| | Indicator status | | | | | Category | Error name | Error code | Probable cause | Clearing method | Operation after error |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | RUN | ERC | ERH | ERM | MLK | | | | | | |
| CPU Unit errors | Lit | Flashing | Lit | Not lit | Not lit | CPU Unit error | CPU fatal error | 000A | An error causing the CPU Unit to stop has occurred. | Remove the cause of the CPU Unit stopping. | Connection released after deceleration stop |
| | | | | | | | CPU Unit watchdog timer error | 000B | The CPU Unit system is not operating correctly. | Make sure that the CPU Unit and PCU are installed correctly, and turn the power OFF and ON again. If the error occurs again, replace the CPU Unit. | Connection released after deceleration stop |
| | | | | | | | CPU Unit monitor error | 000C | The cyclic refresh from the CPU Unit to the PCU has stopped. | Check the error status of the CPU Unit and perform appropriate error processing. After restarting the cyclic refresh with the CPU Unit, execute PCU's ERROR RESET. | Connection released after deceleration stop |
| | | | | | | | Bus error | 000D | PLC bus operation error | Make sure that the CPU Unit and PCU are installed correctly, and turn the power OFF and ON again. If the error occurs again, replace the CPU Unit. | Connection released after deceleration stop |
| PCU internal errors | Lit | Lit | Not lit | Not lit | Not lit | Unit error | MLK device error | 0026 | An error has occurred in the internal circuits of the PCU. | Replace the PCU. | System stopped |
| | | | | | | | MLK device initialization error | 0030 | An error has been detected in the MECHATROLINK communications part during PCU initialization processing. | Check the MECHATROLINK communications settings in the Common Parameters, and then restart the Unit or turn the power OFF and ON again. If the error occurs again, replace the PCU. | System stopped |
| | | | | | | Data corrupted | Memory error | 00F1 | The data saved in the PCU is corrupted. | Transfer and save the PCU data again, and then restart the Unit or turn the power OFF and ON again. If the error occurs again, replace the PCU. | System stopped |
| MECHATROLINK communications errors | Lit | Flashing | Not lit | Lit | Undetermined | Scan list mismatch | MLK initialization error | 0020 | The MECHATROLINK slave station device corresponding to the axis number registered in the PCU scan list is not connected. | Check whether the settings for the MECHATROLINK communications line connection or slave device's station address match the settings in the scan list, and then execute CONNECT again. | Maintains (Axes that have a connection established cannot be operated.) |
| | | | | | | Communications error | MLK communications error | 0025 | MECHATROLINK communications cannot be performed correctly, or two or more MECHATROLINK slave station devices are using the same station number. | Check the connection of the MECHATROLINK communications cable. After removing the noise or other the cause preventing communications, restart the PCU. | Connection released suddenly |

| | Indicator status | | | | | Category | Error name | Error code | Probable cause | Clearing method | Operation after error |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **RUN** | **ERC** | **ERH** | **ERM** | **MLK** | | | | | | |
| PCU settings and operations errors | Lit | Flashing | Not lit | Not lit | Undetermined | Illegal operation | Multistart error | 0021 | An operation command that cannot be executed has been sent to the PCU. | The operation command that was sent cannot be executed. Check the last command timing and change the operation sequence. | Maintains |
| | | | | | | Illegal data | Write transfer error | 0022 | An attempt has been made for the PCU to write data to an illegal address, or to write data using an illegal data size. | The data transfer for the command cannot be executed. Check the contents of the last command, and correct the data transfer settings. | Maintains |
| | | | | | | | Read transfer error | 0023 | An attempt has been made for the PCU to read data from an illegal address, or to read data with an illegal data size. | The data transfer for the command cannot be executed. Check the contents of the last command, and correct the data transfer settings. | Maintains |
| | | | | | | | Transfer cycle setting error | 0027 | The set value for the transfer cycle set in the PCU's Common Parameters is too small for the number and type of connected MECHATROLINK devices or the maximum axis number. | Set and save a transfer cycle set value in the Common Parameters that is suitable for the number and type of connected MECHATROLINK devices and the maximum axis number, and then restart the PCU. | Connection released suddenly |
| | | | | | | | Initialization common parameter check error | 0028 | An illegal set value has been detected in the Common Parameters during PCU initialization. | When this error occurs, the corresponding setting in the Common Parameters is set to the default value (0). After executing ERROR RESET, transfer and save the correct Common Parameter setting and restart the PCU. | Maintains |
| | | | | | | | Data transfer common parameter check error | 0029 | An illegal set value in the Common Parameters was transferred to the PCU using WRITE DATA. | The transferred set value is discarded and the set value in the Common Parameters before the transfer is restored. After executing ERROR RESET, transfer the correct Common Parameters setting. | Maintains |

## Individual Axis Errors

| | Indicator status | | | | | Category | Error name | Error code | Probable cause | Clearing method | Operation after error |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **RUN** | **ERC** | **ERH** | **ERM** | **MLK** | | | | | | |
| MECHATROLINK communications errors | Lit | Flashing | Not lit | Lit | Undetermined | Communications error | Synchronous communications alarm | 3010 | MECHATROLINK communications cannot be performed correctly with the corresponding axis. | Check the connection of the MECHATROLINK communications cable. After removing the cause preventing communications, such as breaks or noise in the connection, execute CONNECT again. | Operation stops according to the method used when the Servo Driver alarm occurs. (The PCU executes DECELERATION STOP.) Operation of the corresponding axis is prohibited. |
| | | | | | | | Communications alarm | 3011 | MECHATROLINK communications cannot be performed correctly with the corresponding axis. | Check the connection of the MECHATROLINK communications cable. After removing the cause preventing communications, such as breaks or noise in the connection, execute CONNECT again. | Operation stops according to the method set in the Servo Driver for alarms. (The PCU executes DECELERATION STOP.) Operation of the corresponding axis is prohibited. |
| | | | | | | | Command timeout | 3012 | No MECHATROLINK communications response has been received from the corresponding axis. When connected to an R88D-WN☐-ML2 Servo Driver, this error will occur if a Servo Parameter is transferred with an illegal parameter size. | After checking that no error has occurred in the MECHATROLINK device connected to the corresponding axis, execute CONNECT again. If this error occurs when transferring a Servo Parameter to the R88D-WN☐-ML2 Servo Driver, check whether the Servo Parameter is being transferred with an illegal parameter size. | Operation stops according to the method used when the Servo Driver alarm occurs. (The PCU executes DECELERATION STOP.) Operation of the corresponding axis is prohibited. |

| | Indicator status | | | | | Category | Error name | Error code | Probable cause | Clearing method | Operation after error |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **RUN** | **ERC** | **ERH** | **ERM** | **MLK** | | | | | | |
| PCU settings and operation errors | Lit | Flashing | Not lit | Not lit | Lit | Illegal operation | Present position unknown error | 3030 | ABSOLUTE MOVEMENT or ORIGIN RETURN was executed before the origin was established. | Execute ORIGIN SEARCH or PRESENT POSITION PRESET and after defining the origin, execute the previously unsuccessful command again. | Deceleration stop |
| | | | | | | | Servo unlock error | 3040 | A command to start the axis was executed while in Servo unlock status. | Execute the SERVO LOCK and then execute the previously unsuccessful command again. | The command to start the axis is ignored and the Servo Driver remains in Servo unlock status. |
| | | | | | | | Multistart error | 3050 | An attempt was made to execute two or more of the following commands at the same time for the same axis. ABSOLUTE MOVEMENT, RELATIVE MOVEMENT, ORIGIN SEARCH, ORIGIN RETURN, PRESENT POSITION PRESET, JOG, SPEED CONTROL, TORQUE CONTROL, or DEVICE SETUP | After editing the ladder program so that multiple command bits do not turn ON at the same time for the same axis, execute the previously unsuccessful command again. | Deceleration stop |
| | | | | | | | | | An attempt was made to execute one of the following commands for a busy axis. ORIGIN SEARCH, ORIGIN RETURN, PRESENT POSITION PRESET, JOG, or DEVICE SETUP | After editing the ladder program so that command bits do not turn ON for a busy axis, execute the previously unsuccessful command again. | |

| | Indicator status | | | | | Category | Error name | Error code | Probable cause | Clearing method | Operation after error |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **RUN** | **ERC** | **ERH** | **ERM** | **MLK** | | | | | | |
| PCU settings and operation errors | Lit | Flashing | Not lit | Not lit | Lit | Illegal data | Position designation error | 3060 | An attempt was made to execute RELATIVE MOVEMENT using a position command value for the target position that is outside the positioning range. | Edit the position command value to be within the positioning range and execute the command again. | Deceleration stop |
| | | | | | | | Speed designation error | 3061 | An attempt was made to execute one of the following commands with a negative value as the speed command value. ABSOLUTE MOVEMENT, RELATIVE MOVEMENT, ORIGIN SEARCH, ORIGIN RETURN, and JOG | Edit the speed command value to be within the setting range and execute the command again. | Deceleration stop |
| | | | | | | | | | An attempt was made to execute ORIGIN SEARCH with a speed command value of 0. | Edit the speed command value to be within the setting range and execute the command again. | |
| | | | | | | | Speed control speed designation error | 3062 | An attempt was made to execute SPEED CONTROL using a command value that exceeds the speed command range. | Edit the speed command value to be within the setting range and execute the command again. | Deceleration stop |
| | | | | | | | Torque command value error | 3063 | An attempt was made to execute TORQUE CONTROL using a command value that exceeds the torque command range. | Edit the torque command value to be within the setting range and execute the command again. | Deceleration stop |

| | Indicator status | | | | | Category | Error name | Error code | Probable cause | Clearing method | Operation after error |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **RUN** | **ERC** | **ERH** | **ERM** | **MLK** | | | | | | |
| PCU settings and operation errors | Lit | Flashing | Not lit | Not lit | Lit | Illegal data | Option command value 1 error | 3064 | An attempt was made to execute SPEED/TORQUE CONTROL using a command value that exceeds the command range in option command value 1. | Edit the option command value to be within the setting range and execute the command again. | Deceleration stop |
| | | | | | | | Option command value 2 error | 3065 | An attempt was made to execute SPEED CONTROL using a command value that exceeds the command range in option command value 2. | Edit the option command value to be within the setting range and execute the command again. | Deceleration stop |
| | | | | | | | Override | 3070 | An attempt was made to execute the override using an override value outside the setting range. | Edit the override value to be within the setting range and execute the command again. | Deceleration stop |
| | | | | | | | Initialization axis parameter check error | 3090 | An illegal set value has been detected in the Axis Parameters during PCU initialization. | When this error occurs, the corresponding setting in the Axis Parameters is set to the default value (0). After executing ERROR RESET, transfer the correct Axis Parameter. | Deceleration stop |
| | | | | | | | Data transfer axis parameter check error | 3091 | An illegal set value in the Axis Parameters was transferred to the PCU using WRITE DATA. | The transferred set value is discarded and the set value in the Axis Parameters before the transfer is restored. After executing ERROR RESET, transfer the correct Axis Parameter. | Deceleration stop |
| | | | | | | | Data setting error | 3099 | An attempt was made to transfer data for an illegal parameter number and outside the setting range using SERVO PARAMETER TRANSFER. | The transferred set value is discarded and the set value for the Servo Parameter before the transfer is restored. After executing ERROR RESET, transfer the correct Servo Parameter. | Deceleration stop |

| | Indicator status | | | | | Category | Error name | Error code | Probable cause | Clearing method | Operation after error |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **RUN** | **ERC** | **ERH** | **ERM** | **MLK** | | | | | | |
| MECHATROLINK Slave Station Device Errors | Lit | Flashing | Not lit | Flashing | Lit | External sensor input | Forward rotation limit input | 3000 | A forward rotation limit input signal was detected. | After executing ERROR RESET, perform movement in the reverse rotation direction. | Operation stops according to the Servo Driver's specified stop method for limit inputs. (The PCU executes EMERGENCY STOP.) |
| | | | | | | | Reverse rotation limit input | 3001 | A reverse rotation limit input signal was detected. | After executing ERROR RESET, perform movement in the forward rotation direction. | Operation stops according to the Servo Driver's specified stop method for limit inputs. (The PCU executes EMERGENCY STOP.) |
| | | | | | | | Forward software limit | 3002 | The forward software limit was reached or exceeded during axis movement. | After checking the position command value and executing ERROR RESET, execute a movement command to move the axis to a correct position within the software limit range. | Operation stops according to the Servo Driver's specified stop method for limit inputs. (The PCU executes EMERGENCY STOP.) |
| | | | | | | | Reverse software limit | 3003 | The reverse software limit was reached or exceeded during axis movement. | After checking the position command value and executing ERROR RESET, execute a movement command to move the axis to a correct position within the software limit range. | Operation stops according to the Servo Driver's specified stop method for limit inputs. (The PCU executes EMERGENCY STOP.) |

| | Indicator status | | | | | Category | Error name | Error code | Probable cause | Clearing method | Operation after error |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **RUN** | **ERC** | **ERH** | **ERM** | **MLK** | | | | | | |
| MECHATROLINK Slave Station Device Errors | Lit | Flashing | Not lit | Flashing | Lit | Origin search error | No origin proximity or origin input signal | 3020 | The origin proximity input signal could not be detected within the range of both limit input signals during an origin search. | Check the origin proximity input signal wiring and the signal's allocation setting in the Servo Parameters. Check that the dog width of the origin proximity input signal is no shorter than the communications cycle. | Operation stops according to the Servo Driver's specified stop method for limit inputs. (The PCU executes EMERGENCY STOP.) |
| | | | | | | | | | After detecting the origin proximity input signal during an origin search operation, a limit input signal was detected before detecting the origin input signal. | Check that the origin input signal selection in the PCU's Axis Parameters is correct. When the external latch signal is selected as the origin input signal, check the external latch signal wiring and the allocation setting in the Servo Parameters. | |
| | | | | | | | Limit input already ON | 3021 | The limit input signal in the origin search direction has already been input during a single-direction origin search. | Check the limit input signal wiring for the corresponding direction and check the limit input signal's allocation setting in the Servo Parameters. | Emergency stop (the operation command is not executed) |
| | | | | | | | Limit input signal ON in both directions | 3022 | Origin search cannot be executed due to limit input signals being input in both directions. | Check the limit input signal wiring in both directions and check the limit input signal allocation settings in the Servo Parameters. | Emergency stop (the operation command is not executed) |
| | | | | | | Servo Driver error | Drive main circuit OFF error | 3080 | The main circuit power of the Servo Driver has been turned OFF. | Check the power supply voltage being supplied to the Servo Driver's main circuit power supply and make sure the correct power is being supplied. | Servo OFF |
| | | | | | | MECHATROLINK device alarm | --- | 4000 + Alarm code for each device | The error processing depends on the device. | | Operation stops according to the specified method when the Servo Driver alarm occurs. (The PCU executes DECELERATION STOP.) |

## Individual Axis Warnings

| | **Indicator status** | | | | | Category | Error name | Error code | Probable cause | Clearing method | Operation after error |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **RUN** | **ERC** | **ERH** | **ERM** | **MLK** | | | | | | |
| MECHATROLINK slave station device | Lit | Not lit | Not lit | Not lit | Lit | MECHA-TROLINK device warning | --- | 4000 + Warning code for each device | The error processing depends on the device. | | Operation continues |

**MECHATROLINK Device Alarms (Alarm Code 4□□□ Hex)**

When an alarm or warning occurs for one of the connected MECHATROLINK slave station devices, the PCU turns ON the Error Flag or Warning Flag and returns the following error code.

Error code: 40□□ hex

The boxes (□□) indicate the alarm/warning display number for the Servo Driver.

When using an R88D-WN□-ML2 W-series Servo Driver with built-in MECHA-TROLINK-II communications, however, only the upper two digits of the display number's three digits will be displayed.

Example: Position deviation overflow alarm (deviation counter overflow)

R88D-WT□ W-series Servo Driver:
Servo Driver alarm display: A.D0

The PCU's error code in this example is 40D0 hex.

R88D-WN□-ML2 W-series Servo Driver:
Position deviation overflow alarm: A.D00
Servo ON position deviation overflow alarm: A.D01
Servo ON speed limit position deviation overflow alarm: A.D02

With the R88D-WN□-ML2 W-series Servo Drivers, more detailed information is provided for position deviation overflow alarms, as shown above, but only the upper two digits of the alarm code (40D0 hex) are displayed as the PCU's error code for any of these alarms.

For details on alarm displays and warning displays in W-series Servo Drivers, refer to the list in *Appendix D List of Error Codes*.

For details on alarm/warning contents, refer to the operation manual for the Servo Driver being used.

# 12-5 Troubleshooting

This section provides troubleshooting flowcharts when Servo Driver communications cannot be established or movement is not possible even when movement commands are sent from the ladder program.

## 12-5-1 Initial Troubleshooting

The following troubleshooting flowchart is for errors that occur during initial checking.