

1. Scope

- 1.1. This Document lists the system messages produced by the system and briefly describes the error and possible causes, and suggests possible remedies.
- 1.2. The messages are derived from the following sources:
 - 1.2.1. Stimulator Base
 - 1.2.2. UI Controller
 - 1.2.3. Coils/Coil Adapter

2. Overview

- 2.1. If the system detects an error, a message code is displayed on the Power Output Display.
- 2.2. The message is displayed in the form “Nxx”, where N is a letter describing the source of the error, and xx is the error number.
- 2.3. The source of the error can be one of the following:
 - 2.3.1. N = ‘E’ – The error is derived from the Stimulator Base
 - 2.3.2. N = ‘U’ - The error is derived from the UI Controller
 - 2.3.3. N = ‘C’ - The error is derived from the Coil
- 2.4. The error display can be one of two types: a recoverable error (i.e. E72 – Stack Over temperature) or a non-recoverable error (i.e. E80 Charging Fault). Recoverable errors generally occur during normal operation and can be cleared by taking the appropriate corrective action. Non-recoverable error generally occurs if the system detects a fault condition. These errors generally require service intervention before they can be cleared.
- 2.5. When a recoverable error is displayed, the power output display will alternate between showing the error code and the power output at a rate of approximately 1 per second, i.e. if the output power is 30% and a stack over temperature error is present the display will show 30 for a second then display the E72 error for 1 second. This scenario is repeated until the recoverable error clears.
- 2.6. When a non-recoverable error occurs the display shows the error code only. Non-recoverable error can only be reset by removing the appropriate fault and cycling the power to the machine.
- 2.7. When an error occurs with a BiStim system, the error can be shown on the top power output display (Master Output Power) or bottom power output display (Slave Output Power), or both. If the error is displayed on the top display, the error is associated with the master machine, and if the error is displayed on the bottom display the error is associated with the slave machine. In either case power to both machines should be cycled to clear any errors.

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3. Base Codes

3.1. All the Following Codes are displayed as “Exx”, where xx is the error code number

Error Code	Error Message	Description	Remedy
061	POWERFAIL	NON-RECOVERABLE - A Power fail condition has been detected by the main CPU	<ul style="list-style-type: none"> This error should not occur in normal use and if it persists please contact your authorised distributor.
062	STACKUNDERFLOW	NON-RECOVERABLE – An internal failure within the main CPU has occurred	<ul style="list-style-type: none"> This error should not occur in normal use and if it persists please contact your authorised distributor.
063	STACKOVERFLOW	NON-RECOVERABLE – An internal failure within the main CPU has occurred	<ul style="list-style-type: none"> This error should not occur in normal use and if it persists please contact your authorised distributor.
064	RTSOVERRUN	NON-RECOVERABLE – An internal failure within the main CPU has occurred	<ul style="list-style-type: none"> This error should not occur in normal use and if it persists please contact your authorised distributor.
065	WD TIMEOUT	NON-RECOVERABLE – An internal failure within the main CPU has occurred	<ul style="list-style-type: none"> The error can sometimes be cleared by cycling the power to the unit. However this error should not occur in normal use and if it persists please contact your authorised distributor
066	UNEXPECTED RESET	NON-RECOVERABLE –The system has unexpectedly reset.	<ul style="list-style-type: none"> The error can sometimes be cleared by cycling the power to the unit. However this error should not occur in normal use and if it persists contact your authorised distributor
067	BAD CHECKSUM	NON-RECOVERABLE – The main CPU has detected that the main program has been corrupted.	<ul style="list-style-type: none"> Please contact your authorised distributor
068	SYS DEBUG ERROR	NON-RECOVERABLE – For Development Use Only	<ul style="list-style-type: none"> Please contact your authorised distributor
069	COIL OVERTEMP (NOTE: This error is only displayed on older versions of the base program)	RECOVERABLE – The Coil currently connected has exceeded its maximum temperature threshold of 40°C	<ul style="list-style-type: none"> Change Coil or wait until coil has cooled down. The COILOVERTEMP error will not clear until the coil has cooled to a temperature of 38°C.
070	COIL UNDERTEMP	RECOVERABLE - The Coil currently connected is at a temperature which is less than the minimum allowed – 5°C	<ul style="list-style-type: none"> Change Coil or wait until the coil has warmed up The COIL UNDERTEMP error will not clear until the coil has reached a temperature of 7°C.
071	COIL MAX DIFF	RECOVERABLE – The coil currently Connected has a temperature difference between the 2 temperature sensor of greater than 10°C	<ul style="list-style-type: none"> Change Coil or wait until the temperature evens out within the coil. This error generally occurs when there is a fault with the coil. However if the coil is heated very quickly, during a rapid train for instance, the error can occur.

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072	STACK OVERTEMP	RECOVERABLE – The internal power components have reached their maximum working temperature of 88°C.	<ul style="list-style-type: none"> • Leave the machine switched on with the cooling fan running. • This error should only occur if the machine is being run at its maximum power and repetition rate, and then only under elevated ambient temperature conditions.
073	STACK UNDERTEMP	RECOVERABLE – The internal power components are at a temperature which is below the minimum of 3.5°C	<ul style="list-style-type: none"> • This condition should only occur if the unit has been left in a cold environment and the overall temperature is less than 3.5°C. Under these conditions, it is advisable to leave the machine in an environment which is at room temperature (approx. 20°C), for 30 minutes before use. • If the machine is warm and this error occurs, it will indicate a fault with the stack components temperature sensor. Please contact your authorised distributor
074	STACK MAX DIFF	RECOVERABLE – The temperature sensor which reports the error of the internal power components are reporting a temperature difference of more than the maximum allowable difference (40°C).	<ul style="list-style-type: none"> • Leave the machine switched on with the cooling fan running to even out the temperature. • This error generally occurs when there is a fault with the stack temperature sensors. If it persists, please contact your authorised distributor
075	HVCAP OVERTEMP	RECOVERABLE – Indicates that the internal High Voltage Capacitor has reached its maximum working temperature of 62°C.	<ul style="list-style-type: none"> • In the unlikely event this is encountered, please report it to your authorised distributor.
076	HV TRANS OVERTEMP	RECOVERABLE – Indicates that the internal High Voltage Transformer has reached its maximum working temperature of 90°C.	<ul style="list-style-type: none"> • Leave the machine switched on with the cooling fan running. • If the error still persists please contact your authorised distributor
078	VREF CHECK FAIL	NON-RECOVERABLE – A discrepancy has occurred between the 2 voltage references used in the system.	<ul style="list-style-type: none"> • Please contact your authorised distributor
079	HV COMP CHECK FAIL	NON-RECOVERABLE – A discrepancy has occurred between the 2, HV Capacitor voltage readings	<ul style="list-style-type: none"> • Please contact your authorised distributor
080	CHARGING FAULT	NON-RECOVERABLE – The main CPU has detected that the system is charging too slowly.	<ul style="list-style-type: none"> • Please contact your authorised distributor
081	HV OVERVOLT	NON-RECOVERABLE – The main CPU has detected that the voltage of the HV Capacitor has exceeded 3.15kV	<ul style="list-style-type: none"> • Please contact your authorised distributor
082	INVALID SYSTEM CONFIGURATION	RECOVERABLE – BiStim System Only. One of the machines in a BiStim system is configured for high power Output (2.8kV) and the other for normal Output (2.5kV).	<ul style="list-style-type: none"> • When configuring a BiStim system, only use M200² stimulators which are configured for the same output power.

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083	STOP LINE FAULT	NON-RECOVERABLE – The main CPU has detected a fault on the system STOP signal	<ul style="list-style-type: none"> Please contact your authorised distributor
084	BASE COIL STOP LINE FAULT	NON-RECOVERABLE - The main CPU has detected a fault on the coil STOP signal	<ul style="list-style-type: none"> Replace the coil and if the fault persists please contact your authorised distributor
085	UI STOP LINE FAULT	NON-RECOVERABLE - The main CPU has detected a fault on the UI Controller STOP signal	<ul style="list-style-type: none"> Please contact your authorised distributor
086	DUMP SYSTEM FAULT	NON-RECOVERABLE - The main CPU has detected that the HV dump system is taking too long to dump the energy from the HV Capacitor	<ul style="list-style-type: none"> Please contact your authorised distributor
087	INVALID COIL	RECOVERABLE – A coil has been connected to a BiStim System which is not category A	<ul style="list-style-type: none"> Fit a Category A coil to the system. Only High power Coils (Category A) are allowed to be used with a BiStim System.
088	BAD NVRAM CHECKSUM	NON-RECOVERABLE - The main CPU has detected that the EEPROM used to store the system configuration has not been programmed or has been corrupted.	<ul style="list-style-type: none"> Please contact your authorised distributor
089	BAD CHARGING RELAY	NON-RECOVERABLE - The main CPU has detected a fault with the charging relay	<ul style="list-style-type: none"> Please contact your authorised distributor
090	BASE ARM LED DRIVE FAIL	NON-RECOVERABLE - The main CPU has detected a fault with the ARM LED drive circuitry	<ul style="list-style-type: none"> Please contact your authorised distributor

4. UI Codes

4.1. All the Following Codes are displayed as “Uxx”, where xx is the error code number

Error Code	Error Message	Description	
025	STACKUNDERFLOW	NON-RECOVERABLE – An internal failure within the UI CPU has occurred	<ul style="list-style-type: none"> Please contact your authorised distributor
026	STACKOVERFLOW	NON-RECOVERABLE – An internal failure within the UI CPU has occurred	<ul style="list-style-type: none"> Please contact your authorised distributor
027	RTSOVERRUN	NON-RECOVERABLE – An internal failure within the UI CPU has occurred	<ul style="list-style-type: none"> Please contact your authorised distributor
028	WD TIMEOUT	NON-RECOVERABLE – An internal failure within the UI CPU has occurred	<ul style="list-style-type: none"> Please contact your authorised distributor
029	BAD ROM CHECKSUM	NON-RECOVERABLE – The UI CPU has detected that the main program has been corrupted.	<ul style="list-style-type: none"> Please contact your authorised distributor
030	UNEXPECTED RESET	NON-RECOVERABLE –The UI CPU has unexpectedly reset.	<ul style="list-style-type: none"> The error can be cleared by cycling the power to the M200². However this error should not occur in normal use and if it persists contact your authorised distributor

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031	UNKNOWN INTn	NON-RECOVERABLE - An illegal Interrupt has been detected by the UI CPU.	<ul style="list-style-type: none"> Please contact your authorised distributor
032	CSIO OVERRUN	NON-RECOVERABLE – An internal failure within the UI CPU has occurred	<ul style="list-style-type: none"> Please contact your authorised distributor
034	NO COMMS	RECOVERABLE –The UI cannot establish communications with the main CPU in the main unit	<ul style="list-style-type: none"> When the system is powered up in programming mode, this error will be displayed. This condition can be produced if a non-approved serial cable is connected to the unit The error can be cleared by removing the serial port connection from the back of the unit, and cycling the power to the unit. However this error should not occur in normal use and if it persists contact your authorised distributor
035	LOSS OF COMMS	NON-RECOVERABLE –The UI CPU has lost communications with the base controller CPU	<ul style="list-style-type: none"> Please contact your authorised distributor
036	BAD NVRAM CHECKSUM	NON-RECOVERABLE - The UI CPU has detected that the EEPROM used to store the system configuration has not been programmed or has been corrupted.	<ul style="list-style-type: none"> Please contact your authorised distributor

5. Coil & Coil Adapter Codes

5.1. All the Following Codes are displayed as “Cxx”, where xx is the error code number

Error Code	Error Message	Description	Remedy
01	ROM CHECKSUM INCORRECT.	NON-RECOVERABLE The coil CPU has detected that the coil program has been corrupted.	<ul style="list-style-type: none"> This error should not be produced under normal working conditions. If the error persists contact your authorised distributor
02	EEPROM CHECKSUM INCORRECT.	NON-RECOVERABLE The coil CPU has detected that the coil configuration data has been corrupted.	<ul style="list-style-type: none"> This error should not be produced under normal working conditions. If the error persists contact your authorised distributor
03	INVALID COIL CATEGORY. (COILS ONLY)	NON-RECOVERABLE - The coil CPU has detected that the data set for the coil category configuration is not a valid coil category.	<ul style="list-style-type: none"> This error should not be produced under normal working conditions. If the error persists contact your authorised distributor
05	TEMPERATURE SENSOR CIRCUIT FAILURE.	NON-RECOVERABLE - The coil CPU has detected that a fault has occurred with the circuit that processes the coil temperature readings.	<ul style="list-style-type: none"> Replace the coil and if this fails, please contact your authorised distributor

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06	BAD SERIAL COMMAND OR RECEIVED DATA CHECKSUM.	NON-RECOVERABLE - The coil CPU has detected bad data being sent from the base controller CPU	<ul style="list-style-type: none"> Replace the coil and if this fails ,please contact your authorised distributor
07	INTERNAL SOFTWARE ERROR.	NON-RECOVERABLE – An internal failure within the Coil CPU has occurred	<ul style="list-style-type: none"> Replace the coil and if this fails, please contact your authorised distributor
08	INVALID COIL TEMPERATURE ID.	NON-RECOVERABLE - The coil CPU has detected that the data set for the coil temperature ID configuration is not a valid temperature ID.	<ul style="list-style-type: none"> This error should not be produced under normal working conditions. If the error persists contact your authorised distributor
09	INVALID TEMPERATURE ALGORITHM COEFFICIENT.	NON-RECOVERABLE - The coil CPU has detected that the data set for the coil temperature coefficients configuration is not a valid temperature coefficient.	<ul style="list-style-type: none"> This error should not be produced under normal working conditions. If the error persists contact your authorised distributor
10	COIL CONTROLLER MALFUNCTION	NON-RECOVERABLE – An internal failure within the Coil CPU has occurred	<ul style="list-style-type: none"> Replace the coil and if this fails , please contact your authorised distributor
21	COIL DISCONNECTED/ COIL UNDER TEMPERATURE. (Note: This error is not displayed when a under temperature coil is connected – The replace Coil and coil present indicators on the UI controller are used to report this condition)	<p>RECOVERABLE – Coils: This error will be displayed if the temperature of the coil is less than the minimum temperature of 5°C</p> <p>RECOVERABLE – Coil Adapter: A valid coil is not connected to the coil adapter, or the temperature of the coil connected is less than the minimum temperature of 5°C</p>	<p style="text-align: center;">Coils</p> <ul style="list-style-type: none"> Allow the coil to warm up to at least 7°C If the coil is not cold this error will indicate a fault within the coil. Contact your authorised distributor <p style="text-align: center;">Coil Adapter</p> <ul style="list-style-type: none"> Connect a coil to the adapter If a coil is connected but is cold, allow the coil to warm up to at least 7°C If a coil is connected and is not cold this error will indicate a fault within the coil. Contact your authorised distributor
22	BROWN OUT DETECTED.	NON-RECOVERABLE – The power to the coil has momentarily dropped to below the minimum required.	<ul style="list-style-type: none"> Disconnect then reconnect the coil/coil Adapter. If the error persists contact your authorised distributor
23	NO SERIAL COMMUNICATIONS.	NON-RECOVERABLE – The communications between the coil and base unit has been lost.	<ul style="list-style-type: none"> Disconnect then reconnect the coil/coil Adapter. If the error persists contact your authorised distributor
24	BAD SERIAL COMMAND OR RECEIVED DATA CHECKSUM	NON-RECOVERABLE - The coil CPU has detected bad data being sent from the base controller CPU	<ul style="list-style-type: none"> Disconnect then reconnect the coil/coil Adapter. If the error persists contact your authorised distributor
25	EMC DETECTED (COIL ADAPTER ONLY).	RECOVERABLE - The coil adapter CPU has detected that there is EMC interference affecting the coil temperature sensor readings.	<ul style="list-style-type: none"> Remove the source of the EMC interference If the error persists contact your authorised distributor

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26	INVALID COIL POWER IDENTIFICATION (COIL ADAPTER ONLY).	RECOVERABLE - Coil Adapter: The coil adapter CPU has detected that the coil currently connected does not have a valid coil category.	<ul style="list-style-type: none"> • Connect a valid coil • If a valid coil is connected to the adapter this error will indicate a fault within the coil adapter. Contact your authorised distributor
27	HARDWARE STOP ACTIVATED.	NON-RECOVERABLE - The coil CPU has detected a STOP condition and the coil stop line has been activated	<ul style="list-style-type: none"> • Disconnect then reconnect the coil/coil Adapter. • If the error persists contact your authorised distributor
28	WATCHDOG TIMEOUT.	NON-RECOVERABLE – The Coil CPU has detected an internal program error	<ul style="list-style-type: none"> • Disconnect then reconnect the coil/coil Adapter. • If the error persists contact your authorised distributor
30	COIL STOP LINE FAULT.	NON-RECOVERABLE - The Coil CPU has detected a fault on the coil STOP signal	<ul style="list-style-type: none"> • Disconnect coil, if error E84 is shown, this error will indicate a fault with the Base unit. • Disconnect coil, substitute with different coil, if fault is not present, faulty coil to be returned