Troubleshooting Guide
CTTG #140

Module Identification and SLX.Er Trip Codes

This document pertains to the Unidrive SP

Overview

Slot error codes are different for the various application modules that are supported by the drive. This troubleshooting guide will assist in properly identifying what module you have and finding the corresponding trip code details relevant to that module.

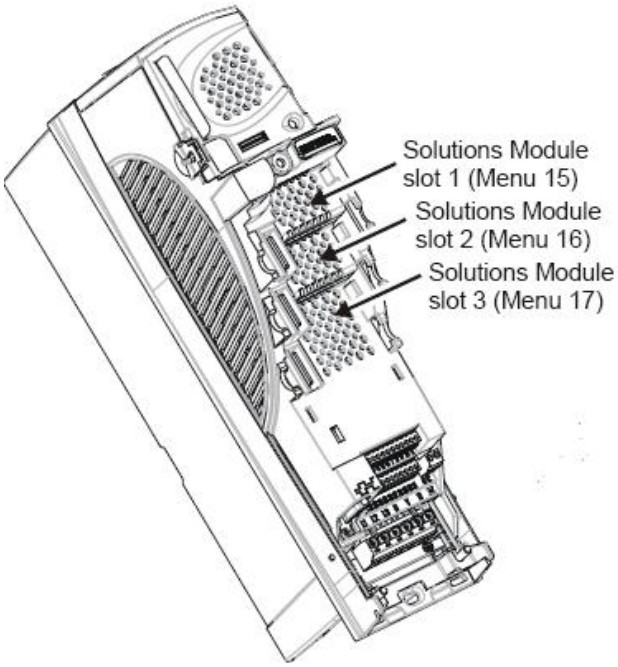
Determine what slot the module is in

In the case of a Solutions Module, the parameters will appear in menu 15, 16 or 17 depending on which slot the option module is installed in. The chart and diagram below shows what menu corresponds to that specific slot.

*** Warning ***

Removing the Option modules while the unit is powered up will cause damage to the module.

Menu 15	**=**	**Slot 1**
Menu 16	**=**	**Slot 2**
Menu 17	**=**	**Slot 3**

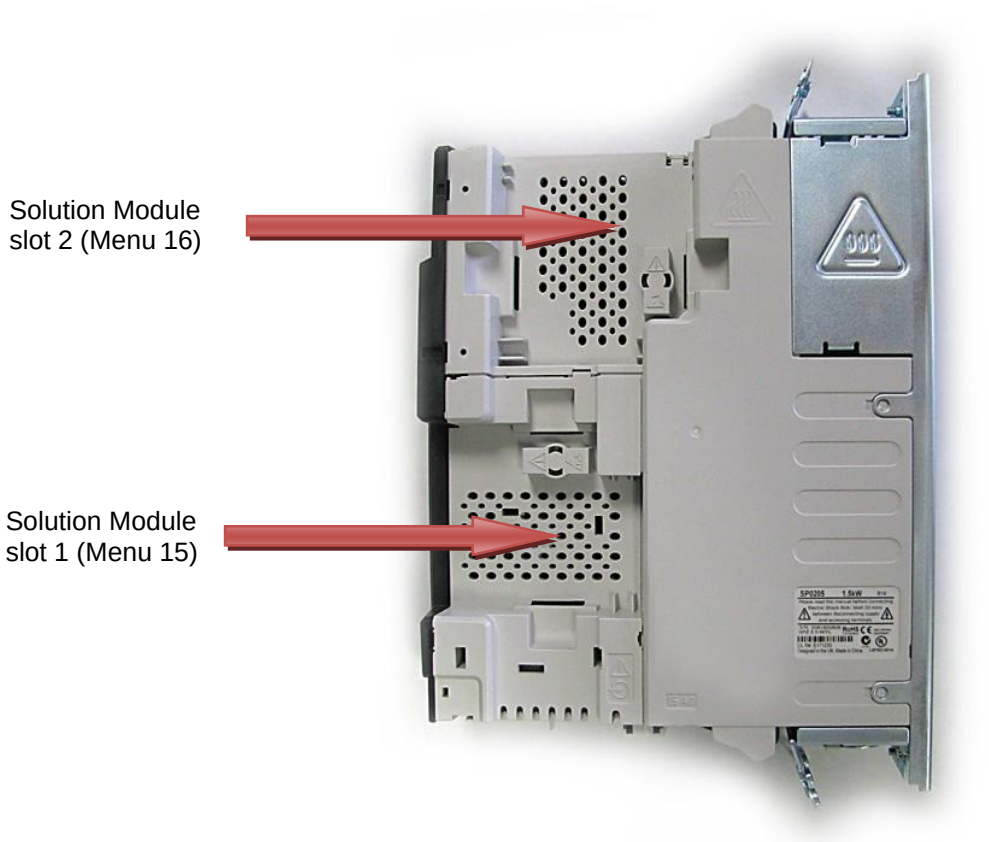


Menu & Parameter Identification

The method used to determine the menu or parameter is as follows:

- Pr **xx.01** - signifies any menu and parameter number 01.
- Pr **MM.xx** - where **MM** signifies the menu allocated to the solutions module (this could be 15, 16 or 17 on the Unidrive SP) and **xx** signifies the parameter number.

Size 0 Slot Location



Menu 15	**=**	**Slot 1**
Menu 16	**=**	**Slot 2**

Menu & Parameter Identification

The method used to determine the menu or parameter is as follows:

- Pr **xx.01** - signifies any menu and parameter number 01.
- Pr **MM.xx** - where **MM** signifies the menu allocated to the solutions module (this could be 15 or 16 on the Unidrive SP) and **xx** signifies the parameter number.

Slot Error Trip Codes

To identify the specific trip that is being displayed is a two part process. First one must identify what the specific trip is and secondly what module you have.

Identify the specific trip

The specific trip code can be found in parameter **15/16/17** at xx.50 where xx is the slot location of that module or modules. If you have multiple modules, you would need to look thru each menu at location xx.50 to see if a fault code exists.

Determining what option module you have

Knowing what option modules you may have in your system is very important. The “Module ID Number” is the most accurate way to properly identify the module. Each module has an identification number; this will have a specific number that corresponds to that module-the color could be mis-interpreted ! That information is located in parameter **# xx.01** where xx is the slot location of that module or modules.

Linking Chart

Listed below are the different ways to identify the SM-Option Modules. Each identification number and the Module will link you to the appropriate chart.

Par # XX.01	Module	Color ID	Category
0	No module Fitted	None	
101	SM-Resolver	Light Blue	Feedback
102	SM-Universal Encoder Plus	Light Green	
104	SM-Encoder Plus	Brown	
201	SM-I/O Plus	Yellow	Automation
203	SM-I/O Timer	Dark Red	
204	SM-PELV	Turquoise	
206	SM-I/O 120V	Olive	
207	SM-I/O Lite	Dark Yellow	
301	SM-Applications,Apps Plus	Dark Green	
302	SM-Applications Lite	White	
303	SM-EZ Motion	Dark Blue	
403	SM-PROFIBUS-DP	Purple	Fieldbus
404	SM-Interbus	Dark Grey	
406	SM-CAN	Pink	
407	SM-DeviceNet	Medium Grey	
408	SM-CANopen	Light Grey	
409	SM-SERCOS	Red	
410	SM-Ethernet	Beige	
501	SM-SLM	Orange	

Click on the Blue Code or Module Name Above

Feedback Modules

The following table list is for SM-**Universal Encoder Plus**, SM-**Encoder Plus**, and **S**M-**Resolver**. Return to the Link Chart

Error code	Module	Trip Description	Diagnostic
0	All	No trip	No fault detected
1	SM-Universal Encoder Plus	Encoder power supply overload	Check encoder power supply wiring and encoder current requirement Maximum current = 200mA @ 15V, or 300mA @ 8V and 5V
	SM-Resolver	Excitation output short circuit	Check the excitation output wiring.
2	SM-Universal Encoder Plus & SM-Resolver	Wire break	Check cable continuity Check wiring of feedback signals is correct Check supply voltage or excitation output level Replace feedback device
3	SM-Universal Encoder Plus	Phase offset incorrect whilst running	Check the encoder signal for noise Check encoder shielding Check the integrity of the encoder mechanical mounting Repeat the offset measurement test
4	SM-Universal Encoder Plus	Feedback device communications failure	Ensure encoder power supply is correct Ensure baud rate is correct Check encoder wiring Replace feedback device
5	SM-Universal Encoder Plus	Checksum or CRC error	Check the encoder signal for noise Check the encoder cable shielding
6	SM-Universal Encoder Plus	Encoder has indicated an error	Replace encoder
7	SM-Universal Encoder Plus	Initialisation failed	Check the correct encoder type is entered into Pr **15/16/17.15** Check encoder wiring Check supply voltage level Replace feedback device
8	SM-Universal Encoder Plus	Auto configuration on power up has been requested and failed	Change the setting of Pr **15/16/17.18** and manually enter the number of turns (Pr **15/16/17.09**) and the equivalent number of lines per revolution (Pr **15/16/17.10**)
9	SM-Universal Encoder Plus	Motor thermistor trip	Check motor temperature Check thermistor continuity
10	SM-Universal Encoder Plus	Motor thermistor short circuit	Check motor thermistor wiring Replace motor / motor thermistor
11	SM-Universal Encoder Plus	Failure of the sincos analogue position alignment during encoder initialisation	Check encoder cable shield. Examine sine and cosine signals for noise.
	SM-Resolver	Poles not compatible with motor	Check that the correct number of resolver poles has been set in Pr **15/16/17.15**.
12	SM-Universal Encoder Plus	Encoder type could not be identified during auto-configuration	Check encoder type can be auto-configured. Check encoder wiring. Enter parameters manually.
13	SM-Universal Encoder Plus	Number of encoder turns read from the encoder during auto-configuration is not a power of 2	Select a different type of encoder.
14	SM-Universal Encoder Plus	Number of comms bits defining the encoder position within a turn read from the encoder during auto-configuration is too large.	Select a different type of encoder. Faulty encoder.
15	SM-Universal Encoder Plus	The number of periods per revolution calculated from encoder data during auto-configuration is either <2 or >50,000.	Linear motor pole pitch / encoder ppr set up is incorrect or out of parameter range i.e. Pr **5.36** = 0 or Pr **21.31** = 0. Faulty encoder.
16	SM-Universal Encoder Plus	The number of comms bits per period for a linear encoder exceeds 255.	Select a different type of encoder. Faulty encoder.
74	All	Solutions Module has overheated	Check ambient temperature Check cubicle ventilation

Application Modules

The following table list is for SM-**Applications** , **Applications Plus** and SM-**Applications Lite**. Return to the Link Chart

Error Code	Trip Description
39	User program stack overflow
40	Unknown error - please contact supplier
41	Parameter does not exist
42	Attempt to write to a read-only parameter
43	Attempt to read from a write-only parameter
44	Parameter value out of range
45	Invalid synchronisation modes
46	Unused
47	Synchronisation lost with CTSync Master
48	RS485 not in user mode
49	Invalid RS485 configuration
50	Maths error - divide by zero or overflow
51	Array index out of range
52	Control word user trip
53	DPL program incompatible with target
54	DPL task overrun
55	Unused
56	Invalid timer unit configuration
57	Function block does not exist
58	Flash PLC Storage corrupt
59	Drive rejected application module as Sync master
60	CTNet hardware failure. Please contact your supplier
61	CTNet invalid configuration
62	CTNet invalid baud-rate
63	CTNet invalid node ID
64	Digital Output overload
65	Invalid function block parameter(s)
66	User heap too large
67	RAM file does not exist or a non-RAM file id has been specified
68	The RAM file specified is not associated to an array
69	Failed to update drive parameter database cache in Flash memory
70	User program downloaded while drive enabled
71	Failed to change drive mode
72	Invalid CTNet buffer operation
73	Fast parameter initialisation failure
74	Over-temperature
75	Hardware unavailable
76	Module type cannot be resolved. Module is not recognised.
77	Inter-option module comms error with module in slot 1
78	Inter-option module comms error with module in slot 2
79	Inter-option module comms error with module in slot 3
80	Inter-option module comms error with module unknown slot
81	APC internal error
82	Communcations to drive faulty

Ethernet Module

The following table list is for SM-Ethernet module.

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Pr MM.50	Error Description
50	EtherNet/IP Requested Packet Interval (RPI) timeout.
51	EtherNet/IP stack has run out of memory.
52	EtherNet/IP socket error.
53	Maximum EtherNet/IP sessions reached.
54	Maximum EtherNet/IP connections reached.
55	EtherNet/IP request limit reached.
61	Invalid configuration parameters.
62	Error initialising drive database.
63	Error initialising file system.
65	Invalid read consistency parameter.
66	Invalid write consistency parameter.
70	No valid menu data available for the module from the drive.
74	The Solutions Module has overheated.
75	The drive is not responding.
76	The Modbus connection has timed out.
80	Inter-option communication failure.
81	Inter-option communication to slot 1 timeout.
82	Inter-option communication to slot 2 timeout.
83	Inter-option communication to slot 3 timeout.
84	Memory allocation error.
85	File system error.
86	Configuration file error.
87	Language file error.
90	Drive not supported.
91	Drive mode not supported.
96	EtherNet/IP error.
97	Missed event task.
98	The Solutions Module background task has not been completed.
99	Software fault.

I/O Expansion Modules

The following table list is for SM-**I/O Plus**, SM-**I/O Lite**, SM-**I/O Timer**, SM-**PELV** and SM-I/O **120V** modules. Return to the Link Chart

Error code	Module	Reason for fault
0	All	No errors
1	All	Digital output overload
2	SM-I/O Lite, SM-I/O Timer	Analogue input 1 current input too high (>22mA) or too low (<3mA)
	SM-PELV	Digital input overload
3	SM-PELV	Analogue input 1 current input too low (<3mA)
4	SM-PELV	User power supply absent
5	SM-I/O Timer	Real time clock communication error
74	All	Module over temperature

Fieldbus Module

The following table list is for SM-**PROFIBUS-DP**, SM-**Interbus**, SM-**CAN**, SM-**DeviceNet**, SM-**CANopen** and SM-**SERCOS**.

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Error code	Module	Trip Description
0	All	No trip
52	SM-PROFIBUS-DP, SM-Interbus, SM-DeviceNet, SM-CANOpen	User control word trip
61	SM-PROFIBUS-DP, SM-Interbus, SM-DeviceNet, SM-CANOpen, SM-SERCOS	Configuration error
64	SM-DeviceNet	Expected packet rate timeout
65	SM-PROFIBUS-DP, SM-Interbus, SM-DeviceNet, SM-CANOpen, SM-SERCOS	Network loss
66	SM-PROFIBUS-DP	Critical link failure
	SM-CAN, SM-DeviceNet, SM-CANOpen	Bus off error
69	SM-CAN	No acknowledgement
70	All (except SM-Ethernet)	Flash transfer error
	SM-Ethernet	No valid menu data available for the module from the drive
74	All	Solutions module over temperature
75	SM-Ethernet	The drive is not responding
76	SM-Ethernet	The Modbus connection has timed out
80	All (except SM-SERCOS)	Inter-option communications error
81	All (except SM-SERCOS)	Communications error to slot 1
82	All (except SM-SERCOS)	Communications error to slot 2
83	All (except SM-SERCOS)	Communications error to slot 3
84	SM-Ethernet	Memory allocation error
85	SM-Ethernet	File system error
86	SM-Ethernet	Configuration file error
87	SM-Ethernet	Language file error
98	All	Internal watchdog error
99	All	Internal software error

SLM Module

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Error Code	Trip Description
0	No fault detected
1	Power supply overloaded
2	SLM version is too low
3	DriveLink error
4	Incorrect switching frequency selected
5	Feedback source selection incorrect
6	Encoder error
7	Motor object number of instances error
8	Motor object list version error
9	Performance object number of instances error
10	Parameter channel error
11	Drive operating mode incompatible
12	Error writing to the SLM EEPROM
13	Motor object type incorrect
14	Unidrive SP object error
15	Encoder object CRC error
16	Motor object CRC error
17	Performance object CRC error
18	Unidrive SP object CRC error
19	Sequencer timeout
74	Solutions module over temperature

SM-EZ Motion

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Error Code (x.50)	Cause Trip	Error	Possible Reason
41	Y	SP Parameter Access Error - Parameter Doesn't Exist	The SP Menu Parameter that you are trying to read from or write to does not exist.
42	Y	SP Parameter Access Error - Parameter is Read Only	The SP Menu Parameter that you are trying to write to is a Read Only parameter
43	Y	SP Parameter Access Error - Parameter is Write Only	The SP Menu Parameter that you are trying to read from is Write Only
44	Y	SP Parameter Access Error - Written Value Out of Range	The value you are trying to write to the SP Menu Parameter is out of range.
73	Y	SP Database Setup Error	
74	Y	Module Overheat Error	SM-EZMotion module temperature has exceeded 83° Celsius
100	Y	Watchdog Timer Error	Can occur when user downloads SyPTLite ladder diagram to the Unidrive SP when a SM-EZMotion module is present
101	Y	Invalid Configuration Error	
102	Y	NVM Invalid Error	
103	Y	Power Up Test Failure Error	SM-EZMotion module Power Up Test failed
104	Y	Following Error	Amount of following error exceeded following error limit set in PowerTools Pro software.
105	N	Travel Limit Plus	Hardware Travel Limit Plus switch has activated, or Software Travel Limit. Plus position has been exceeded
106	N	Travel Limit Minus	Hardware Travel Limit Minus switch has activated, or Software Travel Limit Minus position has been exceeded
107	Y	No Program Error	SM-EZMotion module has no configuration loaded in it
108	Y	Motion Trajectory Error	Maximum allowable position change within one control loop update has been exceeded
109	Y	Trajectory Update Overrun Error	Control Loop processing time has taken longer than the user selected Trajectory Update Rate
120	Y	File Corruption Error - Consult Factory	

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121	Y	File Corruption Error - Consult Factory	
122	Y	File Corruption Error - Consult Factory	
123	Y	Program Error - Buffer Overrun	
124	Y	Program Error - Call Stack Overflow	Too many Call Program" instructions have been processed without returning to original "calling" program "
125	Y	File Corruption Error - Consult Factory	
126	Y	File Corruption Error - Consult Factory	
127	Y	Flash Error	Loading from Flash Memory has failed
128	Y	File Corruption Error - Consult Factory	
129	Y	Program Error - Illegal Command	User Program has processed an illegal command
130	Y	File Corruption Error - Consult Factory	
131	Y	File Corruption Error - Consult Factory	
132	Y	File Corruption Error - Consult Factory	
133	Y	File Corruption Error - Consult Factory	
134	Y	File Corruption Error - Consult Factory	
135	Y	Program Error - Math Addition Overflow	Math addition operation in user program has resulted in an overflow of the resultant parameter
136	Y	Program Error - Math Divide By Zero	Formula in user program causes a divide by zero
137	Y	Program Error - Math Divide Operand Too Large	
138	Y	Program Error - Math Multiplication Normalization Failed	Normalization of multiplication parameters in user program has failed
139	Y	Program Error - Math Multiplication Operand Too Large	
140	Y	Program Error - Overflow	
141	Y	Program Error - Math Subtraction Overflow	
142	Y	Program Error - Math Stack Overflow	User Program math process stack has overflown
143	Y	File Corruption Error - Consult Factory	
144	Y	File Corruption Error - Consult Factory	

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145	Y	File Corruption Error - Consult Factory	
146	Y	File Corruption Error - Consult Factory	
147	Y	Program Error - Flash Memory Size Exceeded	User configuration exceeds available flash memory size
148	Y	Program Error - RAM Memory Size Exceeded	User configuration exceeds available RAM memory size
153	Y	File Corruption Error - Consult Factory	
154	Y	File Corruption Error - Consult Factory	
155	Y	File Corruption Error - Consult Factory	
156	Y	Program Error - Too Many Wait For Instructions	No more than nine arguments in Wait for Instruction
157	Y	File Corruption Error - Consult Factory	
158	Y	File Corruption Error - Consult Factory	
159	Y	File Corruption Error - Consult Factory	
160	Y	File Corruption Error - Consult Factory	
161	Y	File Corruption Error - Consult Factory	
162	Y	File Corruption Error - Consult Factory	
163	Y	File Corruption Error - Consult Factory	
164	Y	File Corruption Error - Consult Factory	
165	Y	File Corruption Error - Consult Factory	
166	Y	Program Error - EZMotion Parameter Write Out of Range	Value written to SM-EZMotion parameter in user program is out of range
171	Y	Invalid Slot 1 Selection	Option module selected for Slot 1 in PowerTools Pro file does not match actual module type fitted
172	Y	Invalid Slot 2 Selection	Option module selected for Slot 2 in PowerTools Pro file does not match actual module type fitted
173	Y	Invalid Slot 3 Selection	Option module selected for Slot 3 in PowerTools Pro file does not match actual module type fitted
174	Y	File Corruption Error - Consult Factory	
175	Y	Module Output Overload	SM-EZMotion module can only supply 20mA maximum total output current. If this fault occurs, the digital output device attached to the module outputs is drawing too much current.

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For questions call Control Techniques Technical Support-USA
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