

Error ID (Dec)	Error ID (Hex)	Event Level	Category	Description	Likely Cause of Occurrence	Additional Items to Check (General User)	Precautions/ Restriction/ Additional Explanations	Restoration Methods (General User)	Measures to Prevent Re-occurrences	Update Log
1	0x00000001	Error	Motion	Inverse Kinematics Failure, Working Range Issue	Motion assigned is invalid, mostly because of over working range	1. Check if the robot is under Singularity 2. Check if the motion assigned in MOVE node is out of specification	[Additional Explanation] This error is not likely happens, instead, the system will report error code 0x00000009 [Additional Explanation] If the settings of MOVE node is out of specification, such as, moving along X axis by 99999 mm [Additional Explanation] If the motion assigned is sure to be correct but with this error occurs, contact and report to Techman Robot Inc.	To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button Adjust the motion related nodes in the current project	1. Make sure the points used in a Project would not lead to any Singularity 2. Make sure the motion (distance, rotation) assigned in move is available	2019 W01
9	0x00000009	Error	System	Robot Controller Function Library Issue	Motion assigned is invalid	1. Check if the robot is under Singularity 2. Check if the motion assigned in MOVE node is out of specification	[Additional Explanation] If the settings of MOVE node is out of specification, such as, moving along X axis by 99999 mm [Additional Explanation] If the motion assigned is sure to be correct but with this error occurs, contact and report to Techman Robot Inc.	To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button Adjust the motion related nodes in the current project	1. Make sure the points used in a Project would not lead to any Singularity 2. Make sure the motion (distance, rotation) assigned in move is available	2019 W01
10	0x0000000A	Motion	Error	Cartesian Space Move Failure From Robot Base Space	1. 3 points which build a coordinate frame are on the same line 2. Motion path set at the position that Robot arm cannot reach. 3. End point set at the singularity.	1. Check if the custom base is set properly 2. Check if the path used is reachable or not	[Precaution] Improper custom base or path might lead to unexpected risk to safety	1. Click Stop on the robot stick to restore the error status 2. Correct the invalid settings 3. if this problem still occurs, contact a qualified service engineer for further analysis with log files	Make sure that these 3 points which build a coordinate frame were not on the same line or adjust the flow to let motion path in the working range and away from the singularity	2019 W03
18	0x00000012	Error	Motion	Inverse Kinematics Failure, Interpolation Points Issue	Motion assigned is invalid, mostly because of singularity	1. Check if the robot is under Singularity 2. Check if the motion assigned in MOVE node may lead to any singularity	[Additional Explanation] This error is not likely happens, instead, the system will report error code 0x00000009 [Additional Explanation] If the motion assigned is sure to be correct but with this error occurs, contact and report to Techman Robot Inc.	To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button Adjust the motion related nodes in the current project	1. Make sure the points used in a Project would not lead to any Singularity 2. Make sure the motion (distance, rotation) assigned in move is available	2019 W01
20	0x00000014	Error	Motion	Over Range Between the Interpolation Points	The current approaching action requires a huge variation of joint angles which is over the ability that the motors can do in a single servo command.	1. Check if the current posture or the destination point is near a singularity point. 2. Check if the motion path would likely pass through an internal singularity point. 3. Check if the project speed or speed settings of the points are too fast.	[Additional Explanation] If the robot moves under the circumstances of singularity (both internal and external) with LINE on motion setting, that may easily cause this error.	Stop Category: 2 To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Avoid postures or motion paths near singularities. 2. Decrease speed If you want to keep the posture or motion path smooth.	2018 W48
25	0x00000019	Error	Motion	Timeout in Steady State Error in Motion Process.	Robot can not be stop at the assigned point position with Precise positioning option is checked.		[Additional Explanations] Since the joint driver can not move to the assigned point position successfully, it would cause this error.	To restore the robot from Error Status : 1. Press STOP button on the robot stick, or 2. Press FREE button.		2019 W02
26	0x0000001A	Error	Motion	Motion Failure when Moving at Constant Speed	Robot detects the LINE motion can not be executed successfully.	Check if the motion is LINE while the blending radius is set to 0	[Additional Explanations] Robot detects the user input the invalid values in the By Radius settings which can not be executed successfully. [Additional Explanation] This could probably happens on POINT or MOVE node	To restore the robot from Error Status : 1. Press STOP button on the robot stick, or 2. Press FREE button.	Before running project, check if there is any motion related nodes set to be LINE while the blending radius is set to 0	2019 W02

33	0x00000021	Error	Safety Function	Velocity or Angular Velocity Over Range	The robot detected an exceeding TCP speed or Joint speed which is over the limit of the Safety Settings	<ol style="list-style-type: none"> 1. Check and make sure the TCP speed limit or Joint speed limit on Settings\Safety Settings\Safety Stop Criteria is suitable. 2. Check and make sure the TCP speed limit or Joint speed limit on, Settings\Safety Settings\Collaborative Setting\More Limit Setting, is suitable for Collaborative Mode 3. Make sure the settings of TCP used are correct, especially the Pose of TCP. 4. Check if the issued point is PTP on motion setting. 5. Check if the issued point is LINE on motion setting(ABS). 	<p>[Precaution] This error message would only show in the servo log and would be read by system's voice. It will not be displayed in an HMI error window.</p> <p>[Additional Explanation] If the robot moves under the circumstances of singularity (both internal and external) with PTP on motion setting, that may easily cause this error.</p>	<p>Stop Category: 2</p> <p>To restore the robot from error status:</p> <ol style="list-style-type: none"> 1. Press the STOP button on the robot stick, or 2. Press the FREE button. 	<ol style="list-style-type: none"> 1. Avoid postures or motion paths near singularities. 2. Decrease the speed If you want to keep the posture or motion path smooth. 3. Make sure the speed limit values of the Safety Settings are suitable in both Manual/Auto Mode and Collaborative Mode. 	2018 W49
34	0x00000022	Error	Safety Function	Force or Torque Over Range	The robot detected an exceeding TCP force or Joint torque which is over the limit of the Safety Setting	<ol style="list-style-type: none"> 1. Check if the robot collides with anything. 2. Check and make sure the TCP force limit or Joint torque on Settings\Safety Settings\Safety Stop Criteria is suitable. 3. Check and make sure the TCP force limit or Joint torque on Settings\Safety Settings\Collaborative Setting\More Limit Setting is suitable for Collaborative Mode 4. Make sure the settings of all TCP/Joint torque used are correct including the pose of TCP, Mass, Mass Center Frame and Principal Moments of Inertia. 5. Make sure the payload setting is correct on every motion related node of the flow, e.g. Point, Move, Pallet, etc. 6. Make sure there are no sudden pauses/stops in the project while the robot is moving at high speed. 	<p>[Precaution] Tool with Mass Center Frame far from the flange will add heavy external torque onto the robot. Without the correct TCP settings (including, TCP pose, Mass, Mass Center Frame and Principal Moments of Inertia), the Servo System would likely mistake this for an error.</p> <p>[Precaution] This error message would only show in the servo log and would be read by system's voice. It will not be displayed in an HMI error window.</p> <p>[Additional Explanation] The result of TCP force is achieved by calculation. This calculation will be dysfunctional when the robot passes through a singularity zone, and could mistakenly trigger this error.</p>	<p>Stop Category: 2</p> <p>To restore the robot from error status:</p> <ol style="list-style-type: none"> 1. Press the STOP button on the robot stick, or 2. Press the FREE button. 	<ol style="list-style-type: none"> 1. Avoid postures or motion paths near singularities. 2. Decrease the speed If you want to keep the posture or motion path smooth. 3. Make sure the speed limit values of the Safety Settings are suitable in both Manual/Auto Mode and Collaborative Mode. 	2018 W49
35	0x00000023	Safety	Error	Both Alarm in Error(HEX)21 and Error(HEX)22	TCP speed and force are both over limit at the same time.	<ol style="list-style-type: none"> 1. Check if the robot has been moving too fast currently 2. Check if the robot has collided to anything 	<p>[Additional Explanation] This error code is not likely happen, low possibility, since it always trigger either 0x21 or 0x22 at the first place</p> <p>[Precaution] Assess if it is necessary to drag the robot to a safer space by safe startup mode</p>	<ol style="list-style-type: none"> 1. Click Stop on the robot stick to restore the error status 2. Reduce the payload or the motion speed 3. Revise the safety criteria 	<ol style="list-style-type: none"> 1. Make sure the speed of the current is within specification 2. Make sure the robot would not collide with the surroundings during project run 	2019 W03
36	0x00000024	Warning	Hardware	Shock Alarm in the Robot	The robot detected an intense shake.	<ol style="list-style-type: none"> 1. Check if the robot collided with anything in Collaborative Mode. 2. Check the robot stability while the project is running. 	<p>[Precaution] The environment or location of the robot should be stable.</p>	<ol style="list-style-type: none"> 1. Ensure that the robot's posture, location and motion does not collide with anything 2. Move or place the robot in a location where it is stable while a project is running 	<ol style="list-style-type: none"> 1. Ensure that the robot's posture, location and motion does not collide with anything. 2. Move or place the robot in a location where it is stable while a project is running. 	2018 W49
48	0x00000030	Error	Hardware	Over Current in the Power Supply 24V, I/O Board Alarm	I/O Board's current over the spec range(1.5A).		<p>[Additional Explanations] If the external devices are abnormal that cause current are too large, it would cause this error.</p>	<ol style="list-style-type: none"> 1. Remove all external devices first 2. After restart the robot, the problem still occurs, contact a qualified service engineer for further analysis. 	<p>Make sure all external device will not consumed over 1.5A from Control box IO</p>	2019 W02

51	0x00000033	Safety	Error	TCP Speed over the criterion on the manual mode	The TCP speed is too high and over safety setting during any operation in manual mode	Check if the TCP speed is too low on Safety Settings Check if the TCP position is too far away from the flange	[Additional Explanation] This error is not likely happen, usually, other error safety related error code might be triggered first	1. Click Stop on the robot stick to restore the error status 2. Adjust the TCP setting and the Safety Setting 3. Decrease the setting of the velocity and the setting of the angular velocity on the manual mode.	Make sure the safety settings is suitable Make sure any motion related operation (Hand-guiding, step-run, Controller) moves within the safety settings	2019 W03
53	0x00000035	Error	Hardware	Joint Drivers Alarm	System has detected an error on joint driver	Check the other error code come along with it.	[Additional Explanation] If there is any joint's driver component error occur.it world all report this error code but user can check the next error code which along with tis error to get the further information.	To restore the robot from Error Status : 1. Depend on the error code after this error, find the corresponding error code description in the error code table.	Depend on the error code after this error, find the corresponding error code description in the error code table.	2018 W50
59	0x0000003B	Error	Hardware	The Joint Numbers of the Robot does not match the Default Setting	The Joint number will be different with the joint number in setting	Check if any Robot Joint has been replaced recently	[Additional Explanation] This often occurs if the robot joint(s) been replaced or fixed but without proper update on EEPROM	Contact a qualified service engineer for further analysis	[Agent-only] Make sure EEPROM be updated after replacing a Joint module or Power board	2018 W50
60	0x0000003C	Error	Hardware	This Model is not supported	EtherCAT connection failure during power on	1. Check if the robot cable is connected or not 2. If the robot cable is well connected, have a qualified service engineer to check if the Ethernet cable between Power Control Board and IPC Board is connected properly	[Restriction] Power off the system and also un-plug the power cable before opening the control box [Additional Explanation] This error would only happen during power on, and is shown on the HMI Error Page only.	1. Power off the system first 2. Check and confirm the corresponding wire/cable is connected properly 3. Power on the system	Before power on the system, you could double check robot cable is well connected to the Control Box	2018 W50
62	0x0000003E	Error	Hardware	The ESM input power is out of range during PreOp mode.	The robot detected that voltage is over the specified range (43V~45V) in PreOP mode.	1. Power eater board malfunction. 2. Power supply abnormal. 3. Robot power cable short-circuited.	[Additional Explanation] When a robot is equipped with a power eater board, a short circuit in the power supply or power cable would cause this error. [Additional Explanation] The threshold to trigger the PreOP error is lower than 40V(Electric motor),power eater board is lower than 36.	To restore the robot from error status : 1. Perform the robot restart procedure. 2. If an error still occurs after the restart, please contact a qualified service engineer for additional support.	Ensure a secure connection at the power cable terminals.	2018 W49
64	0x00000040	System	Error	Joint ESI does not match the Default Setting.	1. ESI returned unexpected data 2. Joint PCB is abnormal		[Additional Explanations] When Joint ESI does not match the default setting, it will report this error	After restart the robot, the problem still occurs, contact a qualified service engineer for further analysis with log files		2019 W03
65	0x00000041	System	Error	Failed to execute SDO	1. EtherCAT related components are abnormal 2. Joint PCB is abnormal		[Additional Explanation] When Joint abnormal response SDO command, it will report this error			2019 W03
67	0x00000043	Error	System	Failed to initialize EtherCAT.	TCP/IP stack abnormal.		[Additional Explanation] This may happen if quality of the network is unstable	After restart the robot, the problem still occurs, contact a qualified service engineer for further analysis with log files	Make sure the network is stable	2019 W03
68	0x00000044	System	Error	Failed to turn into DC SYNC in the EtherCAT Loop	1. EtherCAT related components are abnormal 2. Joint PCB is abnormal		[Additional Explanations] When failed to turn into DC SYNC in the EtherCAT loop, it will report this error	After restart the robot, the problem still occurs, contact a qualified service engineer for further analysis with log files		2019 W03
72	0x00000048	Error	Hardware	The 48V power NG on the ESM-OP mode	The robot detect the voltage is over the spec(48V)range in ESM-OP mode.		[Additional Explanation] When robot has power supply or power cable short-circuited because of poor contact which would cause this error. [Additional Explanation] The threshold to trigger this error is power board's voltage lower than 48.	After restart the robot, the problem still occurs, contact a qualified service engineer for further analysis	1.Make sure and regularly check if power cable are connected to the robot are firmed enough. 2.Before using robot, make sure the power supply is robust for robot running.	2019 W01
73	0x00000049	Error	Hardware	Power supply 48V failure	Check the power supply is robust for robot running.		[Additional Explanation] The threshold to trigger this error is power board's voltage lower than 48.	After restart the robot, the problem still occurs, contact a qualified service engineer for further analysis	Before using robot, make sure the power supply is robust for robot running.	2019 W01
75	0x0000004B	Error	Hardware	The Slave Numbers does not Match the Default Numbers	EtherCAT communication has been cut off while the robot is on	Check if there is any external EtherCAT devices, and if the Ethernet cable is loosen or if they are power off accidentally	[Additional Explanation] This usually happens if any EtherCAT devices is cut off, for example, Ethernet cable is loosen or power-off accidentally [Precaution] Power-off and unplug the power cable when checking inside the control box is necessary [Additional Explanation] This may happens if the robot or control box has been placed on a unstable platform or having violent collision.	1. Shutdown the robot 2. Restore the external EtherCAT devices and then reboot the robot 3. If this still happens, contact a qualified service engineer for further analysis	1. Make sure all external EtherCAT devices are well connected and functional 2. Make sure the robot would not be collided and be placed on an unstable platform.	2018 W52

76	0x0000004C	System	Error	Failed to Access EEPROM Data in the Power Board	1. EEPROM in Power Board is abnormal 2. Power Board is abnormal		[Additional Explanation] When failed to access EEPROM Data in the Power Board, it will report this error			2019 W03
77	0x0000004D	System	Error	Failed to Access Live Data	1. EtherCAT related components are abnormal 2. Joint PCB is abnormal		[Additional Explanation] When failed to access live data from Joint, it will report this error			2019 W03
78	0x0000004E	Error	Hardware	The S/N of the Joints does not match the default setting	System has detected a mismatch of S/N between the robot and the control box	1. Check if the S/N (Serial Number) of the robot arm matches the one on the control box	[Additional Explanation] If the S/Ns are correctly matched, there would other possibilities, such as: 1. The Power Control Board is damaged 2. The EEPROM is not updated correctly after replacing the Robot Joint or Power Control Board	1. Confirm and make sure the S/Ns are matched between the robot and the control box 2. Else, contact a qualified service engineer for further analysis	1. Before powering on the system, you could double check the connection about robot cable, and a suitable S/N match about robot arm and control box 2. Service Engineers should follow the correct process when replacing the Robot Joints or Power Control Board	2018 W50
79	0x0000004F	Error	System	Power Board is Missing	The power control board is not detected during power on		[Precaution] Power-off and unplug the power cable when checking inside the control box is necessary. [Additional Explanation] This usually happens if the control box has been placed on a unstable platform or having violent collision. [Additional Explanation] This error is less likely happens.	Contact a qualified service engineer for further analysis	Make sure the robot would not be collided and be placed on an unstable platform.	2018 W50
80	0x00000050	Error	Hardware	Power Board Lost Connection	The system could not detect the power control board, or the EtherCAT communication fails	Check if there is any external EtherCAT devices, and if the Ethernet cable is loosen or if they are power off accidentally	[Additional Explanation] This usually happens if any EtherCAT devices is cut off, for example, Ethernet cable is loosen or power-off accidentally [Precaution] Power-off and unplug the power cable when checking inside the control box is necessary [Additional Explanation] This may happens if the robot or control box has been placed on a unstable platform or having violent collision.	1. Shutdown the robot 2. Restore the external EtherCAT devices and then reboot the robot 3. If this still happens, contact a qualified service engineer for further analysis	1. Make sure all external EtherCAT devices are well connected and functional 2. Make sure the robot would not be collided and be placed on an unstable platform.	2018 W51
81	0x00000051	Error	Hardware	Power Board Over Heat	Power board's temperature is too high because of the environment is too hot or power board is abnormal.		[Additional Explanation] The servo would trigger this error if the power board's temperature is higher than 80 °C .	1. Power off the robot and let it cool down for a while (suggest at least half an hour) 2. Restart the robot, if the problem still occurs, contact a qualified service engineer for further analysis.	Make sure the environment temperature is within the specification (0~50 °C) when robot is running.	2019 W01

82	0x00000052	Information	Safety Function	Emergency Button Pressed (Robot performed Cat.1 stop. High speed bus disconnected.)	1. Emergency Stop Button on the robot stick has been pressed. 2. The extension port(s) for Emergency Stop has been tripped.	1. Check that the wire between the robot stick and the control box is securely connected. 2. Check if the wire on the extension port(s) for emergency stop is securely connected. 3. Check if there are any external emergency stop buttons connected to the e-stop extension ports. If external e-stops are connected to any extension ports, please ensure that they are released.	[Precaution] When the Emergency Stop is triggered, the robot will enter cat.1 stop, which means the power is cut off after the robot speed has been decreased to zero. If there are any payloads on the TCP, without drive power, the TCP will tend to droop a little bit before coming to a complete stop. Please be aware of the tool (payload) colliding with objects in close proximity.	If the emergency stop button has been pressed on the robot stick: 1. Release the e-stop button. a. The robot mode indicator lights will blink red. b. After a few seconds, the robot mode indicator will blink light blue, indicating the robot has entered safe start-up mode. If an external emergency stop button has been pressed: 1. Release the external e-stop button. a. The robot mode indicator lights will blink red. b. After a few seconds, the robot mode indicator will blink light blue, indicating the robot has entered safe start-up mode. If an one of the emergency stop ports has been tripped: 1. Plug the wire back to the port. 2. Press, then release the external emergency stop button. a. The robot mode indicator lights will blink red.	1. Place the robot stick or the external emergency stop button in a location to make sure it is reachable while not being pressed accidentally. 2. Check if the robot stick cable and the wire connected to the emergency stop ports are firmly connected.	2018 W48
83	0x00000053	Error	Hardware	The voltage is out of range.	The robot detected that voltage is over the specified range.	Ensure that the input power is within the working range.	[Additional Explanation] Error can be caused when the payload is large, and the ABS speed is very fast. [Additional Explanation] A power eater board malfunction, power supply abnormality or a short circuited power cable can also be the cause of this error.	To restore the robot from error status: 1. Perform the robot restart procedure. 2. If there are any problems on the hardware after the restart procedure, please contact a qualified service engineer for additional support.	1. Avoid setting the ABS speed to fast in point nodes. This is especially important when the robot is moving with large payloads. 2. Ensure the power cables are securely connected.	2018 W49
84	0x00000054	Error	Hardware	The Current is still out of range under current limit constrain.	Power supply is abnormal		[Additional Explanation] 48V Power Supply over current may possibly caused by the following reasons: 1. There may have short circuit within the system (power supply, power board, joint) 2. The current project is with payload and speed over specification 3. The Joint is abnormal	1. Restart the robot. 2. Remove the payload or slow down the project speed 3. If the problem still occur, contact a qualified service engineer for further analysis.	1. Avoid and make sure the robot would not collided with the surroundings during running project or carrying. 2. Prevent to use the robot with high speed and heavy payload that are out of specification	2019 W01
85	0x00000055	Error	Hardware	The Current is out of range in the 24V Power Supply	The robot detect the current is over the range from 24V Power Supply.		[Additional Explanation] 24V Power Supply over current may possibly caused by the following reasons: 1. Power board is abnormal 2. IO is accidentally shorten 3. IO is connected with a over spec. load (1.5 A) 4. etc.	1. Remove all IO connection and restart the robot. 2. If the problem still occur, contact a qualified service engineer for further analysis.	1. Beware and prevent short circuit on IO connection 2. Not to have over loading on IO power supply	2019 W01
86	0x00000056	Error	Hardware	I/O Board Lost Connection	Robot detects an connection error on I/O Board		[Additional Explanation] If the control box is placed on an unstable platform, it may cause the cables loosen. [Precaution] Power off and unplug the power cable before opening the control box for items checking	After restart the robot, the problem still occur, contact a qualified service engineer for further analysis	Make sure the robot would not be collided and be placed on an unstable platform.	2018 W50
87	0x00000057	Error	Hardware	EtherCAT Slaves Lost Connection	Motor driver connection is abnormal		[Precaution] Shutdown the robot before checking the inside of the joint	After restart the robot, the problem still occurs, contact a qualified service engineer for further analysis with log files	Make sure the robot is working on a stable platform	2019 W03
92	0x0000005C	Hardware	Error	Buzzer Failure in the Robot Stick Key	1. Stick buzzer is abnormal 2. Power Board is abnormal		[Additional Explanation] When system get abnormal return data of stick buzzer, it will report this error			2019 W03
93	0x0000005D	Error	Hardware	EtherCAT Loop Lost Connection	EtherCAT BUS is lost.		[Additional Explanations] Usually, it requires 1ms to complete a communication cycle, but the last signal delayed for more than 5 ms.	After restart the robot, the problem still occurs, contact a qualified service engineer for further analysis with log files		2019 W03

94	0x0000005E	Error	Safety Function	An alarm occurs in the Safety Monitor Board	Safety Monitor Board detects some hardware or component are abnormal.		[Additional Explanations] Safety Monitor Board is responsible for monitoring whether each component has normal communication.	After restart the robot, the problem still occurs, contact a qualified service engineer for further analysis.		2019 W02
96	0x00000060	Error	Software	The Motion Command Executed with manual mode at the same time	When user press FREE Button and using Controller at same time, it would cause this issue.	Check the FREE Button or Controller are both pressed by something or someone at the same time	[Additional Explanations] When user press FREE Button and using Controller at the same time, it means user send the motion command to robot, it would cause the conflict.	To restore the robot from Error Status : Stop pressing one of the free button or controller.	Check and avoid the FREE Button and the Controller are pressed at same time.	2018 W51
98	0x00000062	Warning	Motion	The Pose of the Robot is closer to the singularity in the manual mode	Robot reaches Singularity during Hand-Guiding	Check the FREEBOT settings on Controller, see if there are any axes is disable	[Additional Explanation] In Controller\FREEBOT\Custom Setting, if some of the axe or joints are disable, hand-guiding may trigger this error	1. Go to Controller\FREEBOT and change the setting to "Free all Joints" 2. Press the FREE Button to drag the robot back from singularity position	Make sure the motion of the robot will not trigger singularity before disable the axes or joints for Hand-guiding	2018 W51
110	0x0000006E	Error	Safety Function	Encoder standstill function activated.	An unintended motion is detected while the robot is still in Cat. 2 Stop status.	1. Check the log for any Cat. 2 stop codes prior to the current error code. 2. Check if a collision occurred or if a joint is jammed	[Additional Explanation] This safety function is automatically activated after every Cat.2 Stop. Encoders of each joint are monitored continuously to check if there is any unintended motion, until the user acknowledges and manually recovers the robot from Cat.2 Stop status. If there is any unintended motion, this safety function will trigger a Cat.0 Stop, cutting the power supply directly to the robot. [Precaution] When the Encoder Standstill is triggered, the robot will enter Cat.0 stop, which means the power is cut off immediately; If there is any payload on the TCP, without drive power, the TCP will drop a little before coming to a complete stop. Please be aware that the tool (payload) does not collide with nearby objects.	1. Press the Stop Button on the robot stick to disengage the "Funct. Alarm Stop" (which is shown on the LCD on the control box" 2. The LED signals on the robot stick will switch from slow blinking red to fast blinking of all 3 LEDs 3. Hold the Power Button on the robot stick for a few seconds to shut down the robot. 4. Press the power button on the robot stick to power on the system again.	Remember there should be no motion before the protective stop (Cat. 2) is disengaged.	2018 W48
112	0x00000070	Error	Software	Vision Servoing Failure	Robot detects an unexpected error of vision servoing.		[Additional Explanation] This error should not likely happen.	If this error happens, contact to your agent or Techman Robot Inc. with the issued Project file.		2018 W50
114	0x00000072	Error	Software	The Pose of the Robot Over the Position or Close to the Singularity during Vision Serving Process	Robot is too close or at singularity during serving process.	Check if the pose of the robot is too close or at singularity during vision serving process.	[Additional Explanation] The possibility of robot moves into singularity depends of the initial (view) point chosen or the Moving Range settings of Visual Servoing [Precaution] Please assess the risk of collision during servoing during project editing	To restore the robot from Error Status : 1. Press the STOP button on the robot stick to stop the project. 2. Press FREE button to remove the robot from Singularity.	1. Set up the initial (view) point of the vision job properly to make sure the robot would not enter Singularity 2. Set up the Moving Range of Servoing properly to make sure the robot would not enter Singularity or hit anything of the layout 3. It is suggested to use Fixed Point for object localization instead of Visual Servoing for non-open workspace (too narrow for servoing movement)	2018 W50
144	0x00000090	Error	Software	Process Line Motion Failure	Path execution error on PATH node	Check if the path would approaches any singularity	[Additional Explanations] If the continuous point planned by user then execute occur error, it would cause this error	1. Press STOP button on the robot stick to stop the project 2. Adjust the path before usage	Make sure the path used would not approaches any singularity	2019 W02
32768	0x00008000	Warning	External Device	Non-matching result was detected between both channels of the emergency stop ports.	Both emergency stop ports do not trigger at the same time.	Check if the wire on the extension port(s) for emergency stop is securely fastened.	[Additional Explanations] In order to comply with safety regulations, the emergency button external ports were designed to be simultaneously triggered.	1. Plug the wire back in to the port. 2. Press (and or release) the external emergency stop button. a. The robot mode indicator lights will blink red. b. After a few seconds, the robot mode indicator will blink light blue, indicating the robot has entered safe start-up mode.	Ensure that all wires connected to the emergency stop ports are securely connected.	2018 W49

65281	0x0000FF01	Error	Safety Function	Momentum exceeds limit	Payload and speed are over specification	<ol style="list-style-type: none"> 1. Check if the TCP setting of the current tool is correct 2. Check if the payload setting on each motion node is correct 3. Check if the speed of the current project is too fast 	<p>[Additional Explanation] Momentum is defined as mass (tool + payload) x TCP speed</p> <p>[Additional Explanation] This error is not likely happen if both payload and speed is within specification</p>	<ol style="list-style-type: none"> 1. Press STOP button on the robot stick to restore from error status 2. Modified the TCP settings or motion settings; or remove the payload first 3. Run the project again; if this error still occurs, contact a qualified service engineer for further analysis 	Make sure both payload and speed is within specification	2019 W02
65282	0x0000FF02	Error	Safety Function	Power exceeds limit	<ol style="list-style-type: none"> 1. Current motion of the robot is too fast 2. Hardware issue 	<ol style="list-style-type: none"> 1. Check if the TCP setting of the current tool is correct 2. Check if the payload setting on each motion node is correct 3. Check if the speed of the current project is too fast 	<p>[Additional Explanation] This error does not likely happen since other error code should be triggered first, such as 0x00000049, 0x00000053, 0x00000054</p>	<ol style="list-style-type: none"> 1. Press STOP button on the robot stick to restore from error status 2. Modified the TCP settings or motion settings; or remove the payload first 3. Run the project again; if this error still occurs, contact a qualified service engineer for further analysis 	Make sure both payload and speed is within specification	2019 W02
65284	0x0000FF04	Error	Safety Function	TCP speed exceeds limit	The robot detects a TCP speed which exceeds the limit of the safety settings.	<ol style="list-style-type: none"> 1. Check and make sure the TCP speed limit on Settings\Safety Settings\Safety Criteria is suitable 2. Check and make sure the TCP speed limit on Settings\Safety Settings\Collaborative Setting\More Limit Setting is suitable for Collaborative Mode 3. Make sure the settings of TCP used are correct, especially the Pose of TCP. 4. Check if the issued point is PTP on motion setting. 	<p>[Additional Explanation] If the robot moves under the circumstances of singularity (both internal and external) with PTP on motion setting, that may easily cause this error.</p>	<p>To restore the robot from Error Status :</p> <ol style="list-style-type: none"> 1. Press the STOP button on the robot stick, or 2. Press the FREE button. 	<ol style="list-style-type: none"> 1. Avoid postures or motion paths near singularities. 2. Decrease the speed if you want to keep the posture or motion path smooth. 3. Make sure the force limit value of the Safety Settings is suitable in both Manual/Auto Mode and Collaborative Mode. 	2018 W48
65285	0x0000FF05	Error	Safety Function	TCP force exceeds limit	The robot detects an exceeding TCP force which is over the limit of the Safety Setting.	<ol style="list-style-type: none"> 1. Check if the robot will collide with anything. 2. Check and make sure the TCP force limit on Settings\Safety Settings\Safety Criteria is suitable 3. Check and make sure the TCP force limit on Settings\Safety Settings\Collaborative Setting\More Limit Setting is suitable for collaborative mode 4. Make sure the settings of all TCP used are correct, including the pose of TCP, Mass, Mass Center Frame, Principal Moments of Inertia. 5. Make sure the payload setting is correct on every motion related node of the flow, e.g. Point, Move, Pallet, etc. 	<p>[Precaution] Tools with a mass center frame far from the flange will add large external torques onto the robot. Without the correct TCP settings (including, TCP pose, Mass, Mass Center Frame, Principal Moments of Inertia), the servo system would mistake this for an error.</p> <p>[Additional Explanation] The result of TCP forces achieved is by calculations. This calculation will be dysfunctional when the robot passes through the singularity zone, and will mistakenly trigger this error.</p>	<p>To restore the robot from Error Status :</p> <ol style="list-style-type: none"> 1. Press the STOP button on the robot stick, or 2. Press the FREE button. 	<ol style="list-style-type: none"> 1. Avoid postures or motion paths near singularities. 2. Decrease the speed if you want to keep the posture or motion path smooth. 3. Make sure the force limit value of the Safety Settings is suitable in both Manual/Auto Mode and Collaborative Mode. 	2018 W48
65286	0x0000FF06	Error	Safety Function	J1 Position exceeds the value in the safety threshold	Joint 1 Position exceeds the value of the safety setting threshold.	<ol style="list-style-type: none"> 1. Check that the safety threshold angle of the axis is appropriate. 2. Check that the project flow has not set a position that the TM robot cannot reach (for example, using a TM5 to run TM12 project). 		<p>To restore the robot from error status:</p> <ol style="list-style-type: none"> 1. Press the STOP button on the robot stick, or 2. Press the FREE button 	<ol style="list-style-type: none"> 1. Set the safety threshold to a more suitable value. 2. Revise the project flow. 	2018 W48
65287	0x0000FF07	Error	Safety Function	J1 Velocity exceeds the value in the safety threshold	Joint 1 Velocity exceeds the value of the safety setting threshold.	<ol style="list-style-type: none"> 1. Check that the safety threshold speed of the axis is appropriate. 2. Check the line speed setting. 		<p>To restore the robot from error status:</p> <ol style="list-style-type: none"> 1. Press the STOP button on the robot stick, or 2. Press the FREE button. 	<ol style="list-style-type: none"> 1. Make sure the safety settings are suitable for current application 2. Make sure the motion of the project would be trigger this error 	2019 W11

65288	0x0000FF08	Error	Safety Function	J1 Torque exceeds the value in the safety threshold	Joint 1 Torque exceeds the value of the safety setting threshold. This maybe caused by: 1. Improper payload settings 2. A collision has occurred 3. The brake is abnormal	1. Check that the payload setting is correct 2. Check if there has been a collision 3. Check whether the first axis brake is abnormal		To restore the robot from Error Status : 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Make sure the payload setting or payload used is suitable 2. Make sure the safety settings are suitable for current application 3. Assess the working environment, avoid any violent collision onto the robot	2019 W11
65289	0x0000FF09	Error	Safety Function	J2 Position exceeds the value in the safety threshold	Joint 2 Position exceeds the value of the safety setting threshold.	1. Check that the safety threshold angle of the axis is appropriate. 2. Check that the project flow has not set a position that the TM robot cannot reach (for example, using a TM5 to run TM12 project).		To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button	1. Set the safety threshold to a more suitable value. 2. Revise the project flow.	2018 W48
65290	0x0000FF0A	Error	Safety Function	J2 Velocity exceeds the value in the safety threshold	Joint 2 Velocity exceeds the value of the safety setting threshold.	1. Check that the safety threshold speed of the axis is appropriate. 2. Check the line speed setting.		To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Make sure the safety settings are suitable for current application 2. Make sure the motion of the project would be trigger this error	2018 W48
65291	0x0000FF0B	Error	Safety Function	J2 Torque exceeds the value in the safety threshold	Joint 2 Torque exceeds the value of the safety setting threshold. This maybe caused by: 1. Improper payload settings 2. A collision has occurred 3. The brake is abnormal	1. Check that the payload setting is correct 2. Check if there has been a collision 3. Check whether the first axis brake is abnormal		To restore the robot from Error Status : 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Make sure the payload setting or payload used is suitable 2. Make sure the safety settings are suitable for current application 3. Assess the working environment, avoid any violent collision onto the robot	2018 W48
65292	0x0000FF0C	Error	Safety Function	J3 Position exceeds the value in the safety threshold	Joint 3 Position exceeds the value of the safety setting threshold.	1. Check that the safety threshold angle of the axis is appropriate. 2. Check that the project flow has not set a position that the TM robot cannot reach (for example, using a TM5 to run TM12 project).		To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button	1. Set the safety threshold to a more suitable value. 2. Revise the project flow.	2018 W48
65293	0x0000FF0D	Error	Safety Function	J3 Velocity exceeds the value in the safety threshold	Joint 3 Velocity exceeds the value of the safety setting threshold.	1. Check that the safety threshold speed of the axis is appropriate. 2. Check the line speed setting.		To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Make sure the safety settings are suitable for current application 2. Make sure the motion of the project would be trigger this error	2018 W48
65294	0x0000FF0E	Error	Safety Function	J3 Torque exceeds the value in the safety threshold	Joint 3 Torque exceeds the value of the safety setting threshold. This maybe caused by: 1. Improper payload settings 2. A collision has occurred 3. The brake is abnormal	1. Check that the payload setting is correct 2. Check if there has been a collision 3. Check whether the first axis brake is abnormal		To restore the robot from Error Status : 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Make sure the payload setting or payload used is suitable 2. Make sure the safety settings are suitable for current application 3. Assess the working environment, avoid any violent collision onto the robot	2018 W48
65295	0x0000FF0F	Error	Safety Function	J4 Position exceeds the value in the safety threshold	Joint 4 Position exceeds the value of the safety setting threshold.	1. Check that the safety threshold angle of the axis is appropriate. 2. Check that the project flow has not set a position that the TM robot cannot reach (for example, using a TM5 to run TM12 project).		To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button	1. Set the safety threshold to a more suitable value. 2. Revise the project flow.	2018 W48
65296	0x0000FF10	Error	Safety Function	J4 Velocity exceeds the value in the safety threshold	Joint 4 Velocity exceeds the value of the safety setting threshold.	1. Check that the safety threshold speed of the axis is appropriate. 2. Check the line speed setting.		To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Make sure the safety settings are suitable for current application 2. Make sure the motion of the project would be trigger this error	2018 W48

65297	0x0000FF11	Error	Safety Function	J4 Torque exceeds the value in the safety threshold	Joint 4 Torque exceeds the value of the safety setting threshold. This maybe caused by: 1. Improper payload settings 2. A collision has occurred 3. The brake is abnormal	1. Check that the payload setting is correct 2. Check if there has been a collision 3. Check whether the first axis brake is abnormal		To restore the robot from Error Status : 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Make sure the payload setting or payload used is suitable 2. Make sure the safety settings are suitable for current application 3. Assess the working environment, avoid any violent collision onto the robot	2018 W48
65298	0x0000FF12	Error	Safety Function	J5 Position exceeds the value in the safety threshold	Joint 5 Position exceeds the value of the safety setting threshold.	1. Check that the safety threshold angle of the axis is appropriate. 2. Check that the project flow has not set a position that the TM robot cannot reach (for example, using a TMS to run TM12 project).		To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button	1. Set the safety threshold to a more suitable value. 2. Revise the project flow.	2018 W48
65299	0x0000FF13	Error	Safety Function	J5 Velocity exceeds the value in the safety threshold	Joint 5 Velocity exceeds the value of the safety setting threshold.	1. Check that the safety threshold speed of the axis is appropriate. 2. Check the line speed setting.		To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Make sure the safety settings are suitable for current application 2. Make sure the motion of the project would be trigger this error	2018 W48
65300	0x0000FF14	Error	Safety Function	J5 Torque exceeds the value in the safety threshold	Joint 5 Torque exceeds the value of the safety setting threshold. This maybe caused by: 1. Improper payload settings 2. A collision has occurred 3. The brake is abnormal	1. Check that the payload setting is correct 2. Check if there has been a collision 3. Check whether the first axis brake is abnormal		To restore the robot from Error Status : 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Make sure the payload setting or payload used is suitable 2. Make sure the safety settings are suitable for current application 3. Assess the working environment, avoid any violent collision onto the robot	2018 W48
65301	0x0000FF15	Error	Safety Function	J6 Position exceeds the value in the safety threshold	Joint 6 Position exceeds the value of the safety setting threshold.	1. Check that the safety threshold angle of the axis is appropriate. 2. Check that the project flow has not set a position that the TM robot cannot reach (for example, using a TMS to run TM12 project).		To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button	1. Set the safety threshold to a more suitable value. 2. Revise the project flow.	2018 W48
65302	0x0000FF16	Error	Safety Function	J6 Velocity exceeds the value in the safety threshold	Joint 6 Velocity exceeds the value of the safety setting threshold.	1. Check that the safety threshold speed of the axis is appropriate. 2. Check the line speed setting.		To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Make sure the safety settings are suitable for current application 2. Make sure the motion of the project would be trigger this error	2018 W48
65303	0x0000FF17	Error	Safety Function	J6 Torque exceeds the value in the safety threshold	Joint 6 Torque exceeds the value of the safety setting threshold. This maybe caused by: 1. Improper payload settings 2. A collision has occurred 3. The brake is abnormal	1. Check that the payload setting is correct 2. Check if there has been a collision 3. Check whether the first axis brake is abnormal		To restore the robot from Error Status : 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Make sure the payload setting or payload used is suitable 2. Make sure the safety settings are suitable for current application 3. Assess the working environment, avoid any violent collision onto the robot	2018 W48
65312	0x0000FF20	Error	Hardware	Solenoid current is NG	Current for solenoid is over specification during brake release process		[Additional Explanation] System will detect the current for solenoid during brake releasing process, when it find the value over specification, it will report this error	1. Please press E-stop and release E-stop to resume Robot to see the issue is still occurred or not. 2. If this still occurs, contact a qualified service engineer for further analysis		2018 W52
65313	0x0000FF21	Error	Hardware	Joint movement range is NG in brake release status	Joint movement range is over range during brake release process	Check if the payload is too that out of specification, including the mass, center of mass, inertia, etc.	[Additional Explanation] System will detect the movement range while brake release process, when the value is over expected, it will report this error.	1. Power off the robot 2. Remove all payload and restart the robot 3. If this issue still happens, have a qualified service engineer for further analysis	1. Make sure the payload is within specification (including the center of mass and inertia) 2. Make sure there is no unexpected force acting on the robot during brake release process	2018 W52

65440	0x0000FFA0	Error	Hardware	The voltage on DCBUS is too low (40V)	Robot detect a low voltage on DCBUS.		[Additional Explanation] There maybe a variety of reasons that cause a low voltage, for example: 1. The power source is not stable on customer-site 2. Power supply is abnormal 3. etc. [Precaution] Power off and unplug the power cable before opening the control box for items checking	Shut down the robot, make sure the power source is stable then power on. If the same issue still occurs, contact a qualified service engineer for further analysis	Make sure the power source is robust for robot running.	2018 W50
65441	0x0000FFA1	Error	Hardware	The voltage on DCBUS is too high (60V)	Robot detect the voltage on DCBUS is higher than spec.	Check whether there are others error log along with this error.	[Additional Explanation] There maybe a variety of reasons that cause a high voltage, for example: 1. The robot move too fast with the current project (with heavy payload) 2. Power eater modules is abnormal 3. etc. [Precaution] Power off and unplug the power cable before opening the control box for items checking	After restart the robot, the problem still occur, contact a qualified service engineer for further analysis	1. Make sure the robot would not be collided and be placed on an unstable platform. 2. Make sure project speed with payload is within the specification.	2018 W50
65445	0x0000FFA5	Error	Hardware	The temperature on PCB is too high (90 degree Celsius)	Robot detect the temperature on PCB is higher than spec.	1. Check if the environment temperature is higher than the spec. while robot moving. 2. Check the temperature on View->Status	[Additional Explanation] The temperature would rise during robot operating and the work space temperature will affect as well.	Shut down the robot, and keep it cool for a while before start up again. If this issue still occurs, please contact a qualified service engineer for further analysis	1. Make sure the temperature of the working environment is within the specification. 2. Make sure the payload or the project speed is within the specification	2018 W50
65446	0x0000FFA6	Error	Hardware	The current in U phase of motor is too high	Robot has detected a overshoot of U phase current on the motor	1. Check the header of the error code to see which motor is with this issue 2. Check if the robot is run with payload out of spec. and also in high speed 3. Check if the safety settings of the robot	[Additional Explanation] If the robot is driven and accelerate fast, current of the motor will overshoot and trigger this error [Additional Explanation] This is usually be triggered when running the robot with a heavy payload with high speed which is nearly or already out of spec. [Additional Explanation] Another reason may be there is dysfunction on the electronics on the motors	1. Shut down and reboot the robot 2. Adjust the payload, safety settings, speed and see if the issue still happens 3. If it still happens, export the Logs, Project and TCP used, and contact to your service engineer	1. Make sure the payload (including the tool) is within the spec. 2. Adjust the speed or movement to prevent the risk of having a single joint accelerate too fast	2018 W51
65447	0x0000FFA7	Error	Hardware	The current in V phase of motor is too high	Robot has detected a overshoot of V phase current on the motor	1. Check the header of the error code to see which motor is with this issue 2. Check if the robot is run with payload out of spec. and also in high speed 3. Check if the safety settings of the robot	[Additional Explanation] If the robot is driven and accelerate fast, current of the motor will overshoot and trigger this error [Additional Explanation] This is usually be triggered when running the robot with a heavy payload with high speed which is nearly or already out of spec. [Additional Explanation] Another reason may be there is dysfunction on the electronics on the motors	1. Shut down and reboot the robot 2. Adjust the payload, safety settings, speed and see if the issue still happens 3. If it still happens, export the Logs, Project and TCP used, and contact to your service engineer	1. Make sure the payload (including the tool) is within the spec. 2. Adjust the speed or movement to prevent the risk of having a single joint accelerate too fast	2018 W51
65448	0x0000FFA8	Error	Hardware	The current in W phase of motor is too high	Robot has detected a overshoot of W phase current on the motor	1. Check the header of the error code to see which motor is with this issue 2. Check if the robot is run with payload out of spec. and also in high speed 3. Check if the safety settings of the robot	[Additional Explanation] If the robot is driven and accelerate fast, current of the motor will overshoot and trigger this error [Additional Explanation] This is usually be triggered when running the robot with a heavy payload with high speed which is nearly or already out of spec. [Additional Explanation] Another reason may be there is dysfunction on the electronics on the motors	1. Shut down and reboot the robot 2. Adjust the payload, safety settings, speed and see if the issue still happens 3. If it still happens, export the Logs, Project and TCP used, and contact to your service engineer	1. Make sure the payload (including the tool) is within the spec. 2. Adjust the speed or movement to prevent the risk of having a single joint accelerate too fast	2018 W51

65451	0x0000FFAB	Error	Hardware	The protection is on for motor hold	The motor current rises suddenly and triggers motor hold protection	1. Check if there robot has collided to the surroundings seriously 2. Check the description of this error code to see which joint it belongs to	[Additional Explanation] When the robot collides to a solid object in a high speed, some of the joints may suffer a great torque on them and this causes the motor current raise rapidly and trigger this error [Precaution] If the robot is closed to any thing or surface, using ordinary start-up may cause collision again during the joint calibration; therefore, use should use Safe Start-up Mode to restore the robot [Precaution] When manually driving the robot in Safe Start-up Mode, there is no drive power but just release the brakes of all joints, if there is tool or payload on the end-effector, it is suggest to have more than one person to hold the end-effector. [Precaution] Do not drive the joint manually when this error occurs, which might damage the joint	1. Trigger the Emergency Switch (Button) and then shutdown the robot 2. Reboot the robot 3. Release the Emergency Switch (Button) when the Control Box starts working 4. The system will enter Safe Start-up Mode (light blue on LED) 5. Press FREE button and drive the robot to a safe region or pose 6. Hold the STOP button of the robot stick and switch the system to AUTO mode	Make sure the robot will not collide with the surroundings during project run	2018 W52
65454	0x0000FFAE	Error	Hardware	Overcurrent in DCBUS	Robot has detected the current on DCBUS went too high suddenly.	1. The speed(ABS/project speed) is too fast. 2. Check whether there is any collision while robot moving.	[Additional Explanations] If robot is moving in a high speed in some movement or pose, it would cause this error. And if robot has collisions, it would cause the current became abnormal.	[General User] After restart the robot, the problem still occur, contact a qualified service engineer for further analysis.	1.Slow down the speed(ABS/project speed). 2. Avoid any collision while robot is moving.	2018 W51
65455	0x0000FFAF	Error	System	The communication of EtherCAT is timeout	The communication time of EtherCAT is timeout	Check if any external EtherCAT device used has lost connection	[Additional Explanation] System will periodic check the EtherCAT communication, if communication timeout, it will report this error.	Contact a qualified service engineer for further analysis	external	2018 W52
65457	0x0000FFB1	Error	System	The communication of SPI is timeout	The communication time of SPI is timeout		[Additional Explanation] It may possibly because the SPI IC is dysfunction which is not likely to happen			2018 W52
65464	0x0000FFB8	Error	Hardware	Gate Driver NG	Hardware Failure		[Additional Explanation] This error is not likely happens, mostly because of hardware issue	1. Export the Logs 2. Contact a qualified service engineer for further analysis		2019 W01
65465	0x0000FFB9	Error	Hardware	Mosfet NG	Hardware Failure		[Additional Explanation] This error is not likely happens, mostly because of hardware issue	1. Export the Logs 2. Contact a qualified service engineer for further analysis		2019 W01
65466	0x0000FFBA	Error	Hardware	Current Sensor NG	Hardware Failure		[Restriction] Do not drive the joint with or without drive power	1. Export the Logs 2. Contact a qualified service engineer for further analysis	Make sure the power source is robust for robot running.	2019 W02
65482	0x0000FFCA	Error	Hardware	Multi Z index happened in encoder output	Encoder is dysfunctional		[Additional Explanation] This error is not likely happens, mostly because of hardware issue	1. Export the log, 2. Contact a qualified service engineer for further analysis		2019 W01
65484	0x0000FFCC	Error	Hardware	The Z index signal is missing	Encoder is dysfunctional		[Additional Explanation] This error is not likely happens, mostly because of hardware issue	1. Export the log, 2. Contact a qualified service engineer for further analysis		2019 W01
65485	0x0000FFCD	Error	Hardware	Encoder connection failed	Hardware Failure		[Restriction] Do not drive the joint with or without drive power when this issue happens	1. Export the Logs 2. Contact a qualified service engineer for further analysis	Make sure the robot would not collided with the surroundings during project run or robot shifting	2018 W51
65486	0x0000FFCE	Error	Hardware	The compensation of encoder signal is too high	Hardware Failure		[Restriction] Do not drive the joint with or without drive power	1. Export the Logs 2. Contact a qualified service engineer for further analysis		2019 W02

65487	0x0000FFCF	Error	Hardware	The protection is on for motor hold (type 2)	The motor current rises suddenly and triggers motor hold protection	<ol style="list-style-type: none"> 1. Check if there robot has collided to the surroundings seriously 2. Check the description of this error code to see which joint it belongs to 	<p>[Additional Explanation] When the robot collides to a solid object in a high speed, some of the joints may suffer a great torque on them and this causes the motor current raise rapidly and trigger this error</p> <p>[Precaution] If the robot is closed to any thing or surface, using ordinary start-up may cause collision again during the joint calibration; therefore, use should use Safe Start-up Mode to restore the robot</p> <p>[Precaution] When manually driving the robot in Safe Start-up Mode, there is no drive power but just release the brakes of all joints, if there is tool or payload on the end-effector, it is suggest to have more than one person to hold the end-effector.</p> <p>[Precaution] Do not drive the joint manually when this error occurs, which might damage the joint</p>	<ol style="list-style-type: none"> 1. Trigger the Emergency Switch (Button) and then shutdown the robot 2. Reboot the robot 3. Release the Emergency Switch (Button) when the Control Box starts working 4. The system will enter Safe Start-up Mode (light blue on LED) 5. Press FREE button and drive the robot to a safe region or pose 6. Hold the STOP button of the robot stick and switch the system to AUTO mode 	Make sure the robot will not collide with the surroundings during project run	2018 W52
65489	0x0000FFD1	Error	Hardware	The data is abnormal when reading magnetic encoder.	Hardware Failure	Check if the robot is placed near any device with strong magnetic field	<p>[Additional Explanation] Under a strong magnetic field may affect the readings of the magnetic encoder</p>	<ol style="list-style-type: none"> 1. Export the Logs 2. Make sure the robot is not under any strong magnetic field and then reboot the robot 3. If this still does not work, Contact a qualified service engineer for further analysis 	Make sure the robot is not under any strong magnetic field	2019 W02
65490	0x0000FFD2	Error	Hardware	The magnet is NG judged by magnetic encoder	Hardware Failure	Check if the robot is placed near any device with strong magnetic field	<p>[Additional Explanation] Under a strong magnetic field may affect the readings of the magnetic encoder</p>	<ol style="list-style-type: none"> 1. Export the Logs 2. Make sure the robot is not under any strong magnetic field and then reboot the robot 3. If this still does not work, Contact a qualified service engineer for further analysis 	Make sure the robot is not under any strong magnetic field	2019 W02
65491	0x0000FFD3	Error	Hardware	The origin of joint module is out of preset	<ol style="list-style-type: none"> 1.The robot may be disassembled abnormally. Please check the warranty sticker and thread-locking fluid are both broken or not 2. Joint gear wear out 		<p>[Additional Explanation] When the origin of joint module is not detected, it will report this error</p>	<ol style="list-style-type: none"> 1. Export the log file 2. Contact a qualified service engineer 		2019 W02
65496	0x0000FFD8	Hardware	Error	The resistance of UVW of motor is abnormal	<ol style="list-style-type: none"> 1. Motor is damaged 2. Joint PCB is damaged 		<p>[Additional Explanation] When the resistance of UVW current of motor is abnormal, it will report this error</p>	<ol style="list-style-type: none"> 1. Export the log file 2. Contact a qualified service engineer 		2019 W02

65497	0x0000FFD9	Hardware	Error	The connection sequence of UVW of motor is not correct	Hardware Failure		[Additional Explanation] The cables connection sequence of UVW of motor is not correct. Quality issue or the robot may be disassembled abnormally.	1. Export the log file 2. Contact a qualified service engineer	Make sure the robot is not being disassembled illegally	2019 W02
65504	0x0000FFE0	Hardware	Error	The voltage of DC bus is low in EtherCAT OP mode	1. Power supply is not stable. 2. Robot moves in high speed, current is higher, voltage loss getting higher. ($V_{input} - V_{loss} = V$ for DC bus) 3. Power connector problem, consume too much power		[Additional Explanation] When robot is working and detects the voltage of DC bus is low, it will report this error	1. Power off the robot 2. Check Robot Cable and its connector before power on again 3. Reduce Robot speed if necessary	Make sure power source is stable	2019 W02
65508	0x0000FFE4	Error	System	The position initialization process is timeout ("Z search" is not finished)	Encoder is abnormal		[Additional Explanation] This error is not likely happens, mostly because of hardware issue	1. Export the log, 2. Contact a qualified service engineer for further analysis		2019 W01
65512	0x0000FFE8	Hardware	Error	The output of g sensor is NG	Hardware Failure		[Additional Explanation] When the output of the G sensor is abnormal, it will report this error	1. Export the log file 2. Contact a qualified service engineer		2019 W02
65514	0x0000FFEA	Hardware	Error	The voltage of 5V is NG	DC to DC component on Join PCB is damaged		[Additional Explanation] When detect voltage of 5V is abnormal, it will report this error			2019 W03
65515	0x0000FFEB	Hardware	Error	The voltage of 12V is NG	DC to DC component on Join PCB is damaged		[Additional Explanation] When detect voltage of 12V is abnormal, it will report this error			2019 W03
65517	0x0000FFED	Error	Hardware	The compensation of encoder signal is too high in ABS mode	Encoder is msyfunction		[Additional Explanation] This error is not likely happens, mostly because of hardware issue	1. Export the log, 2. Contact a qualified service engineer for further analysis		2019 W01
131072	0x00020000	Error	Hardware	Camera NOT found	The robot can not detect or recognize the camera.	1. Check if there is a camera icon in the vision job page. 2. Check whether the USB connection of the camera is broken on the control box or inside the robot arm.	[Precaution] Causes a camera malfunction and VISION job\task will not be available. [Precaution] Importing the project within the vision job to a non-vision robot will also cause this error.	Refer to the related service manual for proper USB plugin methods.	Ensure that all USB cables are securely connected to the camera and the control box.	2018 W49

131075	0x00020003	Error	Hardware	Camera is disconnected	The connection between camera and robot is unstable.	1. Check the USB connection to the camera and control box is secure. 2. Check if the USB slots are overloaded.	[Precaution] Causes a camera malfunction and VISION job\task will not be available. [Precaution] The USB cable's transmission signal would become weak gradually because of the normal consumption of wire. [Additional Explanations] Signal attenuation cause by too many USB cable plug on the control box. Sometimes, if the signal attenuation became worse it will cause the error "0x00020000 Camera NOT found "	1. Please refer to the service manual which related Robot arm which would teach you how to dismantle and plug the USB cable properly. 2. Please refer to the service manual which related control box which would teach you how to plug the USB cable properly. 3. Please check the USB slots are overloaded on the control box and please plug out the USB which is not required.	Please regularly check if the USB Cable connected to the camera and control box are all fine.	2018 W49
131077	0x00020005	Warning	User Setting	Missing Dongle Key: ...	Dongle key is not detected while edit the corresponding function on a project or run that project	Check if the dongle is plugged onto the Control Box		1. Press STOP button on the robot stick to restore from error status 2. Connect the corresponding Dongle onto the Control box and run the project again 3. Run the project again; if this error still occurs, contact a qualified service engineer for further analysis	Make sure having the corresponding Dongle key plugged before running or editing the project with license functions	2019 W02
131080	0x00020008	Error	Vision	Job NOT found	Vision job can not be found during executing the VISION node	Check if the vision job is exist or not.		1. Press STOP button on the robot stick and 2. Re-create the vision job	Make sure the vision job is exist before executes the project.	2018 W10
131081	0x00020009	Error	Vision	Actioner is busy	The same camera is simultaneously accessed by multiple threads.	Check if there are multi- threads using the same camera while running the project.		Press STOP button on the robot stick to stop the project.	Make sure a camera is being used by only one thread	2018 W10
196609	0x00030001	Error	User Setting	Invalid plane points	Points setting error during creating a plane for Operation Space	Check if more than 2 of the three points of the plane are the same	[Additional Explanation] A plane could only be created by 3 different points	To restore the robot from Error Status : 1. Click on the OK button on the pop up windows. 2. Reset the 3 points in following steps: Setting > Operation Space > Select project name of plane > Set Point	Before creating a plane, make sure the 3 points are set well, and should not be repeated.	2019 W02
196610	0x00030002	Error	User Setting	Invalid cube points	Points setting error during creating a cube for Operation Space	Check if more than 2 of the four points of the cube are the same	[Additional Explanation] A cube could only be created by 4 different points	To restore the robot from Error Status : 1. Click on the OK button on the pop up windows. 2. Reset the 4 points in following steps: Setting > Operation Space > Select project name of cube > Set Point	Before creating a cube, make sure the 4 points are set well, and should not be repeated.	2019 W02
196611	0x00030003	Error	User Setting	Failed to build operation space with the new plane	The system fails to combine this plane with other planes.	Check if the three points set by the user when adding this plane, the center point of the circle falls on the outside of plane.		Re-create a plane which is suitable	Check if the three points are set up when adding this plane, the center point of the circle falls on the inside of plane.	2018 W10
196612	0x00030004	Error	User Setting	Failed to build operation space with the new stop plane	The system fails to combine this stop plane with other planes.	Check if the three points set by the user when adding this stop plane, the center point of the circle falls on the outside of plane.		Re-create a stop plane which is suitable	Check if the three points are set up when adding this stop plane, the center point of the circle falls on the inside of plane.	2018 W10

200704	0x00031000	Error	System	Can not connect to Viewer	The 3D Viewer function has been terminated	Check any 3D viewer on TMflow (such as Setting/Controller) if it is functional	[Additional Explanation] This error does not likely happen unless there is a software issue	1. Export the log 2. Have the robot power cycling to see if this error still occurs 3. Report to the service engineer with the log file		2019 W02
262149	0x00040005	Error	Flow	Program Exception	The HMI found that an unexpected exception error.	1. Check if there is other error message describe the location of the issue node 2. Check if there is other error message describe more detail of this issue	[Additional Explanation] This error usually happens if there is an unexpected software issue	1. Export the log file and the project file 2. Contact a qualified service engineer		2019 W02
262151	0x00040007	Hardware	Error	Robot is not connected	ESTOP mode is triggered, and the power of the robot is cut off. HMI can't connect the robot.	Check if ESTOP mode is triggered : 1. The ESTOP button of the stick is pressed. 2. The ESTOP wire of the control box is not connected. Check if the LED light of the robot is turn off.	[Additional Explanation] This error usually appears as a popped up message on HMI [Additional Explanation] This error usually happens because the power of the robot is cut off by ESTOP mode triggered while doing the one of the following cases: 1. When open and close the camera IO LED, the HMI will pop up a window message 「 Robot is not connected 」 2. In Project, click the "Step Run" button, the HMI will pop up a window message 「 Set Speed Fail :Robot is not connected 」 3. Leave the project and enter the project again, the HMI will pop up a window message 「 error code : Robot is not connected 」 4. etc.	If the emergency stop button has been pressed on the robot stick: 1. Release the e-stop button. a. The robot mode indicator lights will blink red. b. After a few seconds, the robot mode indicator will blink light blue, indicating the robot has entered safe start-up mode. If an external emergency stop button has been pressed: 1. Release the external e-stop button. a. The robot mode indicator lights will blink red. b. After a few seconds, the robot mode indicator will blink light blue, indicating the robot has entered safe start-up mode. If an one of the emergency stop ports has been tripped: 1. Plug the wire back to the port. 2. Press, then release the external emergency stop button. a. The robot mode indicator lights will blink red.	Make sure the robot is connected while using HMI	2019 W03

262154	0x0004000A	info.		Robot is locked	ESTOP mode is triggered, and the power of the robot is cut off. HMI can't connect the robot.	<p>Check if ESTOP mode is triggered :</p> <ol style="list-style-type: none"> 1. The ESTOP button of the stick is pressed. 2. The ESTOP wire of the control box is not connected. <p>Check if the LED light of the robot is turn off.</p>	<p>[Additional Explanation] This error usually appears as a popped up message in HMI</p> <p>[Additional Explanation] This error usually happens because the power of the robot is cut off by ESTOP mode triggered.</p> <ol style="list-style-type: none"> 1. When operator the controller ,the HMI will pop up a window message 「System fault: Lock Robot{{0}}」 	<p>If the emergency stop button has been pressed on the robot stick:</p> <ol style="list-style-type: none"> 1. Release the e-stop button. <ol style="list-style-type: none"> a. The robot mode indicator lights will blink red. b. After a few seconds, the robot mode indicator will blink light blue, indicating the robot has entered safe start-up mode. <p>If an external emergency stop button has been pressed:</p> <ol style="list-style-type: none"> 1. Release the external e-stop button. <ol style="list-style-type: none"> a. The robot mode indicator lights will blink red. b. After a few seconds, the robot mode indicator will blink light blue, indicating the robot has entered safe start-up mode. <p>If an one of the emergency stop ports has been tripped:</p> <ol style="list-style-type: none"> 1. Plug the wire back to the port. 2. Press, then release the external emergency stop button. <ol style="list-style-type: none"> a. The robot mode indicator lights will blink red. 	Make sure the robot is connected while using HMI	2019 W03
262159	0x0004000F	Error	Software	Delete project failed	The project is broken or does not exists.	Check the project list again whether the project is not existing.	[Precaution] This error would only show on the pop up window, not in the HMI log.	To restore the robot from Error Status : Click on the OK button on the pop up window.	Make sure project is exported successfully before un-plug the usb drive	2018 W51
262161	0x00040011	Error	Motion	Step run failed	The current node has not been set up correctly	<ol style="list-style-type: none"> 1. Check if the issued node is grey in color which means it is still in offline mode 2. Check if the setting of the current node is abnormal 	[Additional Explanation] Motion related node built by TMFlow Editor has no position information which need further set up on a robot	<ol style="list-style-type: none"> 1. Press Stop Button on the robot stick to restore the error status 2. Complete the set up of the current node 	<ol style="list-style-type: none"> 1. Make sure all motion related nodes built from TMFlow Editor has complete settings before step run 2. Make sure all nodes of the project has been set up correctly 	2019 W03
262163	0x00040013	Error	Motion	Change TCP failed	When the TCP data is lost, or the servo check and the TCP data exchange error occurred.	Check if the TCP Setting UI could open that TCP		<ol style="list-style-type: none"> 1. Import the project or TCP data again or 2. Re-et the TCP settings 	<ol style="list-style-type: none"> 1. Make sure the USB devices and import process are stable during importing project and TCP data. 2. Check if the TCP data is existed before uses it. 	2018 W10
262164	0x00040014	Error	System	Generate Prog File failed	System has detected settings of the certain node is invalid	<ol style="list-style-type: none"> 1. Check the error message followed and locate the issued node 2. Check if the issued node is grey in color which means it is still in offline mode 3. Check if the setting of any nodes is abnormal 	[Additional Explanation] Motion related node built by TMFlow Editor has no position information which need further set up on a robot	<ol style="list-style-type: none"> 1. Click Stop on the robot stick to restore the error status 2. Complete the set up of the current node 	<ol style="list-style-type: none"> 1. Make sure all motion related nodes built from TMFlow Editor has complete settings before project run 2. Make sure all nodes of the project has been set up correctly 	2019 W03
262165	0x00040015	Warning	Hardware	Fan rpm less than 1000	System has detected a dysfunction on the CPU Fan	Check if there is any weird noise coming from the Control box	[Additional Explanation] If CPU fan is being stuck or the power cable of the fan is loosen, this error might happen	Contact a qualified service engineer for further analysis	Make sure the robot is installed on a stable platform	2019 W04
262166	0x00040016	User Setting	Error	Invalid Parameter	Input the invalid value in the field in user setting.	<p>Check if</p> <ol style="list-style-type: none"> 1. The Field of setting is empty 2. The format type of value in the field is invalid 	[Additional Explanation] This error usually appears as an pop up window when using, 1. HMI Setting Page 2. Project Flow	Click OK and close the pop up window	Make sure the value in the field is valid during setting	2019 W03
262168	0x00040018	Error	Software	Base is in use	The base is currently used by other nodes, deleting this base will trigger this error	Check if the base is currently used by any nodes	<p>[Additional Explanations] The base is currently used by other nodes (POINTS, NEW BASE, etc.) , deleting this base will trigger this error</p> <p>[Additional Explanation] This error code will only appears on HMI as a pop up window</p>	To restore the robot from Error Status : Click on the OK button on the pop up window.	Make sure the base is not being used by any nodes before deleting it	2018 W51

262172	0x0004001C	Error	Flow	Start Node Not Connected	There is no nodes connected to the Start Node in the Project Flow	1. Check if there is no nodes connected to the Start Node in the Project Flow		1. To restore the robot from Error Status : Press the STOP button on the robot stick, or press the FREE button. 2. Connect the next process Node to the Start Node	Be careful when editing Project Flow	2018 W51
262174	0x0004001E	Error	User Setting	User number over limit	user account has already been login by other client device	Check if someone else has already login with the same account	[Additional Explanation] This error is not likely happens, instead, 0x00040009 (Log In/Out failed) is more often.	Click OK and close the pop up window	Make sure you are the only one use this account while logging in	2019 W03
262175	0x0004001F	Error	User Setting	Ownership has been acquired	Another account gets the Control ownership	Check if there is someone else get the Control ownership with another account	[Additional Explanation] This could only happen if multiple accounts try to get the Control ownership at the same time (nearly) [Additional Explanation] Usually, if one account has already get the Control ownership, the ownership button on other accounts would disable	1. Have the current ownership account release the control first 2. Try getting the Control ownership again	Make sure only one account would get the Control ownership at once	2019 W02
262177	0x00040021	Error	Software	New Base failed	If user edit an exist base which using "by pointing 3 points" function in Base Manager without manual teaching and click OK directly, it might cause this error.	In "Build a Base by 3 points" page, if user did not teach the one of three axis direction in the both option "Point on X axis" and "Point on Surface".	[Additional Explanations] User must to choose and teach one of three axis direction(X,Y,Z) in the settings "Point on X axis" and "Point on Surface".	To restore the robot from Error Status : Click on the OK button on the pop up windows.	Check the base is set correctly by manual operation in the "by pointing 3 points" function page .	2019 W01
262178	0x00040022	Error	User Setting	Compliance teach failed	Teach points in Compliance or Touch Stop node are not able to generate a legal motion	In Compliance or Touch Stop Node, check if the teach points are at the same position or impossible to generate a legal motion	[Precaution] This error would only show the "Calculation failed" on the pop up window, not in the HMI log.	Click on the OK and close the pop window	Make sure the teach points are all suitable and correct.	2018 W10
262179	0x00040023	Error	User Setting	Line teach failed	Teach points in Compliance or Touch Stop node are not able to generate a legal linear motion	In Compliance or Touch Stop Node, check if the teach points are at the same position or impossible to generate a legal linear motion	[Precaution] This error would only show the "Calculation failed" on the pop up window, not in the HMI log.	Click on the OK and close the pop window	Make sure the teach points are all suitable and correct.	2018 W10
262183	0x00040027	Error	External Device	USB Error	Project cannot run in Auto Mode when USB device plugged in the control box.	Check if there is no USB devices plugged on the control box	[Additional Explanation] This error usually happens because the user forgets to remove the USB device from the control box before run the project in Auto Mode	To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button. 3. Remove the USB device from the control box	Make sure all USB devices are removed from the control box before the project runs in Auto Mode.	2019 W01
262186	0x0004002A	Error	Flow	Project does not exist	The target project is not found while running function WARP	Please check if the target project selected in WARP function node is still exist		If the target project of the WARP function node has been deleted or renamed, please reset or erase the node	Please remind when deleting or renaming a project if it is related to other project with WARP function	2018 W49
262187	0x0004002B	System	Error	Project File Load Error	Warp project failed	Check if the target project of the WARP node is damaged or deleted	[Additional Explanation] This project are not likely to be damaged, possibly because of software issue	1. Press the STOP button on the robot stick to restore from error status 2. Export both project files and log file 3. Contact a qualified service engineer for further analysis	Make sure the project used by WARP node exists	2019 W03
262188	0x0004002C	System	Error	Project Compile failed	Unexpected software issue during project compiling	Check if there is any error messages followed	[Additional Explanation] This error occurs if and only if there is an unexpected issue on software	1. Press the STOP button on the robot stick to restore from error status 2. Export the project file and log file 3. Contact a qualified service engineer for further analysis		2019 W03
262189	0x0004002D	Error	System	Project Run failed	System detected an error on Project Flow while the it is running	1. Check the message with this error code; it should specify which node has error 2. Check if there is another error code also occurs	[Additional Explanation] There are lot of cases for this error, such as: 1. Any variables being used in the Project is deleted. 2. Incorrect settings on Pallet node, Circle node, etc. 3. Expressions or settings of If node, Waitfor node, Gateway node are incorrect 4. etc.	To restore the robot from Error Status : 1. Press the STOP button on the robot stick, or 2. Press the FREE button. Follow the message of the error code and correct the error	1. Be careful when deleting variables in Variable Manager. 2. Study and have a full understanding on Node Function, make sure the settings are correct	2018 W51

262190	0x0004002E	info.	System	Project Locked	Fail to get control of the robot during the project running.	1. Check if the robot is controlled by other user 2. Check if the robot is running a project 3. Check if the robot has been released control	[Additional Explanation] This error usually appears as a popped up message in HMI [Additional Explanation] This error usually happens when user wants to use the robot (Project Editing or Controller) while it is running a project.	To restore the robot from Error Status : 1. Click on the OK button on the pop up windows. 2. Stop the running project through pressing the Stop button on Stick 3. Recover to get control of the robot by following steps in HMI : Log in --> Get control	1. Check if the robot is controlled by other user before using the robot. 2. Don't release control of the robot during project-running.	2019 W01
262191	0x0004002F	info.		Connected to a new Proxy Server	TMflow client connects with a robot arm		[Additional Explanation] All robots are servers to TMflow client, this message will be triggered if: 1. The TMflow client is newly opened and connect to a robot at the first time, 2. Connect to another robot			2018 W51
262193	0x00040031	Error	External Device	Force-Torque sensor open failed	Robot detect the Force-Torque sensor occurred error during opening COM port.	Check if the COM port is correct in the Force-Torque sensor devices settings page.	[Precaution] This error would only show on the pop up window, not in the HMI log.	Click on the OK and close the pop window	Make sure the COM port setting is correct before use the Force-Torque sensor.	2018 W10
262197	0x00040035	Error	External Device	Force-Torque sensor data does not response	Robot detect the Force-Torque sensor does not respond.	Check if the COM port cable is loose.	[Additional Explanation] While the Force-Torque sensor is working, if the COM port cable is loose, it would cause this error.	Re-Plug the COM port cable on the robot.	Make sure the COM port cable is stable during robot and Force-Torque sensor are working.	2018 W10
262198	0x00040036	info.		Point Type is Offline	The issued Point node built by TMFlow Editor has not been complete yet	Check if the issued Point node is grey in color which means it is still in offline mode	[Additional Explanation] Point node built by TMFlow Editor has no position information which need further set up on a robot	1. Click Stop on the robot stick to restore the error status 2. Complete the set up of the point node	Make sure all motion related nodes built from TMFlow Editor has complete settings before project run or step run	2019 W03
262199	0x00040037	Error	System	Set watch node failed	System memory is not enough			After restart the robot, if the problem still occurs, contact a qualified service engineer for further analysis.		2018 W10
262200	0x00040038	Error		Node is in offline mode	The current node function created by offline editor has not been complete editing yet	1. Check if the error message following with this error and locate the issue node 2. Check if the node is grey in color which means it is in offline mode	[Additional Explanation] Motion related nodes are all in offline mode if they are created by offline editor, user need to complete the settings before usage [Additional Explanation] This error would be trigger during step run or project run	1. Press STOP button on the robot stick to restore the error status 2. Finish the setting of the node on HMI	Make sure all offline nodes are complete setting on HMI	2019 W02
262202	0x0004003A	Error	User Setting	Over maximum loading	The payload value set exceeds the maximum payload limit	Check if the payload value set exceeds the maximum payload limit	[Precaution] This error would only show on the pop up window, not in the HMI log.	Click on the OK and close the pop window	Check and make sure the payload value set on a node is within the maximum payload limit	2018 W10
262203	0x0004003B	Error	User Setting	Over maximum loading with TCP loading	TCP loading (including Payload setting) is over limit	1. Check the mass of the TCP 2. Check the Payload setting of the related motion node	[Additional Explanation] This error usually shows as a pop up window [Additional Explanation] TCP load is defined as the mass of TCP used plus the Payload setting [Additional Explanation] Instead of motion related nodes, this will also happens on Controller if the Payload setting is over limit	1. Click OK to close the pop up window 2. Modified the related settings	Make sure the mass of TCP and Payload setting are within specification	2019 W02
262402	0x00040102	Warning	User Setting	Host and client version conflict	The software version between the robot (host) and Tmflow.exe (client) is not matched	Check both versions of the robot (host) and the Tmflow.exe on PC (client) if they are matched or not	[Additional Explanation] This is just a warning which means you can still connect to the robot for further control or project editing [Precaution] If the versions are not matched, there would be possibly to trigger unexpected errors for certain functions	1. Click OK to close the pop up window 2. Continue the login or reinstall a matched version	Make sure both versions of the robot (host) and the Tmflow.exe on PC (client) are matched before login	2019 W02

262403	0x00040103	Error	User Setting	Certification does not match. Please get the certification file from the product provider, and put it under TMflow folder located under the installation directory to enable TMflow Editor. Program will be closed automatically.	Certification for the corresponding HMI does not match	1. Check if the certification file on Techman folder is the correct version if this happens on Tmflow.exe 2. Check if the certification file on the USB drive exists or if it is the correct version for HMI update	[Additional Explanation] This error would only happen on robots of OMRON version [Additional Explanation] This error usually shows as a pop up window	1. Click OK to close the pop up window 2. Replace the file with the correct one	Make sure the certification file is correct	2019 W02
266242	0x00041002	Error	System	Internal high speed communication failure	Emergency Stop has been triggered during resuming from a Cat.1 stop	1. Check if the Emergency Switch of the robot stick has been pressed 2. Check if the Emergency port is being tripped	[Additional explanation] 1. Cat. 1 stop usually means Emergency Switch of the robot stick or the Emergency port on the Control Box being tripped 2. During the resuming Cat. 1 (robot LED blinks red), the EtherCAT communication starts initializing and connecting all slaves, if any Emergency Switches are being tripped, power through the robot will cut off which makes the communication can no longer be available.	1. Makes sure any Emergency Related switches have been restored, then reboot the robot 2. If the this issue still occurs, contact your service engineer for further analysis	Prevent to trigger any Emergency Stop switch(es) during the resuming of Cat.1 stop	2018 W51
266243	0x00041003	Error	Motion	Robot motion error	Inverse Kinematics failure	Check if there is any custom base in the current project which may be badly assigned	[Additional Explanation] If the inverse kinematics of the target point is failed to be solved, it may trigger this error [Additional Explanation] This may possibly because the custom base used is badly assigned, e.g., 3 points on the same line	1. To restore the robot from error status: Press the STOP button on the robot stick, or press the FREE button 2. Export the project file and log file to a qualified service engineer for further analysis	Make sure the custom base is well assigned	2019 W01
266248	0x00041008	Error	Motion	Over Working Area	The joint is rotating over its degree setting range or the robot's position exceeds the defined working area.	1. Check to see if the Joint Position on Settings\Safety Settings\Safety Stop Criteria\Joint Position is set with the correct limits 2. Check to see if the Working Area on Settings\Operation Space\Stop Plane is set correctly	[Precaution] It's would also show which joint is exceeds the limit to notice the user to check the Joint Position setting.	To restore the robot from Error Status : 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Make sure the Joint Position on Settings\Safety Settings\Safety Stop Criteria\Joint Position is set with the correct limits 2. Make sure the Working Area on Settings\Operation Space\Stop Plane is set correctly	2018 W49
274435	0x00043003	Vision	Error	Vision Job file error	HMI detected that the vision job file is damaged	Check if the vision job can still be edited through HMI	[Additional Explanation] This error is not likely to happen [Additional Explanation] The vision job file might be damaged if there is an software issue	1. Click Stop on the robot stick to restore the error status 2. Export the project file and log file 3. Contact with a qualified service engineer for further analysis		2019 W03
274436	0x00043004	Vision	Error	Vision job file not found	vision job file is damaged or deleted	Check if the vision job can still be edited through HMI	[Additional Explanation] This error is not likely to happen [Additional Explanation] The vision job file might be damaged or deleted if there is an software issue	1. Click Stop on the robot stick to restore the error status 2. Export the project file and log file 3. Contact with a qualified service engineer for further analysis		2019 W03
274438	0x00043006	Error	Hardware	Vision reply message error	The camera's usb cable connection is loosen during project running.		[Additional Explanations] This error is not likely to happen if the robot is not being dismantling illegally	1. Export the Logs 2. Contact a qualified service engineer for further analysis	Make sure only the qualified engineer could do any repairing on the hardware	2019 W02

274443	0x0004300B	Error	VISION	Vision actioner reply data is not applicable	Calculation of coordinate or arm posture correction occurs error.	Check the other error code come along with it.	[Additional Explanation] This error does not likely happen, low possibility.	1. Click Stop on the robot stick to restore the error status 2. Run the project again 3. If this error still happens, contact a qualified service engineer for further analysis		2019 W03
278528	0x00044000	info.		Modbus object initializing	Modbus-TCP failed to initialize during power-on	1. Check if the Ethernet cable is loosen 2. Check if the Ethernet Connection is not on the general usage LAN port (not those 2 for GigE Camera)	[Additional Explanation] Modbus can only be initialized if the general usage LAN port (not those 2 for GigE Camera) is activated during power-on	1. Connect the general usage LAN with Ethernet 2. Disable and then Enable Modbus at Setting/Modbus	Make sure the general usage LAN port (not those 2 for GigE Camera) has been connected to Ethernet before power-on	2019 W01
278531	0x00044003	info.	com.	Modbus data wrote	Program exception during Modbus writing	1. Export the log and project file 2. Contact a qualified service engineer	[Additional Explanation] This error is not likely happens, only if there is a software issue			2019 W02
278533	0x00044005	info.		Modbus serial port open	Modbus-RTU failed to initialize during power-on	1. Check if the Serial Port cable is loosen 2. Check if any Rs232 related device is loosen	[Additional Explanation] This usually happens if USB - Rs232 convertor is used that an extra COM port is used for Modbus-RTU. If the cable or converter is unplugged, the extra COM-port would be disable and trigger this error	1. Connect all related rs232 cable or convertor onto the Control Box 2. Disable and then Enable Modbus at Setting/Modbus	1. It is suggested not to use USB-Rs232 convertor for Modbus-RTU 2. Make sure cable or convertor used is plug well before power on	2019 W01
282624	0x00045000	Error	External Device	USB with correct name does not exist	The system detected a disconnection on the USB drive during the process of Import/Export	1. Check if the USB drive is plugged well onto the control box. 2. If the USB drive is plugged well, try another USB drive and see if the same issue happens during Export/Import. 3. Check if there are other USB devices on the control box, remove them and try again	[Additional Explanation] If the USB drive is confirmed to be plugged well, that means this error maybe caused by USB or USB port hardware/firmware issue	1. To restore the robot from Error Status : Press the STOP button on the robot stick, or press the FREE button. 2. Make sure the USB drive is well connected to the control box 3. Try Import/Export again	1. Avoid removing the USB drive during the process of Import/Export 2. After finishing the process of export/ import job, wait for a few seconds before unplugging the USB drive	2018 W50
282625	0x00045001	Error	Software	No Space for External Device	External drive do not have enough free space for user export data.	Check if the disk space is insufficient.	[Additional Explanations] If user wants to export a very large data from robot, the external devices needs a sufficient free space.	To restore the robot from Error Status : Find another usb which has enough space for data export.	Check the external devices which has enough space for data export.	2018 W51
282627	0x00045003	Error	com.	Data exchange failed. File may be accessed.	The compressed file in the USB drive had been damaged and the system failed to import it	1. Check if the compressed file in the USB drive is damaged by trying to unzip; if it is damaged, there would be a related message. 2. Check if that file fails to be imported to this robot only. 3. Check if other files in the USB drive also have the same issue.	[Additional Explanation] 1. Removing the USB drive too quickly just after exporting a file (even with the message of "Export successfully") might damage it	1. To restore the robot from Error Status : Press the STOP button on the robot stick, or Press the FREE button.	1. After exporting the file, keep the USB drive still for a few seconds before unplugging it from the control box	2018 W50
282628	0x00045004	Error	Com.	File not found	Robot detect the file can not be accessed or executed.		[Additional Explanation] When the robot can not access the data from project 、 system update、 backup/recovery、 Path node file ...etc, it would cause this error.	1. Click on the OK button on the pop windows. 2. Press STOP button on the robot stick. 3. Contact your service engineer and export the Logs for further analysis.		2018 W10
282629	0x00045005	Error	Com.	Read data file failed	Robot detect the file can not be accessed or executed.		[Precaution] This error would only show on the pop up window, not in the HMI log.	1.Click on the OK and close the pop window. 2.Contact your service engineer and export the Logs for further analysis.		2018 W10
282630	0x00045006	Error	Com.	Client connect server failed	TM client fails to connect to the robot(server)	Check if the network connection/cable between robot and client is stable.	[Additional Explanation] Abnormal socket disconnection would cause program error exception while the program is running between robot and client.	Press STOP button on the robot stick	Make sure the network connection/cable is stable during the connection process.	2018 W10

282631	0x00045007	Error	Com.	Client connection failed	The connection between robot and the TM clients is failed.	Check if the network connection/cable between robot and client is stable.	[Additional Explanation] Abnormal socket disconnection would cause program error exception while the program is running between robot and client.	Press STOP button on the robot stick	Make sure the network connection/cable is stable during the connection process.	2018 W10
282632	0x00045008	Error	Com.	Client send command failed	The communication between robot and the TM client is failed.	Check if the network connection/cable between robot and client is stable.	[Additional Explanation] Abnormal socket disconnection would cause program error exception while the program is running between robot and client.	Press STOP button on the robot stick	Make sure the network connection/cable is stable during the connection process.	2018 W10
282634	0x0004500A	Error	Com.	TCP listener error	HMI client and HMI server is disconnection.	Check if there is any follow up error logs or messages with this error code.		1. Press STOP button on the robot stick. 2. Contact your service engineer and export the Logs for further analysis.		2018 W10
282635	0x0004500B	Error	Com.	Configure network failed	Robot detect the network path settings is wrong or can not be accessed.	1.Check if the network path in the export/import is correct. 2.Check if the network cable is loose.	[Additional Explanation] Abnormal network disconnection would cause data transfer failed.	1. Click on the OK button and close the pop window. 2. Press STOP button on the robot stick.	Make sure the network setting/cable are correct and stable before/during the data transfer process.	2018 W10
282636	0x0004500C	Hardware	Error	No Space for Application Directory	The space of system drive is not enough.	Check if have the enough space of the system drive (for TMFlow.exe on PC)	[Additional Explanation] This error usually appears in HMI during Import/Export files if there is not enough space in the system	To restore the robot from Error Status : (Import/Export) 1. Click on the OK button on the pop up windows. 2. Stop the running project through pressing the Stop button on Stick 3. Clear some data and reserve enough free space for use.	Make sure there is enough space for storage on the system	2019 W02
282880	0x00045100	Error	Software	Incomplete update	HMI update failed	1. Shutdown and power on the system again to see if this error still appears	[Additional Explanation] If the update is interrupted during process, such as, closing the execution windows, restart or power off the system manually, power cut-off, etc.; this might cause the control box and robot's firmware update incomplete and failed.	Contact a qualified service engineer for further analysis	Avoid any interruption during HMI update: 1. Do not cut off the power during process 2. Do not close the execution windows during process 3. Do not close or restart the system manually during process	2018 W50
294912	0x00048000	Error	Flow	Invalid syntax error	HMI detected an array assignment error.	Check if any array has been assigned with the different data type variables	[Additional Explanation] This error usually appears as a popped up message in HMI [Additional Explanation] This error usually happens because the user assign ("=") the mismatching data type to array in the flow. i.e. int[]/ var_arrayA = bool[]/var_arrayB i.e. int[]/ var_arrayA = bool/var_b i.e. bool[]/ var_arrayB = int[]/ var_arrayA i.e. bool[]/ var_arrayB = int/var_i	To restore the robot from Error Status : 1. Click on the OK button on the pop up windows.	Make sure all arrays are assigned correctly by data type, such as (1) int[]/ var_arrayA = int[]/var_arrayB ==> (arrayA == arrayB) (2) int[]/ var_arrayA = int[]/var_arrayB[0] ==> (arrayA == arrayB[0])	2019 W01
294913	0x00048001	Flow	Error	Invalid number format	Value assigned is in invalid number format	Check if the value assigned to a variable is valid format type.	[Additional Explanation] For number format, Incorrect: 0x12CG // Hex includes values(0-9, A-F). 「 G 」 is invalid. 0b1212 // Binary includes values(0, 1). 「 2 」 is invalid. Correct: 0x12CF // Hex value is valid. 0b1110 // Binary value is valid. [Additional Explanation] This error usually appears in 1. The project file is generated by 3rd party flow editor 2. The input format error in Listen Node 3. In flow editing, it usually appears with a pop-up windows with warning message 「 Invalid Value 」	To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button 3. Input the valid number format if it appears the pop-up windows with warning message 「 Invalid Value 」 , click OK to close it	Make sure the variables used are with a valid number format.	2019 W03

294914	0x00048002	Flow	Error	Duplicated cases of switch	There are repeated cases in the conditional expression in project.	Check if this error is triggered in the following items 1. SET Node 2. Listen Node	[Additional Explanation] This error usually appears if 1. The project file is generated by 3rd party flow editor 2. The input format to Listen Node is incorrect	1. Click Stop on the robot stick to restore the error status 2. Remove the repeated cases in the conditional expression	Make sure there is no repeated cases in the conditional expressions in the project.	2019 W03
294915	0x00048003	Flow	Error	Duplicate declaration	There are variables created with the repeated name in project.	Check if there are variables with the same name.	[Additional Explanation] This error usually appears if 1. The project file is generated by 3rd party flow editor 2. The input format to Listen Node is incorrect 3. In flow editing, it usually appears with a pop-up windows with warning message 「 Variable Name Repeat 」	1. Press the STOP button on the robot stick, or 2. if this error appears as a pop-up windows with the error message 「 Variable Name Repeat 」, click OK to close it 3. Remove the variable with repeated name	Make sure there is no repeated variables in the project.	2019 W03
294916	0x00048004	Error	Flow	Invalid expression error	An invalid expression is found within the current Project	1. Check the description with this error, which shows the error node and the expression with it 2. Check if that expression is invalid or not	[Additional Explanation] This error would be shown on either pop out window on HMI or Notice Log	To restore the robot from Error Status : 1. Click on the OK button on the pop up windows. 2. Correct the expression	1. Have fully understanding on expression functions before programming 2. Make sure all expressions are correct 3. Make sure the variables used in expressions would not set to invalid value during project run	2018 W52
294918	0x00048006	Error	Flow	Undefined functions	Undefined functions in the expression editor	1. Follow the description on the log and check to see if the variable names and function syntax are correct 2. Check to see if any variables used in the expression editor have been deleted from the Variable Manager	[Additional Explanation] This error usually appears as a popped up message in HMI	Confirm that the variables used in the expression editor exist and that the proper function syntax has been followed	1. Make sure to use proper variable names and syntax within the expression editor according to the current HMI version 2. Avoid deleting variables that are still in use	2018 W49
294919	0x00048007	Flow	Error	Function operation is not allowed	Invalid expression	In SET node, It is invalid in the expression with the form: int\var_i= GetNow()+=10 (Functions with the following operands : 「 += 」 、 「 -= 」 、 「 *= 」 、 「 /= 」)	[Additional Explanation] This error usually appears in 1. The project file is generated by 3rd party flow editor 2. In flow editing, it usually appears with a pop-up windows with warning message 「 Function operation is not allowed 」	1. Press the STOP button on the robot stick, or 2. if this error appears as pop-up windows with the error message 「 Function operation is not allowed 」, click OK to close it 3. Remove the invalid operand (「 += 」 、 「 -= 」 、 「 *= 」 、 「 /= 」) triggering the error	Make sure all expressions all correct	2019 W03
294920	0x00048008	Error	Flow	Array operation is not allowed	The expression is assigned with an invalid operator in array operations.	Check if there is any missing index of the array. Or an incorrect operator has been chosen	[Precaution] This error would only show on the pop up windows, not in the HMI log. [Additional Explanations] The error code is often triggered between two arrays' operation without index assigning: In assignment expression of project node (SET). Incorrect operators: (" += ", " -= ", " *= ", " /= ") (i.e. var_array_A += var_array_B) Correct operators: (" = ") (i.e. var_array_A = var_array_B) In comparison expression of project node (IF). Incorrect operators: (" > ", " >= ", " < ", " <= ") (i.e. var_array_A >= var_array_B) Correct operators: (" == " or " != ") (i.e. var_array_A == var_array_B)	To restore the robot from Error Status : Click on the OK button on the pop up windows then assign the suitable operators.	Makes sure all assignment and comparison expressions have the valid operator.	2018 W52

294921	0x00048009	Error	Flow	Array Index is not an integer number	The index used on a array variable is not a integer	Check if any variables used as an array index in the project is assigned to be a null value or a non-integral value	[Additional explanation] The variable used as an array index is invalid in value possibly by initialization or assigned by SET node during project run [Additional Explanation] If the variable used as an array index is deleted, the value will become null	1. Press STOP button on the robot stick, or press free robot button. 2. Then you can find the robot LED shows green color	Make sure before you delete any variable in the project, check if it is as an array index or not	2018 W51
294922	0x0004800A	Error	Flow	Calculation is not a Number	The expression is assigned with an invalid operand.	Check if the operands of the related expression (which operators are: "=", ">=", "<==", etc.) are assigned the number type value or variable in the current project node (SET, IF, etc.)	[Precaution] This error would only show on the pop up windows, not in the HMI log.	To restore the robot from Error Status : Click on the OK button on the pop up windows then assign the number type value or variable to the operands.	Makes sure all expressions have the valid operand.	2018 W52
294923	0x0004800B	Error	Flow	Calculation is not an Integer Number	The expression is assigned with an invalid operand.	Check if the value or variable is integer type after the complement operator ("~") in the current project node (SET, IF, etc.)	[Precaution] This error would only show on the pop up windows, not in the HMI log.	To restore the robot from Error Status : Click on the OK button on the pop up windows then assign the integer type value or variable to the operand after the complement operator.	Makes sure all expressions with the complement operator have the valid operand.	2018 W52
294924	0x0004800C	Error	Flow	Calculation is not a Variables	System detected an error on Project Flow while the it is running, which is mostly because some variables are missing.	1. Check the message with this error code; it should specify which node has error 2. Check if there is another error code also occurs	[Additional Explanation] Remind of the following cases: 1. Variables created by Pallet node have been deleted manually. 2. Variables used in any expression (If, Waitfor, Gateway, etc.) have been deleted manually. 3. Global variables used in the current robot will not be exported with the project; user need to create the same Global variable or export them separately 4. etc.	To restore the robot from Error Status : 1. Press the STOP button on the robot stick, or 2. Press the FREE button. Follow the message of the error code and correct the error	1. Be careful when deleting variables in Variable Manager. 2. Study and have a full understanding on Node Function, make sure the settings are correct	2018 W51
294925	0x0004800D	Flow	Error	Calculation is not an Integer Variables	In the expression, the data type of variable assignment error.	Check if the operand 「++」 or 「--」 are used properly with integer data type	[Additional Explanation] This error usually happens in a SET Node. The operands 「++」 、 「--」 are only used by integer variable. (i.e. var A: A++ 、 A-- 、 ++A 、 --A)	1. Click OK and close the popped up windows 2. Correct the data type of variable as integer type in expression	Make sure the operand 「++」 or 「--」 are used properly with integer data type	2019 W03
294926	0x0004800E	Error	Software	Calculation is not a Boolean	the item following the symbol "!" is invalid in an expression which is supposed to be a Boolean type object (or variable)	Check if the subject after the symbol "!" is a Boolean type object or not	[Precaution] This error would only show on the pop up windows, not in the HMI log.	To restore the robot from Error Status : 1. Click on the OK button on the pop up windows. 2. Correct the expression	Check and confirm the type is correct while creating an expression.	2018 W52
294927	0x0004800F	Error	Flow	Data type is different, can not assign operation	The expression is assigned with an invalid operand.	Check if the operand in the left side of the assignment operator (" = ") is type matching with the right side one in the current project node (SET)	[Precaution] This error would only show on the pop up windows, not in the HMI log.	To restore the robot from Error Status : Click on the OK button on the pop up windows then assign the same type value or variable to the operand in the expression.	Makes sure all assignment of expressions have the valid type-matching operand.	2018 W52
294928	0x00048010	Error	Software	Data type is different, can not compare operation	There is an invalid usage on an expression	Check if the data type is matched from both sides of an expression, especially on an IF node	[Precaution] This error would only show on the pop up windows, not in the HMI log. [Additional Explanation] This error would be triggered if there is an invalid symbol usage and only have it on an expression, for example: string == ###	To restore the robot from Error Status : 1. Click on the OK button on the pop up windows. 2. Correct the expression	Check and confirm the type is correct while creating an expression.	2018 W52
294929	0x00048011	Error	Flow	Invalid Number Range	The operand in the expression is assigned a number out of range .	Check if an integer type operand is assigned a number large than 2147483647 in the current project node (SET).	[Precaution] This error would possibly show on the pop up windows.	To restore the robot from Error Status : Click on the OK button on the pop up windows then assign an integer number less than 2147483648 to the operand.	Makes sure all assignment of expressions have the valid operand with the appropriate value.	2018 W52
294930	0x00048012	Error	Software	Missing Right Parentheses	The expression has missing the right parentheses.	Check the expression in the current project node (SET, IF, WAITFOR, etc.) whether the expression misses any parentheses.	[Precaution] This error would only show on the pop up windows, not in the HMI log.	To restore the robot from Error Status : Click on the OK button on the pop up windows then make up a right parentheses.	Makes sure all expressions has the right parentheses.	2018 W51
294931	0x00048013	Error	Flow	Missing Right Brackets	The expression has missing the right Bracket when access the array data with index.	Check the expression in the current project node (SET, IF, WAITFOR, etc.) whether the expression misses any bracket on the right side.	[Precaution] This error would only show on the pop up windows, not in the HMI log.	To restore the robot from Error Status : Click on the OK button on the pop up windows then make up a right Brackets.	Makes sure all expressions has right Brackets.	2018 W52
294932	0x00048014	Error	Flow	Missing Right Brace	The expression has missing the right Brace.	Check the expression in the current project node (SET, IF, WAITFOR, etc.) whether the expression misses any Brace.	[Precaution] This error would only show on the pop up windows, not in the HMI log.	To restore the robot from Error Status : Click on the OK button on the pop up windows then make up a right Brace.	Makes sure all expressions has the right Brace.	2018 W52

294933	0x00048015	Error	Flow	Target Node is not exist	PLAY being triggered just after stopping a project	1. Check if the PLAY button has been triggered just after stopping a project 2. Check if there is any external device trigger PLAY with I/O or Modbus	[Additional Explanation] This error does not likely happen, low possibility [Additional Explanation] PLAY can be triggered by either robot stick, configurable IO or Modbus	1. Click Stop on the robot stick to restore the error status 2. Run the project again 3. If this error still happens, contact a qualified service engineer for further analysis	Make sure not to trigger PLAY just after stopping a project, have a buffer of few seconds	2019 W03
294934	0x00048016	info.	Flow	Division by Zero	The HMI detected a division calculation error during the project running	1. Check if any variables as a divisor in the project is assigned a value zero by initial setting or during process	[Additional Explanation] It often occurs in the division expression of SET and Display Node, or in the Boolean expression of IF and Gateway Node in the project flow	To restore the robot from Error Status : Press the STOP button on the robot stick, or press the FREE button.	1. Designing a program mechanism examines that every variable as a divisor and prevent it running if it is assigned zero	2018 W50
294935	0x00048017	info.	Flow	Modulo by Zero	Project Flow contains expression modulo by zero	1. Check if any variable used as the divisor of a modulo expression could possibly change to zero during project run	[Additional Explanation] Usually, HMI will block the expression (warning message) if it is directly as, e.g., "var_result = var_num1%0"; however, if the expression is written as, e.g., "var_result = var_num1%var_num2", if var_num changes to 0 during project run will trigger this error.	1. To restore the robot from Error Status : Press the STOP button on the robot stick, or press the FREE button. 2. Correct the issued expression(s)	Make sure the variables used as the divisor will never be zero, either by initialization or	2018 W51
294936	0x00048018	Error	Flow	Invalid Array Index	The HMI detected an invalid index used on a array variable during project run	Check if the value any variables used as an array index is out of range or a negative quantity	[Additional explanation] The variable used as an array index is invalid in value possibly by initialization or assigned by SET node during project run	To restore the robot from Error Status : 1. Press the STOP button on the robot stick, or 2. Press the FREE button.	1. Make the initial value of all index variables is correct 2. Make sure the value of all index variables would not be change incorrectly by any SET node	2018 W51
294939	0x0004801B	Error	Flow	Invalid Number Value	The operand in the assignment expression is assigned with a different type number.	Check if the operand on the left side of the assignment operator (" = ") is type matching with the right side one in the current project node (SET)	[Precaution] An error message 『Warning for Number Value maybe missing』 would show on the pop up windows when project is edited. If ignore it, this error code would show with the warning message in the HMI log during project running. [Additional Explanation] Number related expression should have the following instruction when using different types, i.e. : Correct : 1. double = int 2. float = int 3. double = float Incorrect : 1. int = double 2. int = float 3. float = double	To restore the robot from Error Status : 1. Press the STOP button on the robot stick, or 2. Press the FREE button. 3. Then assign the same type number value or variable to the operands in the expression.	Makes sure all assignment expressions have the valid type-matching number operands.	2019 W02
294940	0x0004801C	Error	External Device	Force-Torque sensor open failed	System cannot detect the sensor through serial port	Check if the USB-Serial converter cable is loosen	[Additional Explanation] This error only happens on force control related node (smart insert, polish, etc) using force torque with rs232 interface [Additional Explanation] COM Port generated by USB-Serial convertor would be deleted if the cable is loosen [Precaution] The Serial Port number might change if the convertor is plugged onto a different usb port	1. Press Stop Button on the robot stick to restore the error status 2. Reconnect the convertor back to the SAME usb port	1. It is not suggested to use USB-Serial convertor 2. If it is necessary, please make sure the convertor is always plugged well	2019 W11

294941	0x0004801D	Error	Com.	Modbus open failed	System failed to open a Modbus master	<p>1. Check if the robot is connected to the network, including wire connection, and the quality of the network</p> <p>2. Check if the Setting\Network Setting is correct or not (if using Modbus TCP)</p> <p>3. Check if the settings on Modbus TCP Device is correct or not , including: ip address, port, address, signal type, etc.</p> <p>4. Check if the settings on Modbus RTU Device is correct or not , including: ComPort, BaulRate, DataBits, StopBits, ParityCheck, address, signal type, etc.</p>	<p>[Additional Explanation] For Modbus TCP, this usually happens because the robot is not connected to the network or network settings (especially, IP Address and Port)</p> <p>[Additional Explanation] For Modbus RTU, this usually happens because the ComPort selected has already been used by other functions (normal usage on Serial Port)</p>	<p>1. Confirm and restore the network, then enable Modbus again on Settings\Modbus</p> <p>2. Confirm and correct the settings of Modbus Devices, then enable Modbus again on Settings\Modbus</p>	<p>1. Regularly check the quality of the network, including hardware.</p> <p>2. It is suggested to have knowledge on Modbus before usage</p>	2018 W50
294943	0x0004801F	Error	Flow	Exception Error	Unexpected software issue	<p>Check if there is any error messages followed</p>	<p>[Additional Explanation] This error occurs if and only if there is an unexpected issue on software</p>	<p>1. Export the project file and log file</p> <p>2. Contact with a qualified service engineer for further analysis</p>		2019 W03
294944	0x00048020	Error	Com.	Modbus read failed	System failed to read data through Modbus	<p>1. Check if the robot is connected to the network, including wire connection, and the quality of the network</p> <p>2. Check if the Setting\Network Setting is correct or not (if using Modbus TCP)</p> <p>3. Check if the settings on Modbus TCP Device is correct or not , including: ip address, port, address, signal type, etc.</p> <p>4. Check if the settings on Modbus RTU Device is correct or not , including: ComPort, BaulRate, DataBits, StopBits, ParityCheck, address, signal type, etc.</p>		<p>1. Confirm and restore the network, then enable Modbus again on Settings\Modbus</p> <p>2. Confirm and correct the settings of Modbus Devices, then enable Modbus again on Settings\Modbus</p>	<p>1. Regularly check the quality of the network, including hardware.</p> <p>2. It is suggested to have knowledge on Modbus before usage</p>	2018 W50
294945	0x00048021	Error	Com.	Modbus write failed	System failed to write data through Modbus	<p>1. Check if the robot is connected to the network, including wire connection, and the quality of the network</p> <p>2. Check if the Setting\Network Setting is correct or not (if using Modbus TCP)</p> <p>3. Check if the settings on Modbus TCP Device is correct or not , including: ip address, port, address, signal type, etc.</p> <p>4. Check if the settings on Modbus RTU Device is correct or not , including: ComPort, BaulRate, DataBits, StopBits, ParityCheck, address, signal type, etc.</p>		<p>1. Confirm and restore the network, then enable Modbus again on Settings\Modbus</p> <p>2. Confirm and correct the settings of Modbus Devices, then enable Modbus again on Settings\Modbus</p>	<p>1. Regularly check the quality of the network, including hardware.</p> <p>2. It is suggested to have knowledge on Modbus before usage</p>	2018 W50
296449	0x00048601	Warning	Flow	Warning Counter	HMI detected that one or more Warning situations during the project running.	<p>The value of n in the string "Warning Counter(n)" showing in the HMI log displays that how many warning situations have during the project running.</p>	<p>[Additional Explanation] Some warning information usually appears as a popped up message during flow editing, but the HMI could endure these warnings.</p> <p>If ignore it, the HMI log still shows these warnings to user during running the project.</p> <p>These warnings may be the following below: (1) Warning for String Format (2) Warning for Number Value maybe missing (3) ..etc.</p>	<p>To restore the robot from Warning Status : (in flow editing) Click on the OK button on the pop up windows.</p> <p>(in project running) Stop the running project through pressing the Stop button on Stick</p> <p>3. Check these warnings one by one and clear them.</p>	<p>Check if data type mismatch of assignment variables in the flow.</p>	2019 W01

296450	0x00048602	Warning	Flow	Warning for String Format	System detected the text characters that may be strings but are without double quotes	1. Check if there are any strings used in the expression editor that have no double quotes 2. Check to see if any variables used in the expression editor have been deleted from the Variable Manager	[Additional Explanation] This error usually appears as a popped up message in HMI	Confirm that there are double quotes around all strings and that all variables used in the expression editor exist	1. Make sure to use double quotes when defining strings 2. Avoid deleting variables that are still in use	2018 W49
296451	0x00048603	Warning	Flow	Warning for Number Value maybe missing	The operand in the assignment expression is assigned with a different type number.	Check if the operand in the left side of the assignment operator (" = ") is type matching with the right side one in the current project node (SET)	[Precaution] This error would show on the pop up windows, not in the HMI log. [Additional Explanation] Number related expression should have the following instruction when using different types, i.e. : Correct : 1. double = int, 2. float = int 3. double = float Incorrect : 1. int = double 2. int = float 3. float = double	To restore the robot from Error Status : Click on the OK button on the pop up windows then assign the same type number value or variable to the operands in the expression.	Makes sure all assignment expressions have the valid type-matching number operands.	2018 W52
296452	0x00048604	Flow	Warning	Warning for String Format include Variables	A string type variable with single quotation marks(' ')	Check if there is any single quotation marks is used in the issued expression	[Additional Explanation] This error usually appears as a popped up message in HMI [Additional Explanation] This error usually happens in a SET Node, a variable with single quotation marks (i.e. String s1 = 'var_s2') If ignore the warning message window, and running the project, this error code will show in the HMI log with the warning message 「Warning for String Format」	To restore the robot from error status: Flow editing 1.Click OK on the popped up windows 2. Delete the single quotation marks, or ignore it Project running 1.Click the stop button on the stick 2. Delete the single quotation marks in a SET node, or ignore it	When editing in flow or before project running, make sure why to use a variable with the single quotation marks.	2019 W03
296453	0x00048605	Flow	Warning	Warning for Network path could not be access	Network address is not available on Log node	1. Check the network setting on Log node if the address is accessible 2. Check if the network target requires any advanced authority 3. Check if there is any other issue on the network, such as loosen Ethernet cable	[Additional Explanation] This error usually appears in 1. Log node in project flow 2. The local network path format (i.e. \\192.168.1.1\sharedfolder) This error would be triggered when system fails to connect to the network path	To restore the robot from error status: 1. Press the STOP button on the robot stick, or 2. Press the FREE button 3. Make sure the network path could be access	Make sure the network is accessible	2019 W03