–	–	–
Ok	1	120 Hz	120 Hz	120 Hz	–	–	–	–
Not In Config 5	2	120 Hz	120 Hz	120 Hz	–	–	–	–

14.6 CXI Configuration 6 Summary

The following code assigns the truth table's state number to the `unsigned int` variable `state`.

```
/*
state = 0 beam dump
state = 1 beam allowed
state = 2 other, beam allowed
*/

/* Initialize to a guard value */
state = (unsigned int) -1;
{
int evalCXIConfigSix = -1;
{
        if ( CXI_MPS_CFG_6_CONFID ) /* EPS PLC asserts we are in config
            6 */
        {
                /* Evaluate inputs to identify if we're in beam dump
                   state for Cfg 6 */
                if ((! CXI_DG1_MMS_03_A_POSITION) ||
                        (! CXI_DG2_MMS_06_B_POSITION) ||
                (! CXI_SC2_VGC_02_OPN_DI_POSITION) )
                {
                        evalCXIConfigSix = 0;
                }
                else
                {
                        evalCXIConfigSix = 1;
                }
        }
}

switch( evalCXIConfigSix )
```

```
{
        case 0: state = 0; break;
        case 1: state = 1; break;
        default: state = 2; break;
}
}
```

Name	State	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Faulted	0	0 Hz	0 Hz	0 Hz	–	–	–	–
Ok	1	120 Hz	120 Hz	120 Hz	–	–	–	–
Not In Config 6	2	120 Hz	120 Hz	120 Hz	–	–	–	–

14.7 CXI Configuration 7 Summary

The following code assigns the truth table's state number to the `unsigned int` variable `state`.

```
/*
state = 0 beam dump
state = 1 beam allowed
state = 2 other, beam allowed
*/

/* Initialize to a guard value */
state = (unsigned int) -1;
{
int evalCXIConfigSeven = -1;
{
        if ( CXI_MPS_CFG_7_CONFID ) /* EPS PLC asserts we are in config
            7 */
        {
                /* Evaluate inputs to identify if we're in beam dump
                   state for Cfg 7 */
                if ((! CXI_DG1_MMS_03_A_POSITION)       ||
                        (! CXI_SC1_VGC_02_OPN_DI_POSITION) ||
                (! CXI_SC2_VGC_02_OPN_DI_POSITION) )
                {
                        evalCXIConfigSeven = 0;
                }
                else
                {
                        evalCXIConfigSeven = 1;
                }
```

```
        }
}

switch( evalCXIConfigSeven )
{
        case 0: state = 0; break;
        case 1: state = 1; break;
        default: state = 2; break;
}
}
```

Name	State	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Faulted	0	0 Hz	0 Hz	0 Hz	–	–	–	–
Ok	1	120 Hz	120 Hz	120 Hz	–	–	–	–
Not In Config 7	2	120 Hz	120 Hz	120 Hz	–	–	–	–

14.8 CXI KB2 VGC 02 Gate Valve Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
Closed	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `CXI_KB2_VGC_02_OPN_DI_POSITION`,
B = `CXI_KB2_VGC_02_CLS_DI_POSITION`

14.9 CXI MPS PLC Readiness Status

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
PLC Not OK	F	0 Hz	0 Hz	0 Hz	–	–	–	–
PLC OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `CXI_MPS_PLC_01_OK_STATUS`

14.10 CXI User Patch Panel 1 Ready

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Ready	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Ready	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `CXI_USR_01_MPSFAULT_STATUS`

14.11 CXI User Patch Panel 2 Ready

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Ready	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Ready	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `CXI_USR_02_MPSFAULT_STATUS`

14.12 CXI:DG1:VGC:01 Gate Valve Open Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `CXI_DG1_VGC_01_OPN_DI_POSITION`

14.13 CXI:DG1:VGC:02 Gate Valve Open Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `CXI_DG1_VGC_02_OPN_DI_POSITION`

14.14 CXI:DG2:VGC:01 Gate Valve Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
Closed	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `CXI_DG2_VGC_01_OPN_DI_POSITION`,
B = `CXI_DG2_VGC_01_CLS_DI_POSITION`

14.15 CXI:DG2:VGC:02 Gate Valve Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
Closed	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `CXI_DG2_VGC_02_OPN_DI_POSITION`,
B = `CXI_DG2_VCG_02_CLS_DI_POSITION`

14.16 CXI:DG4:VGC:01 Gate Valve Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
Closed	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `CXI_DG4_VGC_01_OPN_DI_POSITION`,
B = `CXI_DG4_VGC_01_CLS_DI_POSITION`

14.17 CXI:DSC:VGC:01 Gate Valve Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
Closed	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `CXI_DSC_VGC_01_OPN_DI_POSITION`,
B = `CXI_DSC_VGC_01_CLS_DI_POSITION`

14.18 CXI:KB1:VGC:01 Gate Valve Open Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `CXI_KB1_VGC_01_OPN_DI_POSITION`

14.19 CXI:KB1:VGC:02 Gate Valve Open Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `CXI_KB1_VGC_02_OPN_DI_POSITION`

14.20 CXI:KB2:VGC:01 Gate Valve Open Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = CXI_KB2_VGC_01_OPN_DI_POSITION

14.21 CXI:SC1:VGC:01 Gate Valve Position

Name	B	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
Closed	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = CXI_SC1_VGC_01_OPN_DI_POSITION,
B = CXI_SC1_VGC_01_CLS_DI_POSITION

14.22 CXI:SC3:VGC:01 Be Gate Valve Position - Status from PLC

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving or Broken	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open or Closed	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = CXI_SC3_VGC_01_OPN_DI_POSITION

14.23 HF4 LAM VGC 01 Gate Valve Position

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = HF4_LAM_VGC_01_OPN_DI_POSITION

15 Ignored when Diag Stopper HFX DG2 Is In, Diag Stopper HFX UM6 Is In, Stopper SH1 Is In, Stopper SH2 Is In, Stopper XRT S5 Is In, Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, YAG01 Is In, or YAG02 Is In

15.1 CXI XRT Laser Reference Mirror Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Mirror In Beam	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Mirror Out of Beam	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `XRT_DIA_MMS_01_B_POSITION`

15.2 HFA:SND:VGC:01 Gate Valve Open Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `HFA_SND_VGC_01_OPN_DI_POSITION`

15.3 HFX:DIA:VGC:02 Gate Valve Open Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `HFX_DIA_VGC_02_OPN_DI_POSITION`

15.4 PPS Stopper S5B Position

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

Where
A = `STPR_FEH1_5_S5BIN_POSITION`,
B = `STPR_FEH1_5_S5BOUT_POSITION`

15.5 XCS SB1 Diagnostic Stopper Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
In	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `XCS_SB1_STP_01_OPN_DI_POSITION`,
B = `XCS_SB1_STP_01_CLS_DI_POSITION`

15.6 XCS SB1 VGC 01 Gate Valve Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
Closed	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `XCS_SB1_VGC_01_OPN_DI_POSITION`,
B = `XCS_SB1_VGC_01_CLS_DI_POSITION`

15.7 XRT HXRAY DIA Isolation Valve HXX-DIA-VGC-01

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Closed	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `HXX_DIA_VGC_01_CLS_DI_STATE`,
B = `HXX_DIA_VGC_01_OPN_DI_STATE`

16 Ignored when Diag Stopper HFX DG2 Is In, Diag Stopper HFX UM6 Is In, Stopper SH1 Is In, Stopper SH2 Is In, Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, YAG01 Is In, or YAG02 Is In

16.1 HFX:DG2:VGC:01 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `HFX_DG2_VGC_01_OPN_DI_POSITION`

16.2 HFX:MON:VGC:01 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `HFX_MON_VGC_01_OPN_DI_POSITION`

16.3 HFX:MON:VGC:02 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `HFX_MON_VGC_02_OPN_DI_POSITION`

16.4 Stopper XRT S5 Position

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

Where
A = `STPR_XRT1_1_S5OUT_POSITION`,
B = `STPR_XRT1_1_S5IN_POSITION`

17 Ignored when Diag Stopper HFX UM6 Is In, Stopper MFX S4.5 Is In, Stopper SH1 Is In, Stopper SH2 Is In, Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, YAG01 Is In, or YAG02 Is In

17.1 MFX MPS Summary - Downstream of Stopper 4.5

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Ok	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Ok	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `MFX_MPS_1_SUM_STATE`

18 Ignored when Diag Stopper HFX UM6 Is In, Stopper SH1 Is In, Stopper SH2 Is In, Stopper XRT S6 Is In, Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, YAG01 Is In, or YAG02 Is In

18.1 MEC DV4 VCG 01 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `MEC_DV4_VGC_01_OPN_DI_POSITION`

18.2 MEC DV5 VGC 01 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `MEC_DV5_VGC_01_OPN_DI_POSITION`

18.3 MEC HXM VGC 01 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `MEC_HXM_VGC_01_OPN_DI_POSITION`

18.4 MEC XT1 Reference Laser Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Out	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Out	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `MEC_XT1_MMS_01_B_POSITION`

18.5 MEC XT1 VGC 01 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `MEC_XT1_VGC_01_OPN_DI_POSITION`

18.6 MEC XT2 VGC 02 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `MEC_XT2_VGC_02_OPN_DI_POSITION`

18.7 MEC XT2 VGC 03 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `MEC_XT2_VGC_03_OPN_DI_POSITION`

18.8 MEC XT2 VGC 04 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `MEC_XT2_VGC_04_OPN_DI_POSITION`

18.9 MEC XT2 VGC 05 Gate Valve Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
Closed	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `MEC_XT2_VGC_05_OPN_DI_POSITION`,
B = `MEC_XT2_VGC_05_CLS_DI_POSITION`

18.10 MEC XT2 VGC 06 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `MEC_XT2_VGC_06_OPN_DI_POSITION`

19 Ignored when Diag Stopper HFX UM6 Is In, Stopper SH1 Is In, Stopper SH2 Is In, Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, YAG01 Is In, or YAG02 Is In

19.1 DG2 Diagnostic Stopper Position

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

Where
A = `HFX_DG2_STP_01_IN_DI_POSITION`,
B = `HFX_DG2_STP_01_OUT_DI_POSITION`

19.2 MEC BXL VGC 01 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `MEC_BXL_VGC_01_OPN_DI_POSITION`

19.3 MEC XRT Attenuator Inspection Mirror Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Mirror Not Out	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Mirror Out	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `MEC_HXM_MMS_04_B_POSITION`

19.4 MFX Gate Valve Summary - Upstream of Stopper 4.5

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not All Out	F	0 Hz	0 Hz	0 Hz	–	–	–	–
All Out	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `MFX_XRT_VGC_OUT_SUM_STATE`

19.5 Stopper MFX S4.5 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
In	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `STPR_XRT_1_S45OUT_STATE`,
B = `STPR_XRT_1_S45IN_STATE`

19.6 Stopper XRT S6 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
In	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
Out	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `STPR_XRT1_1_S6IN_POSITION`,
B = `STPR_XRT1_1_S6OUT_POSITION`

19.7 XRT HXRAY LOM Isolation Valve HXX-LOM-VGC-01

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Closed	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `HXX_LOM_VGC_01_CLS_DI_STATE`,
B = `HXX_LOM_VGC_01_OPN_DI_STATE`

19.8 XRT HXRAY MXT Gate Valve HXX:MXT:VGC:01

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `HXX_MXT_VGC_01_OPN_DI_POSITION`

19.9 XRT HXRAY MXT Gate Valve HXX:MXT:VGC:02

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `HXX_MXT_VGC_02_OPN_DI_POSITION`

19.10 XRT HXRAY MXT Gate Valve HXX:MXT:VGC:03

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Closed	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `HXX_MXT_VGC_03_CLS_DI_POSITION`,
B = `HXX_MXT_VGC_03_OPN_DI_POSITION`

19.11 XRT HXRAY MXT Gate Valve HXX:MXT:VGC:05

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `HXX_MXT_VGC_05_OPN_DI_POSITION`

19.12 XRT-M2 Mirror and DG2 STP Fault

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	G
In Transit: DG2 STP Not In Beam, XRT-M2 Mirror Not Out	F	F	0 Hz	0 Hz	0 Hz	–	–	
In Transit: DG2 STP Not In Beam, XRT-M2 Mirror Out	F	T	120 Hz	120 Hz	120 Hz	–	–	
Safe: DG2 STP In Beam, XRT-M2 Mirror Not Out	T	F	120 Hz	120 Hz	120 Hz	–	–	
Safe: DG2 STP In Beam, XRT-M2 Mirror Out	T	T	120 Hz	120 Hz	120 Hz	–	–	

Where
A = `HXX_HXM_MMS_01_B_POSITION`,
B = `HFX_DG2_STP_01_IN_DI_POSITION`

20 Ignored when Laser Heater Attenuator Is In

20.1 Laser Heater Photodiode Shutter Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	–	–	–	0 Hz	–	–	–
Out	F	T	–	–	–	0 Hz	–	–	–
In	T	F	–	–	–	120 Hz	–	–	–
Broken	T	T	–	–	–	0 Hz	–	–	–

Where
A = `LHPHD_OUT_LIMIT_STATE`,
B = `LHPHD_IN_LIMIT_STATE`

20.2 OTRH1 Position When LH Atten Not In

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	–	–	–	0 Hz	–	–	–
Out	F	T	–	–	–	120 Hz	–	–	–
In	T	F	–	–	–	0 Hz	–	–	–
Broken	T	T	–	–	–	0 Hz	–	–	–

Where
A = `OTRH1_OUT_LIMIT_STATE`,
B = `OTRH1_IN_LIMIT_STATE`

20.3 OTRH2 Position When LH Atten Not In

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	–	–	–	0 Hz	–	–	–
Out	F	T	–	–	–	120 Hz	–	–	–
In	T	F	–	–	–	0 Hz	–	–	–
Broken	T	T	–	–	–	0 Hz	–	–	–

Where
A = `OTRH2_OUT_LIMIT_STATE`,
B = `OTRH2_IN_LIMIT_STATE`

21 Ignored when STCLTS Is In, Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, TDUNDB Is In, YAG01 Is In, or YAG02 Is In

21.1 BCS PIC RAW Charge Threshold DMP 997

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PIC997_STATE`

21.2 BCS PIC RAW Charge Threshold DMP 998

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PIC998_STATE`

21.3 BLM/PIC Watchdog Downstream of TDUND

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_MCC0_2_PICBLM_WD_STATUS`

22 Ignored when STCLTS Is In, TD11 Is In, TDUNDB Is In, YAG01 Is In, or YAG02 Is In

22.1 BYDSS Magnet Power Status

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Inconsistent	F	F	–	–	–	–	–	0 Hz	0 Hz
On	F	T	–	–	–	–	–	120 Hz	120 Hz
Off	T	F	–	–	–	–	–	0 Hz	0 Hz
Inconsistent	T	T	–	–	–	–	–	0 Hz	0 Hz

Where
A = `BEND_DMPS_395_ON_STATE`,
B = `BEND_DMPS_395_OFF_STATE`

22.2 VVFS DMPS 157 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVFS_DMPS_157_POSITION_STATE`

22.3 VVMG DMPS 643 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVMG_DMPS_643_POSITION_STATE`

22.4 VVMG DMPS 681 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVMG_DMPS_681_POSITION_STATE`

22.5 VVPG DMPS 396 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_DMPS_396_POSITION_STATE`

22.6 VVPG DMPS 424 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_DMPS_424_POSITION_STATE`

22.7 VVPG UNDS 1651 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_UNDS_1651_POSITION_STATE`

22.8 VVPG UNDS 2177 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_UNDS_2177_POSITION_STATE`

22.9 VVPG UNDS 2877 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_UNDS_2877_POSITION_STATE`

22.10 VVPG UNDS 3477 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_UNDS_3477_POSITION_STATE`

22.11 VVPG UNDS 3577 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_UNDS_3577_POSITION_STATE`

22.12 VVPG UNDS 3877 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_UNDS_3877_POSITION_STATE`

22.13 VVPG UNDS 4477 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_UNDS_4477_POSITION_STATE`

22.14 VVPG UNDS 5198 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_UNDS_5198_POSITION_STATE`

23 Ignored when STCLTS Is In, TD11 Is In, YAG01 Is In, or YAG02 Is In

23.1 BX31B Current

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `BEND_LTUS_175_CURRENT_THRESHOLD`

23.2 BX31B Magnet Power Status

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Inconsistent	F	F	–	–	–	–	–	0 Hz	0 Hz
On	F	T	–	–	–	–	–	120 Hz	120 Hz
Off	T	F	–	–	–	–	–	0 Hz	0 Hz
Inconsistent	T	T	–	–	–	–	–	0 Hz	0 Hz

Where
A = `BEND_LTUS_175_ON_STATE`,
B = `BEND_LTUS_175_OFF_STATE`

23.3 BY1B Current

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `BEND_LTUS_525_CURRENT_THRESHOLD`

23.4 BY1B Magnet Power Status

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Inconsistent	F	F	–	–	–	–	–	0 Hz	0 Hz
On	F	T	–	–	–	–	–	120 Hz	120 Hz
Off	T	F	–	–	–	–	–	0 Hz	0 Hz
Inconsistent	T	T	–	–	–	–	–	0 Hz	0 Hz

Where
A = BEND_LTUS_525_ON_STATE,
B = BEND_LTUS_525_OFF_STATE

23.5 BYKIKS Current

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = KICK_LTUS_350_CURRENT_THRESHOLD

23.6 BYKIKS Magnet Power Status

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Inconsistent	F	F	–	–	–	–	–	0 Hz	0 Hz
On	F	T	–	–	–	–	–	120 Hz	120 Hz
Off	T	F	–	–	–	–	–	0 Hz	0 Hz
Inconsistent	T	T	–	–	–	–	–	0 Hz	0 Hz

Where
A = KICK_LTUS_350_ON_STATE,
B = KICK_LTUS_350_OFF_STATE

23.7 CEDL13 Temperature

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = COLL_LTUS_235_TEMP_STATE

23.8 CEDL17 Temperature

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = COLL_LTUS_372_TEMP_STATE

23.9 CXBP34 Temperature

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = COLL_BSYS_859_TEMP_STATE

23.10 CYBDL Temperature

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = COLL_LTUS_116_TEMP_STATE

23.11 CYDL16 Temperature

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = COLL_LTUS_345_TEMP_STATE

23.12 Merge Magnet Ok

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Faulted	F	F	–	–	–	–	–	–	–
BRCUS1 Current Wrong	F	T	0 Hz	0 Hz	0 Hz	–	0 Hz	0 Hz	0 Hz
Not Faulted	T	F	–	–	–	–	–	–	–
Pulsed Mode Ok	T	T	–	–	–	–	–	–	–

Where
A = `BEND_CLTS_765_ON_STATE`,
B = `BEND_CLTS_765_CURRENT_THRESHOLD`

23.13 ST34AB Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	–	–	–	–	–	0 Hz	0 Hz
Out	F	T	–	–	–	–	–	120 Hz	120 Hz
In	T	F	–	–	–	–	–	0 Hz	0 Hz
Broken	T	T	–	–	–	–	–	0 Hz	0 Hz

Where
A = `STPR_BSYS_891_OUT_LIMIT_POSITION`,
B = `STPR_BSYS_891_IN_LIMIT_POSITION`

23.14 TDUNDB Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	–	–	–	–	–	0 Hz	0 Hz
Out	F	T	–	–	–	–	–	120 Hz	120 Hz
In	T	F	–	–	–	–	–	10 Hz	10 Hz
Broken	T	T	–	–	–	–	–	0 Hz	0 Hz

Where
A = `DUMP_LTUS_972_OUT_LIMIT_POSITION`,
B = `DUMP_LTUS_972_IN_LIMIT_POSITION`

23.15 VVFS LTUS 109 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVFS_LTUS_109_POSITION_STATE`

23.16 VVMG LTUS 185 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVMG_LTUS_185_POSITION_STATE`

23.17 VVMG LTUS 348 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVMG_LTUS_348_POSITION_STATE`

23.18 VVMG LTUS 451 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVMG_LTUS_451_POSITION_STATE`

23.19 VVMG LTUS 552 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVMG_LTUS_552_POSITION_STATE`

23.20 VVMG LTUS 744 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVMG_LTUS_744_POSITION_STATE`

23.21 VVMG LTUS 802 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVMG_LTUS_802_POSITION_STATE`

23.22 VVMG LTUS 827 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVMG_LTUS_827_POSITION_STATE`

23.23 VVPG BSYS 904 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_BSYS_904_POSITION_STATE`

23.24 VVPG LTUS 108 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_LTUS_108_POSITION_STATE`

23.25 VVPG LTUS 272 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_LTUS_272_POSITION_STATE`

23.26 VVPG LTUS 442 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_LTUS_442_POSITION_STATE`

23.27 VVPG LTUS 586 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_LTUS_586_POSITION_STATE`

23.28 VVPG LTUS 726 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_LTUS_726_POSITION_STATE`

23.29 VVPG LTUS 757 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_LTUS_757_POSITION_STATE`

24 Ignored when Stopper SH1 Is In, Stopper SH2 Is In, Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, YAG01 Is In, or YAG02 Is In

24.1 UM6 Diagnostic Stopper Position

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

Where
A = HFX_UM6_STP_01_IN_DI_POSITION,
B = HFX_UM6_STP_01_OUT_DI_POSITION

24.2 XRT HXRAY UM6 Isolation Valve HXX-UM6-VGC-01

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Closed	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = HXX_UM6_VGC_01_CLS_DI_STATE,
B = HXX_UM6_VGC_01_OPN_DI_STATE

24.3 XRT UM6 Camera Position HXX-UM6-CVP-01

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
In	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `HXX_UM6_CVP_01_B_STATE`,
B = `HXX_UM6_CVP_01_A_STATE`

25 Ignored when Stopper SH1 Is In, Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, XPP-NH3-POS-00 Beamline Is In, YAG01 Is In, or YAG02 Is In

25.1 NEH3 HXRAY DVD Isolation Valve HX3-DVD-VGC-01

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Closed	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `HX3_DVD_VGC_01_CLS_DI_STATE`,
B = `HX3_DVD_VGC_01_OPN_DI_STATE`

26 Ignored when Stopper SH1 Is In, Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, XPP-NH3-POS-00 Beamline Is Not In, YAG01 Is In, or YAG02 Is In

26.1 XPP SB2 VGC 02 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `XPP_SB2_VGC_02_OPN_DI_POSITION`

26.2 XPP SB2 VGC 03 Gate Valve Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `XPP_SB2_VGC_03_OPN_DI_POSITION`

27 Ignored when Stopper SH1 Is In, Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, YAG01 Is In, or YAG02 Is In

27.1 NEH3 HXRAY UVD Isolation Valve HX3-UVD-VGC-01

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Closed	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Open	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = HX3_UVD_VGC_01_CLS_DI_STATE,
B = HX3_UVD_VGC_01_OPN_DI_STATE

28 Ignored when Stopper: BSY D2 Summary Is In, TD11 Is In, TDUND Is In, YAG01 Is In, or YAG02 Is In

28.1 BPM Summary (1-9) - Status From IOC-UND1-BP01

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Faulted	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `IOC_UNDH_BP01_MPSSTAT_STATE`

28.2 BPM Summary (10-18) - Status From IOC-UND1-BP02

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Faulted	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `IOC_UNDH_BP02_MPSSTAT_STATE`

28.3 BYDSH Current

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `BEND_DMPH_395_CURRENT_THRESHOLD`

28.4 BYDSH Magnet Power Status

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Inconsistent	F	F	–	–	0 Hz	–	0 Hz	–	–
On	F	T	–	–	120 Hz	–	120 Hz	–	–
Off	T	F	–	–	0 Hz	–	0 Hz	–	–
Inconsistent	T	T	–	–	0 Hz	–	0 Hz	–	–

Where
A = `BEND_DMPH_395_ON_STATE`,
B = `BEND_DMPH_395_OFF_STATE`

28.5 Magnet In Tolerance: QE31

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `QUAD_LTU1_720_INTOL_STATUS`

28.6 Magnet In Tolerance: QUM1

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `QUAD_LTU1_820_INTOL_STATUS`

28.7 Magnet In Tolerance: QUM2

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `QUAD_LTU1_840_INTOL_STATUS`

28.8 Magnet In Tolerance: QUM3

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `QUAD_LTU1_860_INTOL_STATUS`

28.9 Magnet In Tolerance: QUM4

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `QUAD_LTU1_860_INTOL_STATUS`

28.10 Magnet Power: QE31

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	–	–	0 Hz	–	0 Hz	–	–
ON	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `QUAD_LTU1_720_STATE_STATUS`

28.11 Magnet Power: QUM1

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	–	–	0 Hz	–	0 Hz	–	–
ON	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `QUAD_LTU1_820_STATE_STATUS`

28.12 Magnet Power: QUM2

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	–	–	0 Hz	–	0 Hz	–	–
ON	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = QUAD_LTU1_840_STATE_STATUS

28.13 Magnet Power: QUM3

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	–	–	0 Hz	–	0 Hz	–	–
ON	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = QUAD_LTU1_860_INTOL_STATUS

28.14 Magnet Power: QUM4

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	–	–	0 Hz	–	0 Hz	–	–
ON	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = QUAD_LTU1_880_STATE_STATUS

28.15 NEH SXR GMD VGC 01 Protection

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
In Transit: SXR GMD VGC 01 In Motion	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Safe: SXR GMD VGC 01 Open	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
Closed: SXR GMD VGC 01 Closed	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Error: SXR GMD VGC 01 Open and Closed	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = SXR_GMD_VGC_01_OPN_DI_POSITION,
B = SXR_GMD_VGC_01_CLS_DI_POSITION

28.16 OTR01 IN20 541 Position and TDUND Not In

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRS_IN20_541_OUT_LMTSW_STATE`,
B = `OTRS_IN20_541_IN_LMTSW_STATE`

28.17 OTR02 IN20 571 Position and TDUND Not In

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRS_IN20_571_OUT_LMTSW_STATE`,
B = `OTRS_IN20_571_IN_LMTSW_STATE`

28.18 OTR03 IN20 621 Position and TDUND Not In

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRS_IN20_621_OUT_LMTSW_STATE`,
B = `OTRS_IN20_621_IN_LMTSW_STATE`

28.19 OTR04 IN20 711 Position and TDUND Not In

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRS_IN20_711_OUT_LMTSW_STATE`,
B = `OTRS_IN20_711_IN_LMTSW_STATE`

28.20 OTR11 LI21 237 Position and TDUND Not In

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRS_LI21_237_OUT_LMTSW_STATE`,
B = `OTRS_LI21_237_IN_LMTSW_STATE`

28.21 OTR12 LI21 291 Position and TDUND Not In

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRS_LI21_291_OUT_LMTSW_STATE`,
B = `OTRS_LI21_291_IN_LMTSW_STATE`

28.22 OTR21 Position When TDUND Not In

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRS_LI24_807_OUT_LMTSW_STATE`,
B = `OTRS_LI24_807_IN_LMTSW_STATE`

28.23 OTR33 Position and TDUND Not In

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	–	–	0 Hz	–	0 Hz	–	–
Out	F	T	–	–	120 Hz	–	120 Hz	–	–
In	T	F	–	–	0 Hz	–	0 Hz	–	–
Broken	T	T	–	–	0 Hz	–	0 Hz	–	–

Where
A = `OTRS_LTUH_745_OUT_LIMIT_POSITION`,
B = `OTRS_LTUH_745_IN_LIMIT_POSITION`

28.24 OTRH1 Position When TDUND Not In

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRH1_OUT_LIMIT_STATE`,
B = `OTRH1_IN_LIMIT_STATE`

28.25 OTRH2 Position When TDUND Not In

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRH2_OUT_LIMIT_STATE`,
B = `OTRH2_IN_LIMIT_STATE`

28.26 VVFS DMPH 157 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVFS_DMPH_157_POSITION_STATE`

28.27 VVMG DMPH 643 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVMG_DMPH_643_POSITION_STATE`

28.28 VVMG DMPH 681 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVMG_DMPH_681_POSITION_STATE`

28.29 VVMG UNDH 2498 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = VVMG_UNDH_2498_POSITION_STATE

28.30 VVMG UNDH 3298 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = VVMG_UNDH_3298_POSITION_STATE

28.31 VVMG UNDH 3598 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = VVMG_UNDH_3598_POSITION_STATE

28.32 VVMG UNDH 4098 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = VVMG_UNDH_4098_POSITION_STATE

28.33 VVMG UNDH 4398 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVMG_UNDH_4398_POSITION_STATE`

28.34 VVPG DMPH 355 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_DMPH_355_POSITION_STATE`

28.35 VVPG DMPH 396 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_DMPH_396_POSITION_STATE`

28.36 VVPG DMPH 424 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_DMPH_424_POSITION_STATE`

28.37 VVPG UNDH 1288 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_UNDH_1288_POSITION_STATE`

28.38 VVPG UNDH 2798 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_UNDH_2798_POSITION_STATE`

28.39 VVPG UNDH 2998 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_UNDH_2998_POSITION_STATE`

28.40 VVPG UNDH 3798 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_UNDH_3798_POSITION_STATE`

28.41 VVPG UNDH 4598 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_UNDH_4598_POSITION_STATE`

28.42 VVPG UNDH 5196 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_UNDH_5196_POSITION_STATE`

28.43 YAGPSI Position and TDUND Not In

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	–	–	0 Hz	–	0 Hz	–	–
Out	F	T	–	–	120 Hz	–	120 Hz	–	–
In	T	F	–	–	0 Hz	–	0 Hz	–	–
Broken	T	T	–	–	0 Hz	–	0 Hz	–	–

Where
A = `YAGS_LTUH_743_OUT_LIMIT_POSITION`,
B = `YAGS_LTUH_743_IN_LIMIT_POSITION`

29 Ignored when Stopper: BSY D2 Summary Is In, TD11 Is In, YAG01 Is In, or YAG02 Is In

29.1 BCS LION LTU1 404 Threshold

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `LION404_STATE`

29.2 BCS LION LTU1 405 Threshold

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `LION405_STATE`

29.3 BCS LION LTU1 504 Threshold

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `LION504_STATE`

29.4 BCS LION LTU1 505 Threshold

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = LION505_STATE

29.5 BCS LION LTU1 584 Threshold

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = LION584_STATE

29.6 BCS LION LTU1 585 Threshold

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = LION585_STATE

29.7 BCS LION LTU1 716 Threshold

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = LION716_STATE

29.8 BCS LION LTU1 717 Threshold

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = LION717_STATE

29.9 BCS LION LTU1 732 Threshold

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `LION732_STATE`

29.10 BCS LION LTU1 733 Threshold

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `LION733_STATE`

29.11 BCS LION LTU1 752 Threshold

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `LION752_STATE`

29.12 BCS LION LTU1 753 Threshold

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `LION753_STATE`

29.13 BCS LION LTU1 765 Threshold

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `LION765_STATE`

29.14 BCS LION LTU1 766 Threshold

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `LION766_STATE`

29.15 BLM Heartbeat: Dechirper LTUH BLF545

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	–	–	0 Hz	–	0 Hz	–	–
Over High Threshold	F	T	–	–	0 Hz	–	0 Hz	–	–
Under Low Threshold	T	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `BLM_LTUH_BLF545_TEST_L_THRESHOLD`,
B = `BLM_LTUH_BLF545_TEST_H_THRESHOLD`

29.16 BLM Pedestal Thresholds: Dechirper LTUH BLF545

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	–	–	0 Hz	–	0 Hz	–	–
Over High Threshold	F	T	–	–	0 Hz	–	0 Hz	–	–
Under Low Threshold	T	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = BLM_LTUH_BLF545_PED_L_THRESHOLD,
B = BLM_LTUH_BLF545_PED_H_THRESHOLD

29.17 BLM Raw Charge Thresholds: Dechirper LTUH BLF545

Name	B	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	–	–	0 Hz	–	0 Hz	–	–
Over High Threshold	F	T	–	–	0 Hz	–	0 Hz	–	–
Under Low Threshold	T	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = BLM_LTUH_BLF545_LOSS_L_THRESHOLD,
B = BLM_LTUH_BLF545_LOSS_H_THRESHOLD

29.18 BX31 Current

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = BEND_LTUH_220_CURRENT_THRESHOLD

29.19 BX31 Magnet Power Status

Name	B	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Inconsistent	F	F	–	–	0 Hz	–	0 Hz	–	–
On	F	T	–	–	120 Hz	–	120 Hz	–	–
Off	T	F	–	–	0 Hz	–	0 Hz	–	–
Inconsistent	T	T	–	–	0 Hz	–	0 Hz	–	–

Where
A = BEND_LTUH_220_ON_STATE,
B = BEND_LTUH_220_OFF_STATE

29.20 BYD Watchdog

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = BEND_DMP1_400_BACT_WDOG_STATE

29.21 BYKIK Current

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OK	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = KICK_LTUH_320_CURRENT_THRESHOLD

29.22 BYKIK Magnet Power Status

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Inconsistent	F	F	–	–	0 Hz	–	0 Hz	–	–
On	F	T	–	–	120 Hz	–	120 Hz	–	–
Off	T	F	–	–	0 Hz	–	0 Hz	–	–
Inconsistent	T	T	–	–	0 Hz	–	0 Hz	–	–

Where
A = KICK_LTUH_320_ON_STATE,
B = KICK_LTUH_320_OFF_STATE

29.23 CEDL1 Temperature

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = COLL_LTUH_253_TEMP_STATE

29.24 CEDL3 Temperature

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `COLL_LTUH_452_TEMP_STATE`

29.25 CXQ6 Temperature

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `COLL_BSYH_892_TEMP_STATE`

29.26 CXQT22 Temperature

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `COLL_LTUH_393_TEMP_STATE`

29.27 CYBX32 Temperature

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `COLL_LTUH_276_TEMP_STATE`

29.28 CYBX36 Temperature

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `COLL_LTUH_475_TEMP_STATE`

29.29 Dechirper Mirror Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	–	–	0 Hz	–	0 Hz	–	–
Out	F	T	–	–	120 Hz	–	120 Hz	–	–
In	T	F	–	–	120 Hz	–	120 Hz	–	–
Broken	T	T	–	–	0 Hz	–	0 Hz	–	–

Where
A = `MIRR_LTUH_548_OUT_LIMIT_POSITION`,
B = `MIRR_LTUH_548_IN_LIMIT_POSITION`

29.30 LTU Dechirper - Horizontal Gap Too Small

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Both ends gap too small	F	F	–	–	0 Hz	–	0 Hz	–	–
Downstream end gap too small	F	T	–	–	0 Hz	–	0 Hz	–	–
Upstream end gap too small	T	F	–	–	0 Hz	–	0 Hz	–	–
Gap OK	T	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `DCHP_LTUH_555_GAP_LIMSW_NEGZ_POSITION`,
B = `DCHP_LTUH_555_GAP_LIMSW_POSZ_POSITION`

29.31 LTU Dechirper - Vertical Gap Too Small

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Both ends gap too small	F	F	–	–	0 Hz	–	0 Hz	–	–
Downstream end gap too small	F	T	–	–	0 Hz	–	0 Hz	–	–
Upstream end gap too small	T	F	–	–	0 Hz	–	0 Hz	–	–
Gap OK	T	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `DCHP_LTUH_545_GAP_LIMSW_NEGZ_POSITION`,
B = `DCHP_LTUH_545_GAP_LIMSW_POSZ_POSITION`

29.32 OTR33 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	–	–	0 Hz	–	0 Hz	–	–
Out	F	T	–	–	120 Hz	–	120 Hz	–	–
In	T	F	–	–	10 Hz	–	10 Hz	–	–
Broken	T	T	–	–	0 Hz	–	0 Hz	–	–

Where
A = `OTRS_LTUH_745_OUT_LIMIT_POSITION`,
B = `OTRS_LTUH_745_IN_LIMIT_POSITION`

29.33 PIC HVPS B911 - Location B911-2135

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `PICM_LTUH_B911_HV_PWR_STATE`

29.34 PIC HVPS B912 - Location B912-2135

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = PICM_LTUH_B912_HV_PWR_STATE

29.35 PIC HVPS B913 - Location B913-2135

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = PICM_LTUH_B913_HV_PWR_STATE

29.36 PIC Raw Charge Thresholds: LTUH 220

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	–	–	0 Hz	–	0 Hz	–	–
Over High Threshold	F	T	–	–	0 Hz	–	0 Hz	–	–
Under Low Threshold	T	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = PICM_LTUH_220_LOSSL_THRESHOLD,
B = PICM_LTUH_220_LOSSH_THRESHOLD

29.37 PIC Raw Charge Thresholds: LTUH 253

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	–	–	0 Hz	–	0 Hz	–	–
Over High Threshold	F	T	–	–	0 Hz	–	0 Hz	–	–
Under Low Threshold	T	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = PICM_LTUH_253_LOSSL_THRESHOLD,
B = PICM_LTUH_253_LOSSH_THRESHOLD

29.38 PIC Raw Charge Thresholds: LTUH 280

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	–	–	0 Hz	–	0 Hz	–	–
Over High Threshold	F	T	–	–	0 Hz	–	0 Hz	–	–
Under Low Threshold	T	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = PICM_LTUH_280_LOSSL_THRESHOLD,
B = PICM_LTUH_280_LOSSH_THRESHOLD

29.39 PIC Raw Charge Thresholds: LTUH 420

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	–	–	0 Hz	–	0 Hz	–	–
Over High Threshold	F	T	–	–	0 Hz	–	0 Hz	–	–
Under Low Threshold	T	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = PICM_LTUH_420_LOSSL_THRESHOLD,
B = PICM_LTUH_420_LOSSH_THRESHOLD

29.40 PIC Raw Charge Thresholds: LTUH 452

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	–	–	0 Hz	–	0 Hz	–	–
Over High Threshold	F	T	–	–	0 Hz	–	0 Hz	–	–
Under Low Threshold	T	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = PICM_LTUH_452_LOSSL_THRESHOLD,
B = PICM_LTUH_452_LOSSH_THRESHOLD

29.41 PIC Raw Charge Thresholds: LTUH 480

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	–	–	0 Hz	–	0 Hz	–	–
Over High Threshold	F	T	–	–	0 Hz	–	0 Hz	–	–
Under Low Threshold	T	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `PICM_LTUH_480_LOSSL_THRESHOLD`,
B = `PICM_LTUH_480_LOSSH_THRESHOLD`

29.42 PIC Raw Charge Thresholds: LTUH 722

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	–	–	0 Hz	–	0 Hz	–	–
Over High Threshold	F	T	–	–	0 Hz	–	0 Hz	–	–
Under Low Threshold	T	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `PICM_LTUH_722_LOSSL_THRESHOLD`,
B = `PICM_LTUH_722_LOSSH_THRESHOLD`

29.43 PIC Trigger Missed (LN28)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Missed	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_LTUH_220_NO_TRIG_MISSED`

29.44 PIC Trigger Missed (LN29)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = PICM_LTUH_480_NO_TRIG_MISSED

29.45 TDUND Flow Switch Fault With TDUND Not Out

Name	B	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Fault	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Ok	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
Ok, TDUND Out	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Ok	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = DUMP_LTUH_970_FLOW_SW_STATE,
B = DUMP_LTUH_970_OUT_LIMIT_POSITION

29.46 TDUND Position

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

Where
A = DUMP_LTUH_970_OUT_LIMIT_POSITION,
B = DUMP_LTUH_970_IN_LIMIT_POSITION

29.47 Undulator Beam Energy Lower Limit

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = BEND_DMP1_400_INTOL_BMIN_STATE

29.48 VVFS LTUH 102 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVFS_LTUH_102_POSITION_STATE`

29.49 VVMG LTUH 174 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVMG_LTUH_174_POSITION_STATE`

29.50 VVMG LTUH 355 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVMG_LTUH_355_POSITION_STATE`

29.51 VVMG LTUH 505 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVMG_LTUH_505_POSITION_STATE`

29.52 VVMG LTUH 670 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVMG_LTUH_670_POSITION_STATE`

29.53 VVMG LTUH 742 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVMG_LTUH_742_POSITION_STATE`

29.54 VVMG LTUH 774 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVMG_LTUH_774_POSITION_STATE`

29.55 VVPG LTUH 102 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_LTUH_102_POSITION_STATE`

29.56 VVPG LTUH 265 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_LTUH_265_POSITION_STATE`

29.57 VVPG LTUH 435 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_LTUH_435_POSITION_STATE`

29.58 VVPG LTUH 580 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_LTUH_580_POSITION_STATE`

29.59 VVPG LTUH 725 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_LTUH_725_POSITION_STATE`

29.60 VVPG LTUH 757 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_LTUH_757_POSITION_STATE`

29.61 YAGPSI Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	–	–	0 Hz	–	0 Hz	–	–
Out	F	T	–	–	120 Hz	–	120 Hz	–	–
In	T	F	–	–	10 Hz	–	10 Hz	–	–
Broken	T	T	–	–	0 Hz	–	0 Hz	–	–

Where
A = `YAGS_LTUH_743_OUT_LIMIT_POSITION`,
B = `YAGS_LTUH_743_IN_LIMIT_POSITION`

30 Ignored when TD11 Is In, TDUND Is In, YAG01 Is In, or YAG02 Is In

30.1 Magnet In Tolerance: BYD1

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `BEND_DMP1_400_INTOL_STATUS`

30.2 Magnet Power: BYD1

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	–	–	0 Hz	–	0 Hz	–	–
ON	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `BEND_DMP1_400_STATE_STATUS`

31 Ignored when TD11 Is In, YAG01 Is In, or YAG02 Is In

31.1 BLM/PIC Watchdog BSY0/BSYA

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_BSY0_1_PICBLM_WD_STATUS`

31.2 BLM/PIC Watchdog LI24

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_LI24_1_PICBLM_WD_STATUS`

31.3 BLM/PIC Watchdog LI30

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_LI30_1_PICBLM_WD_STATUS`

31.4 Bunch Length Monitor BL21 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = BL22_OUT_STATE,
B = BL22_IN_STATE

31.5 CXBP30 Temperature

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = COLL_SLTS_428_TEMP_STATE

31.6 D2 Summary Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	–	–	0 Hz	–	0 Hz	–	–
Out	F	T	–	–	120 Hz	–	120 Hz	–	–
In	T	F	–	–	0 Hz	–	120 Hz	–	–
Broken	T	T	–	–	0 Hz	–	0 Hz	–	–

Where
A = STPR_BSYH_847_OUT_LIMIT_POSITION,
B = STPR_BSYH_847_IN_LIMIT_POSITION

31.7 Dump LI28 5879 Flowswitch

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = DUMP_5879_FLOW_SW_STATE

31.8 Dump LI28 5879 Klixon

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not OK	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = DUMP_5879_KLIXON_OK_STATE

31.9 Flowswitch: BSY RAD LCW Slit 10/30

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Fault	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Ok	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = HTEXCH2_STATE

31.10 Flowswitch: CE21

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = COL_805_FLOSW_STATE

31.11 Flowswitch: COLL LI28-9

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = FLOW_SW_28_9_STATE

31.12 Flowswitch: COLL LI29-1

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FLOW_SW_29_1_STATE`

31.13 Flowswitch: COLL LI29-4

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FLOW_SW_29_4_STATE`

31.14 Flowswitch: COLL LI29-5

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FLOW_SW_29_5_STATE`

31.15 Flowswitch: COLL LI29-9

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FLOW_SW_29_9_STATE`

31.16 Flowswitch: COLL LI30-1

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = FLOW_SW_30_1_STATE

31.17 Flowswitch: COLL LI30-4

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = FLOW_SW_30_4_STATE

31.18 Flowswitch: COLL LI30-5

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = FLOW_SW_30_5_STATE

31.19 HXR Magnet Mode

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Faulted	F	F	–	–	–	–	–	–	–
Not Faulted	F	T	–	–	–	–	–	–	–
Not Faulted	T	F	–	–	–	–	–	–	–
HXR Mode	T	T	–	–	–	–	–	–	–

Where
A = BEND_CLTS_180_OFF_STATE,
B = KICK_CLTS_185_OFF_STATE

31.20 Hydrogen Recombiner For BSY 1 Collimator

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Fault	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Ok	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = HYDRECM1_STATE

31.21 Hydrogen Recombiner For BSY 2 Slit 10/30

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Fault	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Ok	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = HYDRECM2_STATE

31.22 Inconsistent Magnet Mode

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Faulted	F	F	–	–	–	–	–	–	–
Not Faulted	F	T	–	–	–	–	–	–	–
Not Faulted	T	F	–	–	–	–	–	–	–
Both On	T	T	0 Hz	0 Hz	0 Hz	–	0 Hz	0 Hz	0 Hz

Where
A = BEND_CLTS_180_ON_STATE,
B = KICK_CLTS_185_ON_STATE

31.23 Main Manifold Gauge: LI22 Station 5

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_MM_GAUGE_OK_LI22_STATE

31.24 Main Manifold Gauge: LI23 Station 5

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_MM_GAUGE_OK_LI23_STATE

31.25 Main Manifold Gauge: LI24 Station 5

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_MM_GAUGE_OK_LI24_STATE

31.26 Main Manifold Gauge: LI25 Station 5

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_MM_GAUGE_OK_LI25_STATE

31.27 Main Manifold Gauge: LI26 Station 5

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_MM_GAUGE_OK_LI26_STATE

31.28 Main Manifold Gauge: LI27 Station 5

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_MM_GAUGE_OK_LI27_STATE`

31.29 Main Manifold Gauge: LI28 Station 5

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_MM_GAUGE_OK_LI28_STATE`

31.30 Main Manifold Gauge: LI29 Station 5

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_MM_GAUGE_OK_STATE`

31.31 Main Manifold Gauge: LI30 Station 5

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_MM_GAUGE_30_5_OK_STATE`

31.32 OTR LI25 920 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTR_TCAV_OUT_STATE`,
B = `OTR_TCAV_IN_STATE`

31.33 OTR21 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRS_LI24_807_OUT_LMTSW_STATE`,
B = `OTRS_LI24_807_IN_LMTSW_STATE`

31.34 PIC Gas Pressure LI24

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PIC_GAS_PRESS_STATE`

31.35 PIC HVPS BSY 1 - Location B005-3921

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
ON	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_BSY0_1_HV_PWR_STATE

31.36 PIC HVPS BSY 2 - Location B005-3921

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
ON	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_BSY0_2_HV_PWR_STATE

31.37 PIC HVPS BSY 3 - Location B005-3921

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
ON	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_BSY0_3_HV_PWR_STATE

31.38 PIC HVPS BSY 4 - Location B005-3918

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
ON	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_BSY0_4_HV_PWR_STATE

31.39 PIC HVPS BSY 5 - Location B005-3918

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
ON	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_BSY0_5_HV_PWR_STATE

31.40 PIC HVPS BSY 6 - Location B005-3918

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
ON	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PICM_BSY0_6_HV_PWR_STATE`

31.41 PIC HVPS LI24 - Location LKF24-0235

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
ON	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PICM_LI24_1_HV_PWR_STATE`

31.42 PIC HVPS LI30 - KG30-C1322

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
ON	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PICM_LI30_1_HV_PWR_STATE`

31.43 PIC Raw Charge Thresholds: BSYH 762 (PC90)

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYH_762_LOSSL_THRESHOLD`,
B = `PICM_BSYH_762_LOSSH_THRESHOLD`

31.44 PIC Raw Charge Thresholds: BSYH 836 (PC119)

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `PICM_BSYH_836_LOSSL_THRESHOLD`,
B = `PICM_BSYH_836_LOSSH_THRESHOLD`

31.45 PIC Raw Charge Thresholds: CLTS 280 (BLRCUS)

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PICM_CLTS_280_LOSSL_THRESHOLD`,
B = `PICM_CLTS_280_LOSSH_THRESHOLD`

31.46 PIC Raw Charge Thresholds: LI24 791

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PICM_LI24_791_LOSSL_THRESHOLD`,
B = `PICM_LI24_791_LOSSH_THRESHOLD`

31.47 PIC Raw Charge Thresholds: LI24 811

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PICM_LI24_811_LOSSL_THRESHOLD`,
B = `PICM_LI24_811_LOSSH_THRESHOLD`

31.48 PIC Raw Charge Thresholds: LI28 916

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PICM_LI28_916_LOSSL_THRESHOLD`,
B = `PICM_LI28_916_LOSSH_THRESHOLD`

31.49 PIC Raw Charge Thresholds: LI29 146

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PICM_LI29_146_LOSSL_THRESHOLD`,
B = `PICM_LI29_146_LOSSH_THRESHOLD`

31.50 PIC Raw Charge Thresholds: LI29 446

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_LI29_446_LOSSL_THRESHOLD,
B = PICM_LI29_446_LOSSH_THRESHOLD

31.51 PIC Raw Charge Thresholds: LI29 546

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_LI29_546_LOSSL_THRESHOLD,
B = PICM_LI29_546_LOSSH_THRESHOLD

31.52 PIC Raw Charge Thresholds: LI29 801

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_LI29_801_LOSSL_THRESHOLD,
B = PICM_LI29_801_LOSSH_THRESHOLD

31.53 PIC Raw Charge Thresholds: LI29 956

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_LI29_956_LOSSL_THRESHOLD,
B = PICM_LI29_956_LOSSH_THRESHOLD

31.54 PIC Raw Charge Thresholds: LI30 146

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_LI30_146_LOSSL_THRESHOLD,
B = PICM_LI30_146_LOSSH_THRESHOLD

31.55 PIC Raw Charge Thresholds: LI30 446

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_LI30_446_LOSSL_THRESHOLD,
B = PICM_LI30_446_LOSSH_THRESHOLD

31.56 PIC Raw Charge Thresholds: LI30 546

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_LI30_546_LOSSL_THRESHOLD,
B = PICM_LI30_546_LOSSH_THRESHOLD

31.57 PIC Raw Charge Thresholds: LI30 801

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_LI30_801_LOSSL_THRESHOLD,
B = PICM_LI30_801_LOSSH_THRESHOLD

31.58 PIC Trigger Missed (LN16)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_LI24_791_NO_TRIG_MISSED

31.59 PIC Trigger Missed (LN22)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_LI28_916_NO_TRIG_MISSED

31.60 PIC Trigger Missed (LN25)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_BSY0_16_NO_TRIG_MISSED

31.61 Pulsed Magnet Mode Ok

Name	B	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Faulted	F	F	–	–	–	–	–	–	–
BKRCUS Current Wrong	F	T	0 Hz	0 Hz	0 Hz	–	0 Hz	0 Hz	0 Hz
Not Faulted	T	F	–	–	–	–	–	–	–
Pulsed Mode Ok	T	T	–	–	–	–	–	–	–

Where
A = KICK_CLTS_185_ON_STATE,
B = KICK_CLTS_185_CURRENT_THRESHOLD

31.62 Scraper Water LI21-9 (Station 22-1)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_SCRAPPER_FLOW_OK_LI22_STATE

31.63 Scraper Water LI22-9 (Station 23-1)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_SCRAPPER_FLOW_OK_LI23_STATE

31.64 Scraper Water LI23-9 (Station 24-1)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_SCRAPPER_FLOW_OK_LI24_STATE

31.65 Scraper Water LI24-9 (Station 25-1)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_SCRAPPER_FLOW_OK_LI25_STATE

31.66 Scraper Water LI25-9 (Station 26-1)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_SCRAPPER_FLOW_OK_LI26_STATE

31.67 Scraper Water LI26-9 (Station 27-1)

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_SCRAPPER_FLOW_OK_LI27_STATE

31.68 Scraper Water LI27-9 (Station 28-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_SCRAPPER_FLOW_OK_LI28_STATE

31.69 Scraper Water LI28-9 (Station 29-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_SCRAPPER_FLOW_OK_LI29_STATE

31.70 Scraper Water LI29-9 (Station 30-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_SCRAPPER_FLOW_OK_LI30_STATE

31.71 STCLTS Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	–	–	–	–	–	0 Hz	0 Hz
Out	F	T	–	–	–	–	–	120 Hz	120 Hz
In	T	F	–	–	–	–	–	120 Hz	120 Hz
Broken	T	T	–	–	–	–	–	0 Hz	0 Hz

Where
A = STPP_CLTS_585_OUT_LIMIT_POSITION,
B = STPR_CLTS_585_IN_LIMIT_POSITION

31.72 STCLTS Temperature

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	–	–	–	0 Hz	0 Hz
OK	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `STPR_CLTS_585_TEMP_STATE`

31.73 Stopper LI28 950 and 960 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OUT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OUT	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `BASII_STOPPER_OUT_STATE`

31.74 Sub-booster Ready: LI21

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_SBST_OK_READY_LI22_STATE`

31.75 Sub-booster Ready: LI22

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_SBST_OK_READY_LI23_STATE`

31.76 Sub-booster Ready: LI25

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_SBST_OK_READY_LI24_STATE`

31.77 Sub-booster Ready: LI26

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_SBST_OK_READY_LI25_STATE`

31.78 Sub-booster Ready: LI27

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_SBST_OK_READY_LI26_STATE`

31.79 Sub-booster Ready: LI28

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_SBST_OK_READY_LI27_STATE`

31.80 Sub-booster Ready: LI29

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_SBST_OK_READY_LI28_STATE`

31.81 Sub-booster Ready: LI30

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_SBST_OK_READY_LI29_STATE`

31.82 SXR Magnet Mode Ok

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Faulted	F	F	–	–	–	–	–	–	–
BRCUSDC Current Wrong	F	T	0 Hz	0 Hz	0 Hz	–	0 Hz	0 Hz	0 Hz
Not Faulted	T	F	–	–	–	–	–	–	–
SXR Mode Ok	T	T	–	–	–	–	–	–	–

Where
A = `BEND_CLTS_180_ON_STATE`,
B = `BEND_CLTS_180_CURRENT_THRESHOLD`

31.83 Temperature RTD Summary: BSY Common Line

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = RTD_BSY0_16_CLINESUM_STATUS

31.84 Toroid Chassis LI24 IMBC2

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = CHASIMB2_STATE

31.85 Toroid Comparator BC2 (IMBC2IN vs IMBC2OUT)

Name	B	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Downstream > Upstream	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Upstream > Downstream	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = TCBC2L1_STATE,
B = TCBC2L2_STATE

31.86 VVFS CLTH 101 Position

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = VVFS_CLTH_101_OPEN_LIMSW_POSITION

31.87 VVFS LI21-9 Position (Station 22-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FAST_VLV_OPEN_LI22_STATE`

31.88 VVFS LI22-9 Position (Station 23-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FAST_VLV_OPEN_LI23_STATE`

31.89 VVFS LI23-9 Position (Station 24-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FAST_VLV_OPEN_LI24_STATE`

31.90 VVFS LI24-9 Position (Station 25-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FAST_VLV_OPEN_LI25_STATE`

31.91 VVFS LI25-9 Position (Station 26-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FAST_VLV_OPEN_LI26_STATE`

31.92 VVFS LI26-9 Position (Station 27-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FAST_VLV_OPEN_LI27_STATE`

31.93 VVFS LI27-9 Position (Station 28-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FAST_VLV_OPEN_LI28_STATE`

31.94 VVFS LI28-9 Position (Station 29-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FAST_VLV_OPEN_LI29_STATE`

31.95 VVFS LI29-9 Position (Station 30-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FAST_VLV_OPEN_LI30_STATE`

31.96 VVPG BSYH 470 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_BSYH_470_POSITION_STATE`

31.97 VVPG BSYH 541 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_BSYH_541_POSITION_STATE`

31.98 VVPG BSYH 837 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	0 Hz	–	0 Hz	–	–
OPEN	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_BSYH_837_POSITION_STATE`

31.99 VVPG CLTH 178 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_CLTH_178_OPEN_LIMSW_POSITION`

31.100 VVPG CLTH 375 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	–	–	0 Hz	–	0 Hz	–	–
OK	T	–	–	120 Hz	–	120 Hz	–	–

Where
A = `VVPG_CLTH_375_OPEN_LIMSW_POSITION`

31.101 VVPG CLTS 372 POSITION

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_OPEN	F	–	–	–	–	–	0 Hz	0 Hz
OPEN	T	–	–	–	–	–	120 Hz	120 Hz

Where
A = `VVPG_CLTS_372_POSITION_STATE`

31.102 VVPG LI21-9 Position (Station 22-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `SLOW_VLV_OPEN_LI22_STATE`

31.103 VVPG LI22-9 Position (Station 23-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `SLOW_VLV_OPEN_LI23_STATE`

31.104 VVPG LI23-9 Position (Station 24-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `SLOW_VLV_OPEN_LI24_STATE`

31.105 VVPG LI24 710 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `VV21_STATE`

31.106 VVPG LI24 896 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `VV22_STATE`

31.107 VVPG LI25-9 Position (Station 26-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = SLOW_VLV_OPEN_LI26_STATE

31.108 VVPG LI26-9 Position (Station 27-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = SLOW_VLV_OPEN_LI27_STATE

31.109 VVPG LI27-9 Position (Station 28-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = SLOW_VLV_OPEN_LI28_STATE

31.110 VVPG LI28-9 Position (Station 29-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = SLOW_VLV_OPEN_LI29_STATE

31.111 VVPG LI29-9 Position (Station 30-1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = SLOW_VLV_OPEN_LI30_STATE

31.112 VVPG LI30-9 Position (Station 30-9)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = SLOW_VLV_30_9_OK_OPEN_STATE

32 Ignored when YAG01 Is In

32.1 BXG Status

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Off	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
On	T	F	10 Hz	10 Hz	10 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `BEND_IN20_231_OFF_STATE`,
B = `BEND_IN20_231_OK_STATE`

32.2 Toroid Peak Current Monitor IM01

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `TR_BL215_STATE`

32.3 YAG02 IN20 241 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `YAGS_IN20_241_OUT_LMTSW_STATE`,
B = `YAGS_IN20_241_IN_LMTSW_STATE`

33 Ignored when YAG01 Is In or YAG02 Is In

33.1 BLM/PIC Watchdog Upstream of TDUND

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_MCC0_1_PICBLM_WD_STATUS`

33.2 BX01/BX02 Status

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Off	F	T	120 Hz	120 Hz	120 Hz	–	–	–	–
On	T	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = `BEND_IN20_751_OFF_STATE`,
B = `BEND_IN20_751_OK_STATE`

33.3 Flowswitch: CE11

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `COLL_LI21_235_OPEN_STATE`

33.4 Flowswitch: TD11

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = FS_BL305_STATE

33.5 Main Manifold Gauge: LI21 Station 5

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = MPS_MM_GAUGE_OK_LI21_STATE

33.6 Mirror BL11 Position

Name	B	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = MIR_BL11_OUT_STATE,
B = MIR_BL11_IN_STATE

33.7 OTR01 IN20 541 Position

Name	B	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = OTRS_IN20_541_OUT_LMTSW_STATE,
B = OTRS_IN20_541_IN_LMTSW_STATE

33.8 OTR02 IN20 571 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRS_IN20_571_OUT_LMTSW_STATE`,
B = `OTRS_IN20_571_IN_LMTSW_STATE`

33.9 OTR03 IN20 621 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRS_IN20_621_OUT_LMTSW_STATE`,
B = `OTRS_IN20_621_IN_LMTSW_STATE`

33.10 OTR04 IN20 711 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRS_IN20_711_OUT_LMTSW_STATE`,
B = `OTRS_IN20_711_IN_LMTSW_STATE`

33.11 OTR11 LI21 237 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRS_LI21_237_OUT_LMTSW_STATE`,
B = `OTRS_LI21_237_IN_LMTSW_STATE`

33.12 OTR12 LI21 291 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRS_LI21_291_OUT_LMTSW_STATE`,
B = `OTRS_LI21_291_IN_LMTSW_STATE`

33.13 OTRH1 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRH1_OUT_LIMIT_STATE`,
B = `OTRH1_IN_LIMIT_STATE`

33.14 OTRH2 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `OTRH2_OUT_LIMIT_STATE`,
B = `OTRH2_IN_LIMIT_STATE`

33.15 TD11 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	120 Hz	120 Hz	–	–	–	–	–
In	T	F	120 Hz	120 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `TD11_OUT_LIMIT_STATE`,
B = `TD11_IN_LIMIT_STATE`

33.16 Toroid Chassis IN20 IM11

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `CHASIM11_STATE`

33.17 Toroid Chassis IN20 IM12

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = CHASIM12_STATE

33.18 Toroid Comparator BC1 (IMBC1IN vs IMBC1OUT)

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Downstream - Upstream > 50 pC	F	T	0 Hz	0 Hz	0 Hz	–	–	–	–
Upstream - Downstream > 200 pC	T	F	0 Hz	0 Hz	0 Hz	–	–	–	–
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = TCBC1L1_STATE,
B = TCBC1L2_STATE

33.19 VVFV IN20 785 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = VVFV_IN20_785_OPEN_LMTSW_POSITION

33.20 VVPG IN20 155 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = VV_BL155_STATE

33.21 VVPG IN20 435 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `VV_BL435_STATE`

33.22 VVPG IN20 545 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `VV_BL545_STATE`

33.23 VVPG IN20 635 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `VV_BL635_STATE`

33.24 VVPG IN20 915 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `VV_IS915_STATE`

33.25 VVS Circuit Breaker: LI22

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = VVS_BRKR_OK_READY_LI22_STATE

33.26 VVS Circuit Breaker: LI24

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = VVS_BRKR_OK_READY_LI24_STATE

33.27 VVS Circuit Breaker: LI26

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = VVS_BRKR_OK_READY_LI26_STATE

33.28 VVS Circuit Breaker: LI28

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = VVS_BRKR_OK_READY_LI28_STATE

33.29 VVS Circuit Breaker: LI30

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `VVS_BRKR_OK_READY_LI30_STATE`

33.30 YAG03 IN20 351 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `YAGS_IN20_351_OUT_LMTSW_STATE`,
B = `YAGS_IN20_351_IN_LMTSW_STATE`

33.31 YAGS1 IN20 921 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `YAGS_IN20_921_OUT_LMTSW_STATE`,
B = `YAGS_IN20_921_IN_LMTSW_STATE`

33.32 YAGS2 LI21 995 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `YAGS_LI21_995_OUT_LMTSW_STATE`,
B = `YAGS_LI21_995_IN_LMTSW_STATE`

34 Always Evaluated

34.1 Backward Beam Stopper (RST1)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Out	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Out	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = `ST_BL551_STATE`

34.2 Beam Destination: HXR

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not True	F	–	–	–	–	–	–	–
True	T	–	–	–	–	–	–	–

Where
A = `LP_DESTINATION_HXR`

34.3 Beam Destination: SXR

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not True	F	–	–	–	–	–	–	–
True	T	–	–	–	–	–	–	–

Where
A = `LP_DESTINATION_SXR`

34.4 BLM/PIC Watchdog IN20

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_IN20_1_PICBLM_WD_STATUS`

34.5 Bypass Recover

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Recovering	F	0 Hz	0 Hz	0 Hz	0 Hz	–	–	–
OK	T	120 Hz	120 Hz	120 Hz	120 Hz	–	–	–

Where
A = `LP_BYPASS_RECOVER`

34.6 Gun RF Peak Power 20-6

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `FLT_20_6_TRP_STATE`

34.7 Gun Waveguide Vacuum Summary

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `WGVACGUN_STATE`

34.8 IOC-IN20-MP01 MPS Support IOC Heartbeat

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MN_HEART_STATE`

34.9 Laser Heater Attenuator Position

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

Where
A = `LHATTEN_OUT_LIMIT_STATE`,
B = `LHATTEN_IN_LIMIT_STATE`

34.10 MCC Emergency Radiation Stopper

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not OK	F	0 Hz	0 Hz	0 Hz	0 Hz	0 Hz	0 Hz	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	120 Hz	120 Hz	120 Hz	120 Hz

Where
A = `EMG_RAD_STOP_STATE`

34.11 Mechanical Shutter Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `MPS_IN20_200_MSHT1_OUT_FAULT`,
B = `MPS_IN20_200_MSHT1_IN_FAULT`

34.12 Mirror AM01 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Out	F	0 Hz	0 Hz	0 Hz	–	–	–	–
Out	T	120 Hz	120 Hz	120 Hz	–	–	–	–

Where
A = MR_BL191_STATE

34.13 MPS Beam Permit: BYKIK

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Permitted	F	–	–	0 Hz	–	–	–	–
Permitted	T	–	–	120 Hz	–	–	–	–

Where
A = LP_ALLOWS_BEAM_BYKIK

34.14 MPS Beam Permit: BYKIKS

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Permitted	F	–	–	–	–	–	–	0 Hz
Permitted	T	–	–	–	–	–	–	120 Hz

Where
A = LP_ALLOWS_BEAM_BYKIKS

34.15 MPS Beam Permit: Gun RF

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Permitted	F	0 Hz	–	–	–	–	–	–
Permitted	T	120 Hz	–	–	–	–	–	–

Where
A = LP_ALLOWS_BEAM_POCKELS_CELL

34.16 MPS Beam Permit: Gun RF HXR

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Permitted	F	–	–	–	–	0 Hz	–	–
Permitted	T	–	–	–	–	120 Hz	–	–

Where
A = LP_ALLOWS_BEAM_GUN_HXR

34.17 MPS Beam Permit: Gun RF SXR

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Permitted	F	–	–	–	–	–	0 Hz	–
Permitted	T	–	–	–	–	–	120 Hz	–

Where
A = LP_ALLOWS_BEAM_GUN_SXR

34.18 MPS Beam Permit: Heater Shutter

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Permitted	F	–	–	–	0 Hz	–	–	–
Permitted	T	–	–	–	120 Hz	–	–	–

Where
A = LP_ALLOWS_BEAM_LH_SHUT

34.19 MPS Beam Permit: Mechanical Shutter

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Permitted	F	–	0 Hz	–	–	–	–	–
Permitted	T	–	120 Hz	–	–	–	–	–

Where
A = LP_ALLOWS_BEAM_MECH_SHUT

34.20 MPS Mechanical Shutter Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
OK	F	120 Hz	120 Hz	120 Hz	–	–	–	–
Readback Does Not Match	T	0 Hz	0 Hz	0 Hz	–	–	–	–

Where
A = SHFLT_STATE

34.21 PIC HVPS LI20 - Location LKG-1535

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
NOT_ON	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
ON	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_LI20_1_HV_PWR_STATE

34.22 PIC Raw Charge Thresholds: IN20 185

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_IN20_185_LOSSL_THRESHOLD,
B = PICM_IN20_185_LOSSH_THRESHOLD

34.23 PIC Raw Charge Thresholds: IN20 232

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = PICM_IN20_232_LOSSL_THRESHOLD,
B = PICM_IN20_232_LOSSH_THRESHOLD

34.24 PIC Raw Charge Thresholds: IN20 245

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PICM_IN20_245_LOSSL_THRESHOLD`,
B = `PICM_IN20_245_LOSSH_THRESHOLD`

34.25 PIC Raw Charge Thresholds: IN20 665

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PICM_IN20_665_LOSSL_THRESHOLD`,
B = `PICM_IN20_665_LOSSH_THRESHOLD`

34.26 PIC Raw Charge Thresholds: IN20 775

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PICM_IN20_775_LOSSL_THRESHOLD`,
B = `PICM_IN20_775_LOSSH_THRESHOLD`

34.27 PIC Raw Charge Thresholds: IN20 933

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Broken	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Over High Threshold	F	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Under Low Threshold	T	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PICM_IN20_933_LOSSL_THRESHOLD`,
B = `PICM_IN20_933_LOSSH_THRESHOLD`

34.28 PIC Trigger Missed (LN11)

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `PICM_IN20_665_NO_TRIG_MISSED`

34.29 Pockels Cell AND Gate 100

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_IN20_100_ANDALLACTV_STATE`

34.30 Pockels Cell AND Gate 200

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `MPS_IN20_200_ANDALLACTV_STATE`

34.31 Rate Request: BYKIK 1 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	120 Hz	–	–	–	–
Requested	T	–	–	1 Hz	–	–	–	–

Where
A = `LP_MAX_RATE_BYKIK_1_HZ`

34.32 Rate Request: BYKIK 10 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	120 Hz	–	–	–	–
Requested	T	–	–	10 Hz	–	–	–	–

Where
A = `LP_MAX_RATE_BYKIK_10_HZ`

34.33 Rate Request: BYKIK 30 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	120 Hz	–	–	–	–
Requested	T	–	–	30 Hz	–	–	–	–

Where
A = `LP_MAX_RATE_BYKIK_30_HZ`

34.34 Rate Request: BYKIK 60 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	120 Hz	–	–	–	–
Requested	T	–	–	60 Hz	–	–	–	–

Where
A = `LP_MAX_RATE_BYKIK_60_HZ`

34.35 Rate Request: BYKIK Burst

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	120 Hz	–	–	–	–
Requested	T	–	–	Burst Mode	–	–	–	–

Where
A = LP_MAX_RATE_BYKIK_BURST

34.36 Rate Request: BYKIK Single Shot

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	120 Hz	–	–	–	–
Requested	T	–	–	Single Shot	–	–	–	–

Where
A = LP_MAX_RATE_BYKIK_SINGLE_SHOT

34.37 Rate Request: BYKIKS 1 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	–	–	120 Hz
Requested	T	–	–	–	–	–	–	1 Hz

Where
A = LP_MAX_RATE_BYKIKS_1_HZ

34.38 Rate Request: BYKIKS 10 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	–	–	120 Hz
Requested	T	–	–	–	–	–	–	10 Hz

Where
A = LP_MAX_RATE_BYKIKS_10_HZ

34.39 Rate Request: BYKIKS 30 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	–	–	120 Hz
Requested	T	–	–	–	–	–	–	30 Hz

Where
A = `LP_MAX_RATE_BYKIKS_30_HZ`

34.40 Rate Request: BYKIKS 60 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	–	–	120 Hz
Requested	T	–	–	–	–	–	–	60 Hz

Where
A = `LP_MAX_RATE_BYKIKS_60_HZ`

34.41 Rate Request: BYKIKS Burst

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	–	–	120 Hz
Requested	T	–	–	–	–	–	–	Burst Mode

Where
A = `LP_MAX_RATE_BYKIKS_BURST`

34.42 Rate Request: BYKIKS Single Shot

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	–	–	120 Hz
Requested	T	–	–	–	–	–	–	Single Shot

Where
A = `LP_MAX_RATE_BYKIKS_SINGLE_SHOT`

34.43 Rate Request: Gun RF HXR 1 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	120 Hz	–	–
Requested	T	–	–	–	–	1 Hz	–	–

Where
A = LP_MAX_RATE_GUN_HXR_1_HZ

34.44 Rate Request: Gun RF HXR 10 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	120 Hz	–	–
Requested	T	–	–	–	–	10 Hz	–	–

Where
A = LP_MAX_RATE_GUN_HXR_10_HZ

34.45 Rate Request: Gun RF HXR 30 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	120 Hz	–	–
Requested	T	–	–	–	–	30 Hz	–	–

Where
A = LP_MAX_RATE_GUN_HXR_30_HZ

34.46 Rate Request: Gun RF HXR 60 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	120 Hz	–	–
Requested	T	–	–	–	–	60 Hz	–	–

Where
A = LP_MAX_RATE_GUN_HXR_60_HZ

34.47 Rate Request: Gun RF HXR Burst

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	120 Hz	–	–
Requested	T	–	–	–	–	Burst Mode	–	–

Where
A = LP_MAX_RATE_GUN_HXR_BURST

34.48 Rate Request: Gun RF HXR Single Shot

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	120 Hz	–	–
Requested	T	–	–	–	–	Single Shot	–	–

Where
A = LP_MAX_RATE_GUN_HXR_SINGLE_SHOT

34.49 Rate Request: Gun RF SXR 1 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	–	120 Hz	–
Requested	T	–	–	–	–	–	1 Hz	–

Where
A = LP_MAX_RATE_GUN_SXR_1_HZ

34.50 Rate Request: Gun RF SXR 10 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	–	120 Hz	–
Requested	T	–	–	–	–	–	10 Hz	–

Where
A = LP_MAX_RATE_GUN_SXR_10_HZ

34.51 Rate Request: Gun RF SXR 30 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	–	120 Hz	–
Requested	T	–	–	–	–	–	30 Hz	–

Where
A = LP_MAX_RATE_GUN_SXR_30_HZ

34.52 Rate Request: Gun RF SXR 60 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	–	120 Hz	–
Requested	T	–	–	–	–	–	60 Hz	–

Where
A = LP_MAX_RATE_GUN_SXR_60_HZ

34.53 Rate Request: Gun RF SXR Burst

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	–	120 Hz	–
Requested	T	–	–	–	–	–	Burst Mode	–

Where
A = LP_MAX_RATE_GUN_SXR_BURST

34.54 Rate Request: Gun RF SXR Single Shot

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	–	–	–	–	–	120 Hz	–
Requested	T	–	–	–	–	–	Single Shot	–

Where
A = LP_MAX_RATE_GUN_SXR_SINGLE_SHOT

34.55 Rate Request: Pockels Cell 1 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	120 Hz	–	–	–	–	–	–
Requested	T	1 Hz	–	–	–	–	–	–

Where
A = LP_MAX_RATE_PC_1_HZ

34.56 Rate Request: Pockels Cell 10 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	120 Hz	–	–	–	–	–	–
Requested	T	10 Hz	–	–	–	–	–	–

Where
A = LP_MAX_RATE_PC_10_HZ

34.57 Rate Request: Pockels Cell 30 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	120 Hz	–	–	–	–	–	–
Requested	T	30 Hz	–	–	–	–	–	–

Where
A = LP_MAX_RATE_PC_30_HZ

34.58 Rate Request: Pockels Cell 60 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	120 Hz	–	–	–	–	–	–
Requested	T	60 Hz	–	–	–	–	–	–

Where
A = LP_MAX_RATE_PC_60_HZ

34.59 Rate Request: Pockels Cell Burst

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	120 Hz	–	–	–	–	–	–
Requested	T	Burst Mode	–	–	–	–	–	–

Where
A = `LP_MAX_RATE_PC_BURST`

34.60 Rate Request: Pockels Cell Single Shot

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	120 Hz	–	–	–	–	–	–
Requested	T	Single Shot	–	–	–	–	–	–

Where
A = `LP_MAX_RATE_PC_SINGLE_SHOT`

34.61 VVMG IN20 175 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `VV_BL175_STATE`

34.62 VVMG LI21 195 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `VV_BL195_STATE`

34.63 VVS Circuit Breaker: LI20

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
FAULT	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
OK	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz

Where
A = `VVS_BRKR_OK_READY_LI20_STATE`

34.64 YAG01 IN20 211 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `YAGS_IN20_211_OUT_LMTSW_STATE`,
B = `YAGS_IN20_211_IN_LMTSW_STATE`

34.65 YAGG1 IN20 841 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz
Out	F	T	120 Hz	120 Hz	120 Hz	–	–	–	120 Hz
In	T	F	10 Hz	10 Hz	10 Hz	–	–	–	10 Hz
Broken	T	T	0 Hz	0 Hz	0 Hz	–	–	–	0 Hz

Where
A = `YAGS_IN20_841_OUT_LMTSW_STATE`,
B = `YAGS_IN20_841_IN_LMTSW_STATE`

35 Ignore Logic

35.1 A-Line Kicker Is Not Enabled

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Is Not Enabled	F	F	–	–	–	–	–	–	–

Where
A = KICK_BSY0_66_PM1_TRIG_ENB_STATUS,
B = KICK_BSY0_66_PM2_TRIG_ENB_STATUS

35.2 A-Line SL10 Is Closed

Name	*D*	*C*	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Closed	T	T	T	T	–	–	–	–	–	–	–

Where
A = SLIT_BSYA_2010_SL10_FB_IN_STATE,
B = SLIT_BSYA_2010_SL10_FT_IN_STATE,
C = SLIT_BSYA_2010_SL10_RB_IN_STATE,
D = SLIT_BSYA_2010_SL10_RT_IN_STATE

35.3 BKRCUS Is On

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

Where
A = KICK_CLTS_185_ON_STATE

35.4 BRCUSDC Is Off

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

Where
A = BEND_CLTS_180_OFF_STATE

35.5 BRCUSDC Is On

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

Where
A = BEND_CLTS_180_ON_STATE

35.6 BX01/BX02 Is Off

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Off	F	T	–	–	–	–	–	–	–

Where
A = BEND_IN20_751_OFF_STATE,
B = BEND_IN20_751_OK_STATE

35.7 BX01/BX02 Is On

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
On	T	F	–	–	–	–	–	–	–

Where
A = BEND_IN20_751_OFF_STATE,
B = BEND_IN20_751_OK_STATE

35.8 BXG Is Off

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Off	F	T	–	–	–	–	–	–	–

Where
A = BEND_IN20_231_OFF_STATE,
B = BEND_IN20_231_OK_STATE

35.9 BXG Is On

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
On	T	F	–	–	–	–	–	–	–

Where
A = BEND_IN20_231_OFF_STATE,
B = BEND_IN20_231_OK_STATE

35.10 Destination HXR

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

Where
A = LP_DESTINATION_HXR

35.11 Destination SXR

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

Where
A = LP_DESTINATION_SXR

35.12 Diag Stopper HFX DG2 Is In

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

Where
A = HFX_DG2_STP_01_IN_DI_POSITION

35.13 Diag Stopper HFX UM6 Is In

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

Where
A = HFX_UM6_STP_01_IN_DI_POSITION

35.14 Diag Stopper XCS SB1 Is In

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

Where
A = XCS_SB1_STP_01_CLS_DI_POSITION

35.15 Laser Heater Attenuator Is In

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

Where
A = LHATTEN_IN_LIMIT_STATE

35.16 LTU Dechirper Is Out

Name	*D*	*C*	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Out	T	T	T	T	–	–	–	–	–	–	–

Where
A = DCHP_LTUH_545_OUT_LIMSW_NEGY_POSITION,
B = DCHP_LTUH_545_OUT_LIMSW_POSY_POSITION,
C = DCHP_LTUH_555_OUT_LIMSW_NEGX_POSITION,
D = DCHP_LTUH_555_OUT_LIMSW_POSX_POSITION

35.17 STCLTS Is In

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

Where
A = STPR_CLTS_585_IN_LIMIT_POSITION

35.18 Stopper MFX S4.5 Is In

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

Where
A = STPR_XRT_1_S45IN_STATE

35.19 Stopper S5B Is In

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

Where
A = STPR_FEH1_5_S5BIN_POSITION

35.20 Stopper SH1 Is In

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

Where
A = STPR_FEE1_ST1_IN_POSITION

35.21 Stopper SH2 Is In

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

Where
A = STPR_XRT1_1_SH2OUT_STATE,
B = STPR_XRT1_1_SH2IN_STATE

35.22 Stopper XRT S5 Is In

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

Where
A = STPR_XRT1_1_S5IN_POSITION

35.23 Stopper XRT S6 Is In

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

Where
A = STPR_XRT1_1_S6IN_POSITION

35.24 Stopper: BSY D2 Summary Is In

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

Where
A = STPR_BSYH_847_IN_LIMIT_POSITION

35.25 TD11 Is In

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

Where
A = TD11_IN_LIMIT_STATE

35.26 TDUND Is In

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

Where
A = DUMP_LTUH_970_IN_LIMIT_POSITION

35.27 TDUNDB Is In

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

Where
A = DUMP_LTUS_972_IN_LIMIT_POSITION

35.28 XPP-NH3-POS-00 Beamline Is In

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

Where
A = XPP_NH3_POS_00_IN_STATE

35.29 XPP-NH3-POS-00 Beamline Is Not In

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not_IN	F	–	–	–	–	–	–	–

Where
A = XPP_NH3_POS_00_IN_STATE

35.30 XRT-M2 Mirror Is Out of Beam

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

Where
A = HXX_HXM_MMS_01_B_POSITION

35.31 YAG01 Is In

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

Where
A = YAGS_IN20_211_OUT_LMTSW_STATE,
B = YAGS_IN20_211_IN_LMTSW_STATE

35.32 YAG02 Is In

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

Where
A = YAGS_IN20_241_IN_LMTSW_STATE