BITBUS INFORMATION BUFFER MESSAGES

The controller provides ASCII text information messages for important events or to provide detailed information when rejecting bitbus commands. Up to seven messages are stored in a first in first out buffer. When there is one or more messages in the buffer, a flag is set the status bytes. The message is then read from the controller and recored in the error log.

1) **SOFT RESET:** 8044 reset by bitbus soft reset or RAC command. Power supply status uneffected.

2) **POWER ON RESET:** Hardware reset caused by +5V below 4.5 volts.

3) **EXTERNAL RESET**: Global hardware reset from the bitbus repeater.

4) **LOCAL RESET:** Hardware reset from local control (diagnostic connector)

5) **FIRMWARE RESET:** Hardware reset from bitbus hard reset command.

6) **WATCHDOG TIMER RESET 0:** 8044 reset by watchdog timer timeout.

7) **WATCHDOG TIMER RESET 1:** Hardware reset from second watcdog timer timeout.

8) **EXT DATA MEMORY TEST FAILURE:** External data read/write self test failed. Power supply turn on is not allowed.

9) **PROGRAM MEMORY CHECKSUM ERROR:** Program memory 24 bit checksum incorrect. Power supply turn on is not allowed.

10) **WATCHDOG TIMER TEST FAILURE:** Watchdog timer failed to timeout during selftest. Power supply turn on is not allowed.

11) **WARNING: MB EEPROM READ ERROR:** Mother board EEPROM primary data checksum error, backup copy OK.

12) **MOTHER BRD EEPROM DATA INVALID:** Mother board EEPROM primary and backup data checksum error. Power supply turn on is not allowed.

13) **WARNING: DB EEPROM READ ERROR:** Daughter board primary data checksum error, backup copy is OK.

14) **DAUGHTER BRD EEPROM DATA INVALID:** Daughter board primary and backup data checksum error. Power supply turn on not allowed. Bitbus adddress defaults to 254.

15) **BITBUS MSG OVERFLOW, 8044 RESET:** The 8044 has been reset due to a bitbus message buffer overflow (seven message maximum).

16) **PS TRIP, MAGNET INTERLOCK 0:** The power supply was tripped off due to magnet interlock #0.

17) **PS TRIP, MAGNET INTERLOCK 1:** The power supply was tripped off due to magnet interlock #1.

18) **PS TRIP, MAGNET INTERLOCK 2:** The power supply was tripped off due to magnet interlock #2.

19) **PS TRIP, MAGNET INTERLOCK 3:** The power supply was tripped off due to magnet interlock #3.

20) PS TRIP, NOT READY, PS STAT #H: The power supply was tripped off due to loss of the power supply ready signal. The four power supply status bits are encoded into a single hex digit (#);

# =	8H	Power supply status bit 3
	4H	Power supply status bit 2
	2H	Power supply status bit 1
	1H	Power supply status bit 0

21) PS TRIP, REG XDUCT NOT READY: The power supply was tripped off due to loss of the regulated transductor ready signal.

22) PS TRIP, GROUND CURRENT: The power supply was tripped off due to ground current.

23) COMMAND TIME OUT, 8044 RESET: The 8044 was reset due to a bitbus command not completing in less than 10 seconds.

24) C0H ERROR, ADC NOT RESPONDING: Bitbus SHORT STATUS (C0H) command failure due to ADC not responding within 1 second.

25) C1H ERROR, NUMBER OF ENTIES: Illegal number of entries specified in bitbus SETPOINT (C1H) or SETUP RAMP (C2H) command.

26) C1H ERROR, SETPOINT OUT OF RANGE: Setpoint out of range in bitbus SETPOINT (C1H) or SETUP RAMP (C2H) command.

27) C1H ERROR, ZERO TIMESPAN: Illegal timespan (zero) in bitbus SETPOINT (C1H) or SETUP RAMP (C2H) command.

28) C1H ERROR, POWER SUPPLY OFF: Bitbus SETPOINT (C1H) or SETUP RAMP (C2H) rejected due to power supply not turned on.

29) C1H ERROR, POWER SUPPLY RAMPING: Bitbus SETPOINT (C1H) or SETUP RAMP (C2H) rejected due to power supply already ramping.

30) C3H ERROR, NUMBER OF ENTRIES: Illegal number of entries specified in bitbus READ SETPOINTS (C3H) command.

31) C4H ERROR, POWER SUPPLY ON: Bitbus RESET INTERLOCKS (C4H) command rejected due to power supply on.

32) C5H FAIL TURN OFF, LOCAL MODE: Bitbus TURN OFF (C5H) command rejected due to controller in local mode.

33) C5H FAIL TURN OFF, PS STATUS ON: Bitbus TURN OFF (C5H) command failed due to power supply ON statuts remaining high after supply turned off.

34) FAIL TURN ON, NO REV POLARITY: Bitbus TURN ON REVERSE POLARITY (C7H) command rejected because the REVERSING SWITCH bit in the daughter board EEPROM not set.

35) FAIL TURN ON, HARDWARE FAULT: Bitbus TURN ON NORMAL (C6H) or REVERSE (C7H) rejected due to controller hardware fault (see HARWARE FAULT CODES table).

36) FAIL TURN ON, LOCAL MODE: Bitbus TURN ON NORMAL (C6H) or REVERSE (C7H) rejected due to controller in local mode.

37) FAIL TURN ON, POWER SUPPLY ON: Bitbus TURN ON NORMAL (C6H) or REVERSE (C7H) rejected due to power supply already turned on.

38) FAIL TURN ON, ADC NOT RESPONDING: Bitbus TURN ON NORMAL (C6H) or REVERSE (C7H) failed due to ADC not responding within one second of read request.

39) FAIL TURN ON, DAC TEST: Bitbus TURN ON NORMAL (C6H) or REVERSE (C7H) failed due to turn-on DAC test values being out of tolerance.

40) FAIL TURN ON, INTERLOCK FLT ###H: Bitbus TURN ON NORMAL (C6H) or REVERSE (C7H) failed due to external interlock fault. Power supply and interlock status is encoded into a three digit hex number (###);

### =	800H	Power supply status bit 3
	400H	Power supply status bit 2
	200H	Power supply status bit 1
	100H	Power supply status bit 0
	080H	Unassigned, set to zero
	040H	Ground Fault Interlock
	020H	Regulated Transductor Interlock
	010H	Power Supply Interlock (PS ready)
	008H	Magnet Interlock 3
	004H	Magnet Interlock 2
	002H	Magnet Interlock 1
	001H	Magnet Interlock 0

41) FAIL TURN ON, PS NOT RESPONDING: Bitbus TURN ON NORMAL (C6H) or REVERSE (C7H) failed due to power supply on status remaining low after supply turned on.

42) E3H HARD RESET ERROR, LOCAL MODE: Bitbus HARD RESET (E3H) command rejected due to the controller in local mode.

43) INFORMATION BUFFER EMPTY: Standard reply to bitbus READ INFORMATION BUFFER (C9H) command when the buffer is empty.

44) PS TRIP, UNKNOWN SOURCE: Power supply has tripped off with no bit set in the interlock status register.

45) C1H ERROR, SUPPLY IN LOCAL MODE: Bitbus SETPOINT (C1H) or SETUP RAMP (C2H) rejected due to power supply in local control.

46) C5H TURN OFF ERROR, DAC NOT ZERO: Warning message, bitbus turn off command (C5H) with the DAC set to greater than 1% of full output.

CHASSIS TYPE

01H	LINEAR RAMP (1) / COSINE RAMP (0)	DAUGHTER BRD EEPROM
02H	20 HZ RAMP CLOCK (1) / 100 HZ RAMP CLOCK (0)	DAUGHTER BRD EEPROM
04H	ABORT ACTIVE FOR SETPOINT (1) / INACTIVE (0)	DAUGHTER BRD EEPROM
08H	REVERSING SWITCH (1) / NO REVERSING SWITCH (0)	DAUGHTER BRD EEPROM
10H	NOT ASSIGNED, SET TO ZERO	
20H	NOT ASSIGNED, SET TO ZERO	
40H	NOT ASSIGNED, SET TO ZERO	
80H	BIPOLAR CHASSIS (1) / UNIPOLAR CHASSIS (0)	

SELF TEST CODES

01H	EXTERNAL RAM TEST FAILURE
02H	PROGRAM MEMORY CHECKSUM TEST FAILURE
04H	WATCHDOG TIMER TEST FAILURE
08H	MOTHER BOARD EEPROM DATA INVALID
10H	DAUGHTER BOARD EEPROM DATA INVALID
20H	ADC FAULT (ADC WATCHDOG TIMEOUT)

LAST RESET CODES

01H	POWER ON RESET
02H	EXTERNAL RESET (BITBUS GLOBAL HARDWARE RESET)
04H	LOCAL CONTROL RESET
08H	FIRMWARE RESET (BITBUS HARD RESET COMMAND)
10H	WATCHDOG TIMER 1 (HARDWARE RESET)
20H	WATCHDOG TIMER 0 (SOFT RESET, 8044 ONLY)
40H	WATCHDOG TIMER DISABLED (special diagnostic mode)

LAST TURN OFF CODES

01H	MAGNET INTERLOCK 0 TRIP
02H	MAGNET INTERLOCK 1 TRIP
04H	MAGNET INTERLOCK 2 TRIP
08H	MAGNET INTERLOCK 3 TRIP
10H	POWER SUPPLY READY LINE TRIP
20H	REGULATED TRANSDUCTOR READY LINE TRIP
40H	GROUND FAULT TRIP

CALIBRATION ERROR CODES

01H	ADC OFFSET FAULT
02H	ADC GAIN FAULT
04H	DAC OFFSET FAULT
08H	DAC OFFSET FAULT

RAMP STATE CODES

01H	RAMPING (1) / IDLE (0)
02H	RAMP & ABORT ACTIVE (1) / INACTIVE (0)
04H	RAMP COMPLETE (1)