UniScanner V2

Installatievoorschrift

Bijlage 6 Fout-analyse UniScanner

Zodra zich een fout binnen de UniScanner voordoet, verschijnt een knipperende letter op het display. Hieronder volgt de betekenis daarvan.

CODE	Betekenis van de melding	Te ondernemen actie
A		
B		
C		
D	Communicatiefout met rolstoelelektronica	Controleer interfacemodule
E	Gewenste rolstoelmode niet in te stellen	Zorg bij rolstoelelektronica dat gewenste rolstoelmode bereikt kan worden
F	Draadonderbreking UP-switch	Corrigeer betreffende draadbreuk
G	Draadonderbreking DOWN-switch	Corrigeer betreffende draadbreuk
H	Draadonderbreking LEFT-switch	Corrigeer betreffende draadbreuk
I	Draadonderbreking RIGHT-switch	Corrigeer betreffende draadbreuk
J	Draadonderbreking NOODSTOP-switch	Corrigeer betreffende draadbreuk
K	Draadonderbreking 1F-switch	Corrigeer betreffende draadbreuk
L	Draadonderbreking ATT-switch	Corrigeer betreffende draadbreuk
M . .	Rolstoel elektronica fout	lees foutmelding rolstoel elektronica uit

N	Joystick niet in middenstand bij aanzetten rolstoel of bij omschakelen ander programma	Joystick in middenstand houden bij aanzetten rolstoel of bij omschakelen ander rijprogramma. Als dit niet help, dan joystick kalibreren
O	Joystick geeft ongeldige waarde	Controleer stekerverbinding van de joystick behorend tot het actieve programma. Als dit goed is, dan joystick kalibreren.
P	Geen Attendant mode aanwezig	Gebruik UniScanner-wizard voor configureren van een attendantmode
Q	Error sensorvoeding	Controleer hardware
R	Error displayvoeding	Controleer hardware
S	Error attendantpotmetervoeding	Controleer hardware
T	Error joystickvoeding	Controleer hardware
U	Geen Actief US-programma aanwezig	Maak m.b.v. US-Wizard min 1 US-programma actief
V		
W		
X	CAN-bus probleem	Controleer bedrading tussen display en UniScanner. Vooral de groene en gele aders.
Y		
Z	Geen hoofd- en functieleds gedefinieerd	Gebruik Wizard voor laden van geldige configuratie

Error ID	Error Name	Extended Description	Fault Type	Text displayed on JSM or OMNI	Remedy #
0001	Memory Error	Running Ram Check Error	System fault	Memory Error	1
0200	PM Memory Error	EEPROM Check Error	System fault	PM Memory Error	2
0203	Calibration Error	EEPROM Calibration Data Check Error	System fault	Cal Error	3
0204	Memory Error	EEPROM Programming Data Check Error	System fault	Memory Error	1
0208	Memory Error	EEPROM Persistent Data Check Error	System fault	Memory Error	1
0500	Reference Hold Error		Control fault		TBD
0600	Error Converting 0V Mux 0 Connection		Control fault		3
0601	Error Converting 0V Mux 1 Connection		Control fault		3
0602	Error Converting 0V Mux 2 Connection		Control fault		3
0603	Error Converting 0V Mux 3 Connection		Control fault		3
0703	Joystick Supply Failure		Control fault		TBD
0704	12V Supply Failure		Control fault		3
0707	Regulator Supply Failure		Control fault		3
0808	Joystick Error	Mid Reference Error	System fault	Joystick Error	4
080A	Joystick Error	Mid Reference Comparison Error	System fault	Joystick Error	4

Error ID	Error Name	Extended Description	Fault Type	Text displayed on JSM or OMNI	Remedy #
080B	Joystick Error	Mid Reference Comparison Startup Error	System fault	Joystick Error	4
0905	SID Detached	OMNI Input Device Disconnected	System fault	SID Disconnected	5
0A00	Gone To Sleep		System fault	Gone to Sleep	6
0B00	EEPROM	Write Error	Control fault		TBD
0B01	EEPROM	Not Busy Fault	Control fault		TBD
0B02	EEPROM	Write Timeout	Control fault		TBD
0B08	EEPROM	Address Out Of Range	Control fault		TBD
0E00	Joystick Error	Joystick Error Right	System fault	Joystick Error	4
0E02	Joystick Error	Joystick Error Forward	System fault	Joystick Error	4
1200	Joystick Error	Dual Path Comparison Right Error	System fault	Joystick Error	4
1202	Joystick Error	Dual Path Comparison Forward Error	System fault	Joystick Error	4
1302	Current Limit	Reference Fault	Control fault		TBD
1304	Current Limit	Failed To Operate When Positive Inpu	Control fault		TBD
1308	Current Limit	Left Sense Trip	Control fault		3
1309	Current Limit	Right Sense Trip	Control fault		3
130A	Current Limit	Startup Fault	Control fault		3
1310	Current Limit	Sense Trip	Control fault		3
1404	Motors Cross Coupled		Control fault		3
1503	Solenoid Brake	Driver Fault	Control fault		3, 7, 8
1504	Solenoid Brake	Interlock Fault	Control fault		3, 7, 8
1505	M1 Solenoid Brake Fault		System fault	M1 Brake Error	7
1506	M2 Solenoid Brake Fault		System fault	M2 Brake Error	8
1600	High Battery Voltage		System fault	High Battery	9
1601	High Battery Voltage	Overvoltage Comparator Tripped	System fault	High Battery	9
1700	Relay On In Standby		Control fault		TBD
1701	Relay Off In Drive		Control fault		TBD
1703	Relay Interlock Fault		Control fault		3, 10
1704	Relay Driver Fault		Control fault		TBD
1705	Relay Stuck Closed		Control fault		3, 10
1801	Watchdog Failed To Trip		Control fault		3, 10
1B01	Right Forward Current Null Bad		Control fault		3
1B02	Right Reverse Current Null Bad		Control fault		3
Error ID	**Error Name**	**Extended Description**	**Fault Type**	**Text displayed on JSM or OMNI**	**Remedy #**

1B10	Positive Current Feedback Null Bad		Control fault		3
1C01	Left Forward Current Null Bad		Control fault		3
1C02	Left Reverse Current Null Bad		Control fault		3
1C10	Negative Current Feedback Null Bad		Control fault		3
1D00	Front End Fault		Control fault		TBD
1D03	Switch Input	Pullup Circuit Failure	Control fault		TBD
1E03	Inhibit Active	Charger Connected	System fault	Charging	11
1E07	User Switch Detached		System fault	Switch Detached	12
1E20	Inhibit Active		System fault	Inhibit Active	13
1E21	Inhibit Active		System fault	Inhibit Active	13
1E22	Inhibit Active		System fault	Inhibit Active	13
1E23	Inhibit Active		System fault	Inhibit Active	13
1E24	Inhibit Active		System fault	Inhibit Active	13
1E25	Inhibit Active		System fault	Inhibit Active	13
1E26	Inhibit Active		System fault	Inhibit Active	13
1E27	Inhibit Active		System fault	Inhibit Active	13
1E28	Inhibit Active		System fault	Inhibit Active	13
1E29	Inhibit Active		System fault	Inhibit Active	13
1E2A	Inhibit Active		System fault	Inhibit Active	13
1E2B	Inhibit Active		System fault	Inhibit Active	13
1E2C	Inhibit Active		System fault	Inhibit Active	13
1E2D	Inhibit Active		System fault	Inhibit Active	13
1E2E	Inhibit Active		System fault	Inhibit Active	13
1E2F	Inhibit Active		System fault	Inhibit Active	13
1E30	Inhibit Active		System fault	Inhibit Active	13
1E31	Inhibit Active		System fault	Inhibit Active	13
1E32	Inhibit Active		System fault	Inhibit Active	13
1E33	Inhibit Active		System fault	Inhibit Active	13
1E34	Inhibit Active		System fault	Inhibit Active	13
1E35	Inhibit Active		System fault	Inhibit Active	13
1E36	Inhibit Active		System fault	Inhibit Active	13
1E37	Inhibit Active		System fault	Inhibit Active	13

1E38	Inhibit Active		System fault	Inhibit Active	13
1E39	Inhibit Active		System fault	Inhibit Active	13
1E3A	Inhibit Active		System fault	Inhibit Active	13
1E3B	Inhibit Active		System fault	Inhibit Active	13
1E3C	Inhibit Active		System fault	Inhibit Active	13
1E3D	Inhibit Active		System fault	Inhibit Active	13
1E3E	Inhibit Active		System fault	Inhibit Active	13
1E3F	Inhibit Active		System fault	Inhibit Active	13
2A00	Feedback Voltage Fault Right		Control fault		3
2A01	Right Voltage Null Bad		Control fault		3
2B00	Feedback Voltage Fault Left		Control fault		3
2B01	Left Voltage Null Bad		Control fault		3
2C00	Low Battery Voltage		System fault	Low Battery	14
2C01	Low Battery Voltage	Very Low Battery Voltage (<16v)	System fault	Low Battery	14
2C02	Low Battery Voltage	Low Battery Lockout (<16v)	System fault	Low Battery	14
2F01	Center Joystick		System fault	Center Joystick	4
3100	Low Bridge Voltage		Control fault		3, 10

Error ID	Error Name	Extended Description	Fault Type	Text displayed on JSM or OMNI	Remedy #
3101	Bridge To Battery Short		Control fault		3
3203	Port 2 Verification Error		Control fault		TBD
3211	Bad Settings	Parameter Range Error	System fault	Bad Settings	15
3215	ADC Storage Error		Control fault		TBD
3611	Failed To Arm Trip Latch		Control fault		3
3A00	Bad Settings		System fault	Bad Settings	15
3A05	System Power Cycle Required		System fault	Cycle Power	16
3B00	M1 Motor Open Circuit		System fault	M1 Motor Error	17
3C00	M2 Motor Open Circuit		System fault	M2 Motor Error	18
3D00	M1 Motor Shorted High		System fault	M1 Motor Error	19
3D01	M1 Motor Shorted Low		System fault	M1 Motor Error	20
3E00	M2 Motor Shorted High		System fault	M2 Motor Error	21
3E01	M2 Motor Shorted Low		System fault	M2 Motor Error	22
6401	Latched Drive Timeout	Latched drive timeout expired	System fault	Latched TO	23

Error ID	Error Name	Extended Description	Fault Type	Text displayed on JSM or OMNI	Remedy #
7902	High Temperature		Control fault		24
7A08	Overtemperature (Actuators)	Actuator Driver Over Temperature	System fault	Overtemp. (Acts)	25
7A09	Actuator Driver Error	Enabled In Standby	Control fault		25
7A0A	Actuator Driver Error	Disabled In Drive	Control fault		25
7A0B	Actuator Driver Failure		Control fault		25
7A0C	Over-current Actuator	Channel Current Exceeded	System fault	Over-current	25
7A0D	Channel Current Amplifier Failure		Control fault		25
7A0E	Over-current Actuator Channel	Actuator Current Sensor Temperature	System fault	Over-current	25
7A12	Actuator 1 Shorted High		Control fault		25
7A13	Actuator 1 Shorted Low		Control fault		25
7A22	Actuator 2 Shorted High		Control fault		25
7A23	Actuator 2 Shorted Low		Control fault		25
7A32	Actuator 3 Shorted High		Control fault		25
7A33	Actuator 3 Shorted Low		Control fault		25
7A42	Actuator 4 Shorted High		Control fault		25
7A43	Actuator 4 Shorted Low		Control fault		25
7A52	Actuator 5 Shorted High		Control fault		25
7A53	Actuator 5 Shorted Low		Control fault		25
7A62	Actuator 6 Shorted High		Control fault		25
7A63	Actuator 6 Shorted Low		Control fault		25
7A90	Over-current Actuator Channel	Common Current Exceeded	System fault	Over-current	25
7A91	Total Current Amplifier Failure		Control fault		25
7C00	Thermistor Fault	Thermistor measurement is out of range	Control fault		3
7E00	PM Memory Error	Running Repository Error	System fault	PM Memory Error	2
7E01	PM Memory Error	Unable to Open PM Req File	System fault	PM Memory Error	2
7E02	Memory Error	Unable to synchronise with Repository	System fault	Memory Error	1
7E03	Memory Error	Failed to cancel queued message	System fault	Memory Error	1
7E04	Memory Error	Repository aborted transfer	System fault	Memory Error	1
7E05	Memory Error	Repository timeout during transfer	System fault	Memory Error	1
7E06	Memory Error	Invalid Repository node number detected	System fault	Memory Error	1
7E07	Memory Error	Incompatible file format	System fault	Memory Error	1

Error ID	Error Name	Extended Description	Fault Type	Text displayed on JSM or OMNI	Remedy #
7E08	Memory Error	Bad data in Repository file	System fault	Memory Error	1
7E09	Memory Error	Bad descriptor in Repository file	System fault	Memory Error	1

Error ID	Error Name	Extended Description	Fault Type	Text displayed on JSM or OMNI	Remedy #
7E0A	Memory Error	Old file format in Repository cannot restore corrupt file	System fault	Memory Error	1
7E0B	Memory Error	File Slot CRC does not match	System fault	Memory Error	1
7E0C	Memory Error	Special File sequence error	System fault	Memory Error	1
7E0D	Memory Error	Incompatible Special File format	System fault	Memory Error	1
7E0E	Memory Error	Unable to repair corrupt Special File	System fault	Memory Error	1
7E0F	Memory Error	Invalid Special File version in Repository	System fault	Memory Error	1
7E10	Memory Error	Invalid Special File variant	System fault	Memory Error	1
7E11	Memory Error	Upgrade would mix Special File variants	System fault	Memory Error	1
7E12	Memory Error	Unable to repair corrupt Special File set	System fault	Memory Error	1
7E13	Memory Error	Failed to delete Special File in order to repair set	System fault	Memory Error	1
7E14	Memory Error	Repository aborted tranfer – Special File	System fault	Memory Error	1
7E15	Memory Error	Repository timeout during tranfer Special File	System fault	Memory Error	1
7E20	Memory Error	Get Repository Timeout	System fault	Memory Error	1
7E21	Memory Error	Release Repository Timeout	System fault	Memory Error	1
7E22	Memory Error	Check Repository Timeout	System fault	Memory Error	1
7E23	Memory Error	Repository Taken	System fault	Memory Error	1
7E24	Memory Error	Repository Not Released	System fault	Memory Error	1
7E25	Memory Error	Set Values Get File Slot Error	System fault	Memory Error	1
7E26	Memory Error	Set Values Set Slot Location Error	System fault	Memory Error	1
7E27	Memory Error	Slot Write Error	System fault	Memory Error	1
7E28	Memory Error	Set Values Slot Data Error	System fault	Memory Error	1
7E29	Memory Error	Set Values Get File Slot Error	System fault	Memory Error	1
7E2A	Memory Error	Get Values Get File Slot Error	System fault	Memory Error	1
7E2B	Memory Error	Get Values Set Slot Location Error	System fault	Memory Error	1
7E2C	Memory Error	Get Values Slot Data Error	System fault	Memory Error	1
7E2E	Memory Error	Get Size Get File Slot Error	System fault	Memory Error	1
7E2F	Memory Error	Get Slot Size Error	System fault	Memory Error	1
7E30	Memory Error	Get Operating Time Error	System fault	Memory Error	1
7E34	Memory Error	Get Eventlog Event Error	System fault	Memory Error	1
7E35	Memory Error	Get Org Number Error	System fault	Memory Error	1
7E36	Memory Error	Get Attributes Get File Slot Error	System fault	Memory Error	1
7E37	Memory Error	Get Slot Check Error	System fault	Memory Error	1
7E38	Memory Error	Set Slot Verify Error	System fault	Memory Error	1
7E39	Memory Error	Get File Attributes Error	System fault	Memory Error	1
7E3A	Memory Error	Repository Data Corrupt	System fault	Memory Error	1
7F00	Bad Cable	CAN Transceiver in fault tolerent mode	System fault	Bad Cable	26
8100	System Error	CAN Device Off-line	System fault	System Error	27
8101	Bus Off		Control fault		TBD
8102	CAN Receiver Overrun		Control fault		TBD
8103	Memory Error	Rebus Tx Queue Full	System fault	Memory Error	1
8104	System Error	Rx DLC Not As Expected	System fault	System Error	27

Error ID	Error Name	Extended Description	Fault Type	Text displayed on JSM or OMNI	Remedy #

8105	DIME Error		System fault	DIME Error	28
8106	System Error	Config Failure	System fault	System Error	27
8107	System Error	Rebus Event Queue Overflow	System fault	System Error	27
8108	System Error	Config Data Access Error	System fault	System Error	27
8109	System Error	Pre-Op Failure	System fault	System Error	27
810A	PM Memory Error	SCF File Read Failure	System fault	PM Memory Error	2
810B	PM Memory Error	DCF File Read Failure	System fault	PM Memory Error	2
810C	System Error	Failed to Init DCF Tables by Pre-Op End	System fault	System Error	27
810D	System Error	Config Failure - No Repository Node	System fault	System Error	27
810E	System Error	Config Failure - Too Many Repository Nodes	System fault	System Error	27
8110	SCID Received by Waking Node		Control fault		
8140	Memory Error	Tx Confirm Timeout	System fault	Memory Error	1
8141	System Error	Config Failure - No PG Input Device	System fault	System Error	TBD
8142	System Error	Config Failure - Invalid PG Input Devices Param System fault	System Error		27
8143	System Error	Config Failure - Unexpected Non PG Input Device System fault	System Error		27
8180	Bad Settings	Unable to Select Profile	System fault	Bad Settings	15
8181	Memory Error	Invalid AIM Indicated	System fault	Memory Error	1
8182	Memory Error	Invalid Mode or Profile Message	System fault	Memory Error	1
8183	Bad Settings	No Modes Available	System fault	Bad Settings	15
8184	Focus Mask Access Error		Control fault		TBD
8800	Overtemperature (Lamps)	Lighting Driver Over Temperature	System fault	Overtemp. (Lamps)	25
8811	Left Lamp Short Circuit		System fault	Left Lamp Short	25
8812	Right Lamp Short Circuit		System fault	Right Lamp Short	25
8819	Brake Lamp Short Circuit		System fault	Brake Lamp Short	25
881D	Left Indicators Short Circuit		System fault	L Ind Lamp Short	25
881E	Right Indicators Short Circuit		System fault	R Ind Lamp Short	25
882C	Indicators Open Circuit		System fault	Ind Lamp Failed	2
883C	Indicators Open Circuit	Indicators Single Bulb Failure	System fault	Ind Lamp Failed	25
8E00	Statemachine Queue Overflow		Control fault		TBD
8E01	Event Queue Overflow		Control fault		TBD
FFFF	Module Error	Module reporting Error may need repair.	System fault	Module Error	1, 29

The *remedy numbers* shown in the right column of the Error Code List refer to the Suggested Actions below. Go to the remedy number shown in the Error Code list and perform the actions to attempt to remedy the issue. If these actions do not resolve the issue, contact Permobil Technical Support for further assistance.

Remedy	Suggested Actions

1	This memory error could be caused by any of the modules within the R-net system.
	    • Check all cables and connections.
	    • Turn the wheelchair off and back on using the power button on the JSM or other input device.
	If the trip is still present and the system contains non-PGDT Modules (i.e. ESP, ICS Master Module, Co-Pilot, etc):
	Disconnect all the non-PGDT modules and turn the wheelchair off and back on using the power button. If this has cleared the error:
	    • Connect each non-PGDT Module in turn, cycling the power each time.
	    • If the trip reappears after one of the power cycles then the last module added to the system must be causing the error.

2	This memory error is specific to the R-net Power Module.
	    • Check all cables and connections.
	    • Using the R-net PC Programmer, re-write the wheelchair's program file to the control system.
	        The most current program file for the specific wheelchair model should be used, contact Permobil for assistance.

3	Perform the following steps:
	    • Check the condition and charge level of the batteries.
	    • Ensure the connections between the batteries and power module are tight and the cables are not damaged.
	    • Ensure the connections between the motors and power module are tight and the cables are not damaged.
	    • Remove and Restore power to the Drive System by turning the Circuit Breaker off/on or by disconnecting the Main Fuse from the batteries and reconnecting it.

4	The most common cause of this error is if the joystick is deflected away from center before and during the time the control system is switched on. The joystick displaced screen will be displayed for 5 seconds, if the joystick is not released within that time then a error is registered. Ensure that the joystick is centered and power-up the control system.

5	The Omni has detected that the Specialty Input Device (SID) has become disconnected.
	    Check all cables and connectors between the Omni and the SID.
	If the error persists:
	     Check that the setting of the Omni parameter, *9-Way Detect*, is appropriate for the SID that is being used. For example, if the SID has no detect-link (connection between pins 5 & 8), then this parameter should be set to *Off*.

6	This occurs when the control system has been left inactive for a time greater than the parameter *Sleep Timer*. An entry is made in the system log each time this occurs.

7	This error occurs when the control system detects a problem in the solenoid brake connected to the M1 port of the Power Module or the connections to the brake itself.
	    • The brake connected to M1 varies by configuration, follow cabling to ensure you are checking the correct one.
	    • Check the solenoid brake, cables and connections to the power module.

8	This error occurs when the control system detects a problem in the solenoid brake connected to the M2 port of the Power Module or the connections to the brake itself.
	    • The brake connected to M2 varies by configuration, follow cabling to ensure you are checking the correct one.
	    • Check the solenoid brake, cables and connections to the power module.

9	This occurs when the control system detects that the battery voltage has risen above 35V. The most common reasons for this are overcharging of the battery or bad connections between the control system and the batteries.
	    • Check the charge level and condition of the batteries.
	    • Ensure the connections between the batteries and the control system are tight and not damaged.
	    • Ensure the connection between the batteries and circuit breaker/main fuse are tight and not damaged.

10	This error is sometimes caused by low battery voltage or a worn or defective battery.
	    • Check the charge level and condition of the batteries.
	    • Ensure the connections between the batteries and the control system are tight and not damaged.
	    • Ensure the connection between the batteries and circuit breaker/main fuse are tight and not damaged.

Remedy	Suggested Actions
11	This occurs when the control system detects that a charger is connected to the front of the JSM/OMNI or the chassis mounted charger connector. The Battery charging screen (climbing bars) will be displayed during charger connection. An entry is made in the system log each time this occurs. Disconnect the charger from the Wheelchair. If the trip is still present after the charger has been disconnected, the Joystick Module may be defective, contact Permobil.

12	The Omni has detected that the User Switch has become disconnected from the U1 or U2 port of the Omni. ☐ Check all cables and connectors between the Omni ports and the User Switch. If the trip is still present after the above checks have been made, then the User Switch may be defective. Try replacing it with a known good switch. If it is required to use the Omni without a User Switch being connected, then the parameter *Switch Detect* should be set to *Off*. If a User Switch is not used the responsibility for that decision lies with the healthcare professional.

13	This occurs when any of the Inhibit inputs are active *and* in a latched state. The actual inhibit that is active is indicated by the last 2 digits of the Error Code. The code is in Hex. For example:
	       1E20 - For Inhibit 2
	       1E21 - For Inhibit 3
	       1E22 - For Inhibit 4
	       1E23 - For Inhibit 5
	• Turn the wheelchair off and on, this will drop the inhibit out of its latched state, that might clear the trip.
	• Check all wiring and switches connected to the indicated Inhibits.

14	This error occurs when the controller detects that the battery voltage has fallen below 16V. • Check the charge level and condition of the batteries. • Ensure the connections between the batteries and the control system are tight and not damaged. • Ensure the connection between the batteries and circuit breaker/main fuse are tight and not damaged.
15	This error occurs when the control system detects incorrect or invalid program settings. • Make a note of the current parameter settings by reading them from the controller and saving or printing them. • Check that all parameter settings appear correct. Re-program the control system using the R-net PC Programmer. If the error persists: • Reset the control system to factory default settings using the *Return to Defaults* command. • Using the previously saved or printed parameter settings, re-program the required settings in small groups, cycling the power after each group to see if the trip occurs again.
16	This message is displayed when the R-net system encounters a change in the system or program settings, and must power down and back up again for the adjustments to be held. It is not a trip condition, but an indication that the Cycle Power function has been activated. ☐ Turn the wheelchair off and back on using the power button on the JSM or other input device.
17	This error occurs when the control system detects that the motor connected to the M1 port of the Power Module has become disconnected. • The motor connected to M1 varies by configuration, follow cabling to ensure you are checking the correct one. • Check the motor cables and connections between the motor and control system, ensure there is no damage. • Check the motor for proper operation using a voltmeter and/or external power source.
18	This error occurs when the control system detects that the motor connected to the M2 port of the Power Module has become disconnected. • The motor connected to M2 varies by configuration, follow cabling to ensure you are checking the correct one. • Check the motor cables and connections between the motor and control system, ensure there is no damage. • Check the motor for proper operation using a voltmeter and/or external power source.
19	This occurs when the control system detects that the motor connected to M1 on the Power Module has "short-circuited" to a battery positive connection. • The motor connected to M1 varies by configuration, follow cabling to ensure you are checking the correct one. • Check the motor cables and connections between the motor and control system, ensure there is no damage. • Check for voltage between the M1 motor connections and the positive battery terminals when the wheelchair is on, but not driving the motors. • Check the motor for proper operation using a voltmeter and/or external power source.

Remedy	Suggested Actions
20	This occurs when the control system detects that the motor connected to M1 on the Power Module has "short-circuited" to a battery negative connection. • The motor connected to M1 varies by configuration, follow cabling to ensure you are checking the correct one. • Check the motor cables and connections between the motor and control system, ensure there is no damage. • Check for voltage between the M1 motor connections and the negative battery terminals when the wheelchair is on, but not driving the motors. • Check the motor for proper operation using a voltmeter and/or external power source.

21	This occurs when the control system detects that the motor connected to M2 on the Power Module has "short-circuited" to a battery positive connection. • The motor connected to M2 varies by configuration, follow cabling to ensure you are checking the correct one. • Check the motor cables and connections between the motor and control system, ensure there is no damage. • Check for voltage between the M2 motor connections and the positive battery terminals when the wheelchair is on, but not driving the motors. • Check the motor for proper operation using a voltmeter and/or external power source.
22	This occurs when the control system detects that the motor connected to M2 on the Power Module has "short-circuited" to a battery negative connection. • The motor connected to M2 varies by configuration, follow cabling to ensure you are checking the correct one. • Check the motor cables and connections between the motor and control system, ensure there is no damage. • Check for voltage between the M2 motor connections and the negative battery terminals when the wheelchair is on, but not driving the motors. • Check the motor for proper operation using a voltmeter and/or external power source.
23	This message is displayed when the Latched Drive Timeout period is exceeded. It is not a trip condition, but an indication that the Timeout period has been exceeded. If the Latched Drive Timeout period is not long enough, adjust the *Latched Timeout* parameter.
24	This error occurs when the control system reaches its Temperature Threshold and thus becomes too hot. The controller goes out of drive into standby to allow the controller to cool down. An entry is made in the system log each time the controller gets too hot and goes out of drive.
25	This error refers to a problem with the PGDT Seating Module (SM) or Intelligent Seating Module (ISM). Permobil Wheelchairs do not utilize these modules, therefore this error code should not be seen on Permobil products.
26	This error is displayed when the control system detects a fault in the wiring in the R-net bus cables between any of the modules. • Confirm that all cables are securely connected to their mating connectors (no yellow showing.) • Check all cables and connections for continuity from one end of the cable to the other, using an ohmmeter. If there is any visible damage to any cable, replace it. • Disconnect one cable from the system at a time cycling the power after each disconnection. When the error is no longer displayed, that cable or the module it connects to is at fault.
27	This occurs when the system detects a trip that cannot be attributed to a specific module. • Check all cables and connections. • Turn the wheelchair off and back on using the power button on the JSM or other input device. If the trip is still present and the system contains non-PGDT Modules (i.e. ESP, ICS Master Module, Co-Pilot, etc): Disconnect all the non-PGDT modules and turn the wheelchair off and back on using the power button. If this has cleared the trip: • Connect each non-PGDT Module in turn, cycling the power each time. If the error reappears after one of the power cycles then the last module added to the system must be causing the error.

Remedy	Suggested Actions
28	This error occurs when the control system detects an identification conflict between two modules in the system. If a new module has been introduced: • Disconnect the new module and cycle the power. • If no trip is present connect the new module to the system and cycle the power. If the trip reappears then the new module must be the cause of the problem. If there have been no additions: • Disconnect one module at a time. • Cycle power as each module is removed using the power button on the JSM or other input device. • When the error is no longer displayed, reconnect the modules in reverse order to help identify the conflicting devices. If the error is still present after the above checks have been made, contact Permobil for further assistance.
29	This error refers to an unknown problem with the module that is reporting the error. • Access the System Fault Log using the On-Board Programming (OBP) or the R-net PC Programmer. Find the module name/ID that has an *FFFF* error in its error log. • The module with *FFFF* in its error log needs to be investigated and may need to be repaired or replaced.