ROBOSTAR ROBOT

N1 Series

ALARM CODE MANUAL

☐ INSTRUCTION MANUAL

☐ OPERATION MANUAL

☐ PROGRAMMING MANUAL

☐ UNI-HOST MANUAL

☐ GAIN SETUP MANUAL

☑ ALARM CODE MANUAL

Robostar

www.robostar.co.kr

Robostar Co., Ltd.

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Products of Robostar Co., Ltd. are manufactured under the strict quality control. All the Robostar products' warranty period is one year from the date of manufacture. In this period, Robostar is only responsible for the mechanical failures due to negligence of Robostar, or the problems on design and manufacture occurring during normal use, in which the service is free of charge.

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(6) failure caused by the consumption of consumable parts

(7) failures arising when not being operated under the instructions listed in the user or instruction manual and the maintenance manual

(8) damages in cost other than the cost of robot repairing

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Constitution of User Manual

The user manual for this product is constituted as follows. When using this product first, please fully read all the manuals before use.

■ **Instruction Manual**

A controller is generally explained. Overview of the controller, installation, and interfacing to peripherals are explained.

■ **Manipulation & Operation Manual**

As well as general use of the controller, parameter setup, Job program editing, robot operation, etc. are explained.

■ **Programming Manual**

RRL (Robostar Robot Language) which is the robot program of Robostar and how to write a robot program by using RRL are explained.

■ **Unihost Manual**

'Unihost' which is the on-line PC program of Robostar is explained.

■ **Gain Setup Manual**

How to set up the gain necessary for trial run, and the motor response performance according to change in the gain value are explained.

■ **Alarm Code Manual**

Reasons for Reasons for and countermeasures against the alarms which can occur while operating the controller are explained.
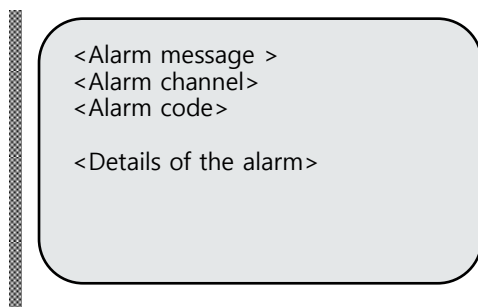
Contents

Chapter 1   Alarm Message Monitoring Method

If the robot is in abnormal state, the error code appears on a front display of a controller, and the alarm contents are displayed on a screen of the teaching pendant.

1.1   Alarm Message Display

```
<Alarm message >
<Alarm channel>
<Alarm code>

<Details of the alarm>
```

Alarm message : The contents of the alarm currently generated are displayed

Alarm channel : For the common alarm, "ALL" is displayed.

For the alarm related to the first robot, "CH1" is displayed.

For the alarm related to the second robot, "CH2" is displayed.

Alarm code : The code number of the alarm currently generated is displayed.

Details of the alarm: Detailed information on the alarm currently generated is displayed.

```
T/P Emergency
CH: ALL
ECODE: 1153
```

```
H/W Limit
CH: 1
ECODE: 1103

1 axis H/W limit
```

<Example of alarm message display>
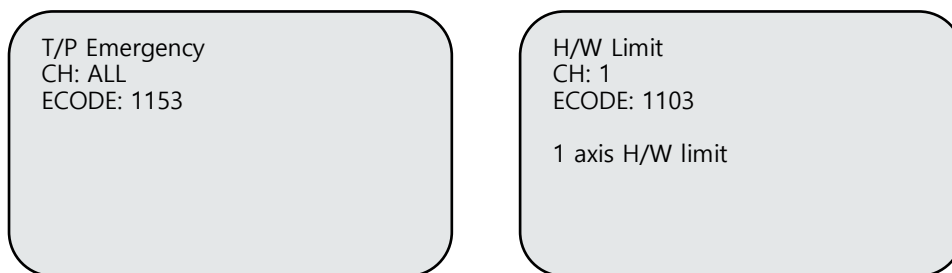
1.2   Display of Multiple Alarms

A plurality of alarms of the controller may simultaneously occur when in the abnormal state of the robot. The simultaneously occurring alarms can be stored up to 10 alarms. These alarms can be monitored as the following procedure.

```
H/W Limit
CH: 1
ECODE: 1103

1 axis H/W limit
```

ESC

Confirm first alarm

```
T/P Emergency
CH: ALL
ECODE: 1153
```

Confirm second alarm
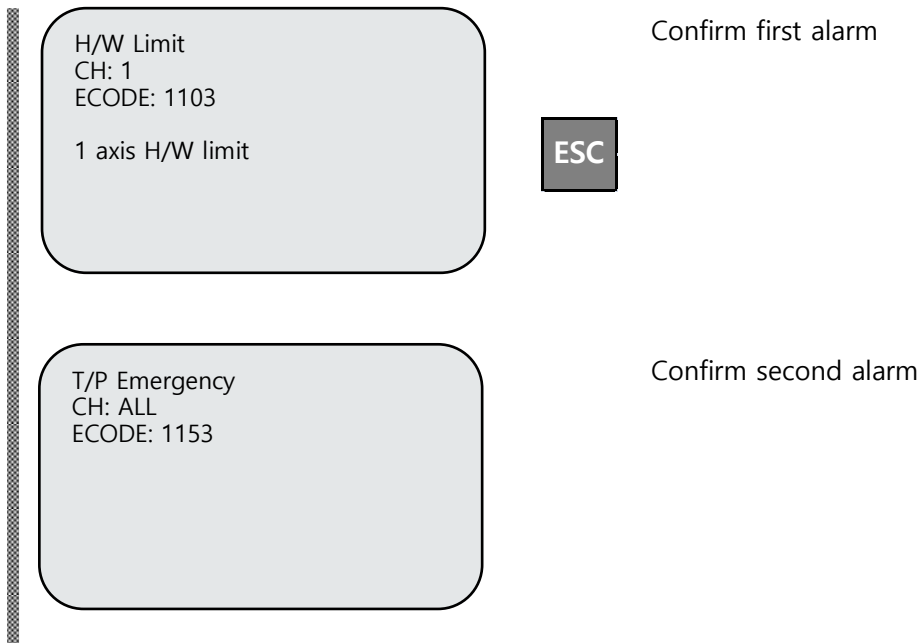
1.3   Alarm History

Information on the controller alarm which has occurred before can be monitored through an alarm history menu. The alarm history is stored up to 10 histories.

Step 1.   **Move to MAIN**

                                                                    Escape SYSTEM MODE

```
        SYSTEM    MODE

CH    MODE    J_NUM      STATE
 1     AUTO   NONE        IDL
 2     AUTO   NONE        IDL


 1R       2R             EXIT
```
                                                    F4

                                                                    Open Software Version

```
          Robostar
      NewRo   N1-Series
     Version: 02.00.ST,05
       DATE: 111201

      Press ENTER Key
```
                                                    ENTER

                                                                    Open MAIN MENU

```
<MAIN   MENU>
1. Job            2. RUN
3. HOST           4. PARA
5. ORIGIN         6. I/O
7. SYSTEM         8. GPNT
9. INT/FLT        A. ALARM

              SELECT #
```

Step 2.   **ALARM selection**

                                                                    Select A. ALARM

```
<MAIN   MENU>
1. Job            2. RUN
3. HOST           4. PARA
5. ORIGIN         6. I/O
7. SYSTEM         8. GPNT
9. INT/FLT        A. ALARM

              SELECT #
```
                                                    I/O
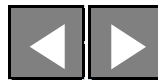   **A**

Step 3.   **ALARM-HISTORY**   Confirm alarm

<ALARM-HISTORY 01/10>

 *01:1153
 02:2111
 03:   0
 04:   0
 05:   0
CLEAR

Step 4.   **ALARM-HISTORY**   Confirm the previous alarm history

<ALARM-HISTORY 02/10>

 *01:1153
 02:2111
 03:2125
 04:   0
 05:   0
CLEAR   EXIT

Step 5.   **ALARM-HISTORY**   Confirm the detailed alarm history

<ALARM-HISTORY 02/10>

 *01:1153
 02:2111
 03:2125
 04:   0
 05:   0
CLEAR   EXIT

ENTER

<ALARM CODE - 1153>
 T/P Emergency
 CH: 1

             55 D
     14H 41M 11S
          EXIT

Chapter 2   Alarm Occurrences and Their Resolution (Explanation of Alarm Codes)

2.1   File System Alarms (E1001 - E1100)

E1001.   FILE SYSTEM ERR

Description	Damaged file system	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	MAIN MOUDLE	
(Display on 7-seg)	1001	
Display on T/P	File System Error	

Reason	Resolution
■ File storage memory damaged	Initialize a file system. (See BRAM parameter in Instruction & Operation Manual.)
■ Memory device of a main module broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

⚠ **Caution** **If this alarm occurs, the stored program and parameter data may be damaged.**

E1002.   DIRECTORY FULL ERR

Description	File directory is full	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	ALL	
(Display on 7-seg)	1002	
Display on T/P	Directory Full	

Reason	Resolution
■ Insufficient memory capacity	Remove the unused programs.
■ File storage memory damaged	Initialize a file system. (See BRAM parameter in Instruction & Operation Manual.)
■ Memory device of a main module broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

E1003. MEMORY ERR

Description	Insufficient memory for execution of Job	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	ALL	
(Display on 7-seg)	1003	
Display on T/P	Out of Memory	

Reason	Resolution
■ Insufficient memory space to execute the program	Correct Job so that many Jobs are not called simultaneously.
■ File storage memory damaged	Initialize a file system. (See BRAM parameter in Instruction & Operation Manual.)
■ Memory device of a main module broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

E1004. FILE NAME ERR

Description	There are different Jobs having the same name	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	ALL	
(Display on 7-seg)	1004	
Display on T/P	Same File Name Ext	

Reason	Resolution
■ Different jobs having the same name exist	Change, and store, the Job name.
■ File storage memory damaged	Initialize a file system. (See BRAM parameter in Instruction & Operation Manual.)
■ Memory device of a main module broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

E1005.   BAD FILE ERR

Description	Damaged file system	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	ALL	
(Display on 7-seg)	1005	
Display on T/P	Bad File	

Reason	Resolution
■ File storage memory damaged	Initialize a file system. (See BRAM parameter in Instruction & Operation Manual.)
■ Memory device of a main module broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

E1006.   DISK FULL ERR

Description	Insufficient space for storage of Job	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	ALL	
(Display on 7-seg)	1006	
Display on T/P	Disk Full	

Reason	Resolution
■ Insufficient memory capacity	Remove the unused programs.
■ File storage memory damaged	Initialize a file system. (See BRAM parameter in Instruction & Operation Manual.)
■ Memory device of a main module broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

E1007.　PROG DEL ERR

Description	Job file does not exist	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	ALL	
(Display on 7-seg)	1007	
Display on T/P	PROG Delete Error	
Reason	**Resolution**	
■ Job file does not exist	Confirm the Job name to be deleted.	
■ File storage memory damaged	Initialize a file system.　(See BRAM parameter in Instruction & Operation Manual.)	
■ Memory device of a main module broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer.	

E1008.　PNT DEL ERR

Description	PNT file does not exist	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	ALL	
(Display on 7-seg)	1008	
Display on T/P	POINT Delete Error	
Reason	**Resolution**	
■ PNT file does not exist	Confirm PNT name to be deleted.	
■ File storage memory damaged	Initialize a file system.　(See BRAM parameter in Instruction & Operation Manual.)	
■ Memory device of a main module broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer.	

E1009. PROG COPY ERR

Description	Job file cannot be copied	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	ALL	
(Display on 7-seg)	1009	
Display on T/P	PROG Copy Error	

Reason	Resolution
■ Original Job file does not exist	Confirm the original Job file name.
■ The name of Job file to be new created already exists.	Confirm, and change, the name of Job to be new created.
■ File storage memory damaged	Initialize a file system. (See BRAM parameter in Instruction & Operation Manual.)
■ Memory device of a main module broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

E1010. PNT COPY ERR

Description	PNT file cannot be copied	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	ALL	
(Display on 7-seg)	1010	
Display on T/P	POINT Copy Error	

Reason	Resolution
■ Original PNT file does not exist	Confirm the original PNT file name.
■ The name of PNT file to be new created already exists.	Confirm, and change, the name of PNT to be new created.
■ File storage memory damaged	Initialize a file system. (See BRAM parameter in Instruction & Operation Manual.)
■ Memory device of a main module broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

E1013.   NO Job ERR

Description	Job file does not exist or damaged	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	ALL	
(Display on 7-seg)	1013	
Display on T/P	There Is No Job	

Reason	Resolution
■ Job file does not exist	Confirm the Job name.
■ File storage memory damaged	Initialize a file system. (See BRAM parameter in Instruction & Operation Manual.)
■ Memory device of a main module broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

E1018.   PARA LOAD FAIL

Description	Parameter structure damaged	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	ALL	
(Display on 7-seg)	1018	
Display on T/P	Para Load Fail	

Reason	Resolution
■ Parameter memory area damaged	Re - Establish the parameter
■ Memory device of a main module broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

⚠ **Caution**   **When this alarm occurs, the parameter of corresponding channel is initialized.**

E1019.   BAD PARAMETER ERR

Description	Parameter value damaged	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	ALL	
(Display on 7-seg)	1019	
Display on T/P	Bad Parameter Data	

Reason	Resolution
■ Stored system parameter value is damaged	Re - Establish the system parameter of the channel the alarm occurred.
■ Memory device of a main module broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

⚠ **Caution**   **When this alarm occurs, the parameter of corresponding channel is initialized.**

E1020.   STRING VAR. BUFF OVERFLOW

Description	300 or more character variables and character constants are used for each channel	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code	ALL	
(Display on 7-seg)	1020	
Display on T/P	STR buff overflow	

Reason	Resolution
■ 300 or more character variables and character constants are used for each channel.	Reduce the number of character variables and constants to be less than 300.

E1021.   STRING VAR. LINE OVERFLOW

Description	The length of text string of character variable and character constant exceeds 100 letters	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code (Display on 7-seg)	ALL	
	1019	
Display on T/P	Line buff overflow	

Reason	Resolution
■ The length of text string of character variable and character constant exceeds 100 letters.	Reduce the text string to be less than 100 letters.

2.2   Protective Alarms (E1101 - E1200)

E1101. S/W LIMIT

Description	Deviation from the operation range of the robot parameter (Range)	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	PROTECTION	
Alarm code	ALL	
(Display on 7-seg)	1101	
Display on T/P	S/W Limit	
Reason	**Resolution**	
■ Wrong setup of the operation range of the system parameter (Range)	1. Correct the operation range value of the system parameter (Range) as the value written on a name plate of the robot. 2. If this error occurs during origin searching or Job execution, check, and adjust, the teaching point	
■ Deviation from the operation range of LIMIT command, during Job execution	1. Adjust, in Job program, the setup of operation range of LIMIT command. 2. Check that the teaching point operates within the set up range, and adjust it.	

E1102. INPOS ERROR

Description	A motor does not stop within the regular time	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	PROTECTION	
Alarm code	ALL	
(Display on 7-seg)	1102	
Display on T/P	Inpos. Error	
Reason	**Resolution**	
■ Oscillation or hunting action due to wrong gain setting.	Readjust the gain. (See "How to set up the gain" in Gain Setup Manual.)	
■ Wrong setup of system parameter (IPE, IPA)	Adjust appropriately IPA (INPOS amount), IPE (INPOS time) according to the state of the mechanism.	

E1103. H/W LIMIT

Description	H/W limit sensor signal is detected	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	PROTECTION	
Alarm code	ALL	
(Display on 7-seg)	1103	
Display on T/P	H/W Limit	

Reason	Resolution
■ Limit sensor is detected during robot operation	1. Check, and adjust, the teaching point. 2. Check whether the specs. of a real robot are consistent with the robot parameters (arm length, offset, deceleration ratio, etc.)
■ Limit sensor detection malfunctions	Check the sensor and harness system or replace them.
■ Failure in a limit sensor input port	Replace a servo module.

E1104. SERVO NOT READY

Description	Servo ON is actuated when a servo module has not been yet initialized.	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	PROTECTION	
Alarm code	ALL	
(Display on 7-seg)	1104	
Display on T/P	Servo Not Ready	

Reason	Resolution
■ Failure in power supply to a servo module	Check power supply lines and electric modules.

E1105. TORQUE LIMIT ERR

Description	While TRQ command is used, the setup value is higher than the actual torque value
Alarm clearing	RESET	POWER ON/OFF
Alarm type	PROTECTION
Alarm code	ALL
(Display on 7-seg)	1105
Display on T/P	Torque Limit

Reason	Resolution
■ TRQ command setup value is low for a normal operation.	Check the maximum torque value of the corresponding axis, and increase the setup value.
■ External interference with mechanical parts during operation.	Check the mechanical external interference
■ Vibration or noise generation due to wrong gain adjustment	Readjust the gain. (See "How to set up the gain" in Gain Setup Manual.)

E1107. OVER LOAD 2 ERR

Alarm Description	When the motor's average loading rate exceeds the set value of system parameter (OVL2)	
Alarm Disabling	RESET	POWER ON/OFF
Alarm Classification	PROTECTION	
Alarm Code	ALL	
(7-Seg Display)	1107	
T/P Display	Over Load　2	

Causes	Measures
■ Rated error that occurs when running motor for certain time with effective torque exceeding rated torque	1. Increase the capacity of Servo Module and motor. 2. Set acceleration/deceleration time longer. 3. Reduce a load.
■ Occurrence of vibration or noise due to poor gain control	Readjust a gain. 　(Refer to the gain setup manual.)
■ Occurrence of external mechanical interference while performing task	Check if external mechanical interference has been present.
■ Malfunction of motor's electronic brake	Check the wiring in brake terminal and operating conditions.
■ System parameter (OVL2) value set at low level	If a system parameter (OVL2) set value is set at low level, modify it to an appropriate level.

E1151. SYSTEM EMERGENCY

Description	Emergently stop because of manipulation of system I/O	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	PROTECTION	
Alarm code	ALL	
(Display on 7-seg)	1151	
Display on T/P	System Emergency	

Reason	Resolution
■ User-initiated system emergency stop	Release an emergency stop button and reset the alarm in the controller.
■ Abnormal system emergency stop line system.	1. Check 24V is normally applied to terminals of system I/O SYS_EMG+ and SYS_EMG-. 2. Check disconnection of a system I/O cable.

E1152. FRONT EMERGENCY

Description	Emergently stopped by a front panel emergency stop switch	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	PROTECTION	
Alarm code	ALL	
(Display on 7-seg)	1152	
Display on T/P	Front Emergency	

Reason	Resolution
■ An emergency stop switch in a front panel is being depressed.	Release the front panel emergency stop switch and reset the alarm in the controller.
■ Failure in front panel emergency stop switch line system	Replace the emergency stop switch.

E1153. T/P EMERGENCY

Description	Emergently stopped by an emergency stop switch of the teaching pendant

Alarm clearing	RESET	POWER ON/OFF
Alarm type	PROTECTION	
Alarm code	ALL	
(Display on 7-seg)	1153	
Display on T/P	T/P Emergency	

Reason	Resolution
■ An emergency stop switch of the teaching pendant is being depressed.	Release the emergency stop switch of the teaching pendant, and reset the alarm in the controller.
■ Failure in an emergency stop switch line system of the teaching pendant	Repair or replace the teaching pendant.

E1154. Host Emergency

Description	Emergently stopped by an emergency stop protocol in Host mode	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	PROTECTION	
Alarm code	ALL	
(Display on 7-seg)	1154	
Display on T/P	Host Emergency	

Reason	Resolution
■ Emergency stop due to an emergency stop protocol in Host mode	Clear the state of emergency stop, and reset the controller.

E1163. ENCODER CNT ALARM

Description	Encoder value of a motor abruptly changes over the permissible value.	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	PROTECTION	
Alarm code	ALL	
(Display on 7-seg)	1163	
Display on T/P	Enc count Alarm	

Reason	Resolution
■ Wrong setup of system parameter (ENC)	Check the system parameter value and the amount of 1 turn of a real motor encoder, and correct it.
■ Failure in servo module	Check a servo module.
■ Vibration or noise generation due to wrong gain adjustment	Readjust the gain. (See "How to set up the gain" in Gain Setup Manual.)

⚠ **Caution** **This alarm may occur when Mufti Turn Clear for position data initialization of ABS motor.**

E1165. REF COUNT ALARM

Description	Positional error due to operation error of a controller	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	PROTECTION	
Alarm code	ALL	
(Display on 7-seg)	1165	
Display on T/P	Ref count Alarm	

Reason	Resolution
■ Positional error due to operation error of a controller exceeds the permissible value.	Reset and restart the controller.

E1168. SERVO ON POSITION ERR

Description	Amount of rotation of a motor exceeds the permissible value when in Servo ON	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	PROTECTION	
Alarm code	ALL	
(Display on 7-seg)	1167	
Display on T/P	Servo ON POS Error	

Reason	Resolution
■ At the time of Servo On, there is a robot moving (sagging)	1. Do not touch the robot at the time of Servo ON. 2. Check the robot moving due to the external devices (e.g., cable, etc.).
■ Vibration or noise generation due to wrong gain adjustment	Readjust the gain. (See "How to set up the gain" in Gain Setup Manual.)

E1169.   TASK EXIT FAIL

Description	Abnormal system task in the controller	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	FILE SYSTEM	
Alarm code (Display on 7-seg)	ALL	
	1169	
Display on T/P	TASK EXIT FAIL	

Reason	Resolution
■ System task in the controller was abnormally created or finished.	Re-apply the controller power.

2.3 Run Time Alarms (E1201 - E1300)

E1201. FILE NOT FOUND

Description	JCALL'ed, but Job does not exist	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1201	
Display on T/P	File Not Found	

Reason	Resolution
■ Job to be JCALL'ed does not exist.	Confirm the Job file to be JCALL'ed and correct it.

E1202. RANGE OVER

Description	Values of command and variable index are out of permissible range	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1202	
Display on T/P	Range Over	

Reason	Resolution
■ Values of command and variable index are out of permissible range.	1. Confirm the factor values of commands (VEL, ACC, DEC, PLUP, FORM, etc.) and correct them. 2. Confirm the values of variable indexes (I_, GP_, F_, etc.), and correct them.
■ Improper use of system variables (CNT, TMR, SYS, etc.) in the program.	Correct CNT number (0-15 available) or TMR number (0-1 available).
■ Improper parameter values (output port, type or time) set up in the pallet data.	Correct the setup values. (See Instruction and Operation Manual – PALLET parameter)

E1203. INVERS ERROR

Description	Error arising in inversion of XY mode (X,Y,Z,W) into Joint (A,B,Z,W) in a horizontal articulated robot

Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1203	
Display on T/P	Invers Error	

Reason	Resolution
■ Wrong teaching point or trajectory when in CP motion	Check the teaching point or the trajectory according to the operation condition, and correct it.
■ Failure in XPOS variable value used in CP motion.	Check XPOS variable value (XYZ coordinate value, and FORM designation value), and correct it.
■ When in PMOV moving, the pallet position data is computed to the position that a real robot cannot move.	Check the pallet position data, and correct it.
■ In HOST mode, failure in the point data when in Inching motion with XYZ coordinate value	Check the position data, and correct it.
■ In HOST mode, failure in the point data when in moving with XYZ coordinate value	Check the position data, and correct it.
■ In HOST mode, data abnormality when downloading PNT file	Check the controller point and the downloaded point to find the failure.

E1204. NOT TEACHING POINT

Description	Error arising when in use of a point which has not been taught	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1204	
Display on T/P	Not Teaching Point	

Reason	Resolution
■ A point that has been not taught is used, in using the robot move command.	Check or create a point. (See JEDIT mode in Instruction & Operation Manual)
■ A point that has been not taught is used, in using the OFFSET command	Check or create a point. (See JEDIT mode in Instruction & Operation Manual)
■ A point that has been not taught is used, when in point moving in HOST mode	Check or create a point. (See JEDIT mode in Instruction & Operation Manual)

E1205. Job DEPTH OVER

Description	JCALL is continuously used, exceeding the regular times (3 times)	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1205	
Display on T/P	Job Depth Over	

Reason	Resolution
■ JCALL is continuously used, exceeding 3 times	Confirm in the robot program the number of multiply using JCALL, and correct it. (See JCALL command in Program Manual)

E1206. CALL DEPTH OVER

Description	CALL is continuously used, exceeding the regular times (8 times)
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME
Alarm code	ALL
(Display on 7-seg)	1206
Display on T/P	CALL Depth Over

Reason	Resolution
■ CALL is continuously used, exceeding 8 times	Confirm in the robot program the number of multiply using CALL, and correct it. 　(See CALL command in Program Manual)

E1207. FOS ERROR

Description	Improper use of FOS command
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME
Alarm code	ALL
(Display on 7-seg)	1207
Display on T/P	Invalid FOS Error

Reason	Resolution
■ TOOL command is used, while the robot continuously moving in response with FOS command	Correct the program so that TOOL command is used, after FOS operation is disabled by FOS 0 command.

E1208. FORMAT ERROR

Description	Factors of a command are not the specified value	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1208	
Display on T/P	Format Error	

Reason	Resolution
■ Factor of a command is not the specified value	Check the minimum and maximum values of factors of the command.
■ Abnormal data invaded the Job command area due to the memory fault	Save the Job program in which the error occurs as another name, and re - Execute the program.

E1209. PALLET DATA ERROR

Description	Improper pallet data	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1209	
Display on T/P	Pallet Data Error	

Reason	Resolution
■ The number of workpieces is less than that of start points of pallets.	Correct parameter DATA or CNT.
■ Pallet data is used without initialization, or data area is damaged.	Initialize the pallet data. (See Instruction and Operation Manual – Pallet data initialization.)

E1210. UNREACHABLE POINT

Description	A point that the robot cannot move to has been taught
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME
Alarm code (Display on 7-seg)	ALL
	1210
Display on T/P	Unreachable Point

Reason	Resolution
■ Unreachable point is taught by the determined velocity or acceleration.	Correct the teaching point or the conditional move command.
■ A teaching point to be moved with CMOV or AMOV is not a circle or arc, or has small radius	Correct the teaching point if the inner angle formed by three points constituting a circle or arc is smaller than or equal to 0.1 degree, or greater than or equal to 179.9 degree, and the radius is smaller than or equal to 1 mm.

E1211. EXIT INSTRUCTION

Description	When EXIT command or instruction is executed
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME
Alarm code (Display on 7-seg)	ALL
	1211
Display on T/P	EXIT Instruction

Reason	Resolution
■ EXIT command that a user writes is executed and so the program is stopped.	Clear the alarm and restart Job.

E1212. POS VARIABLE ERROR

Description	Wrong use of POS variable	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1212	
Display on T/P	POS Variable Error	

Reason	Resolution
■ Use of POS variable whose value is not designated.	Correct the program so that the value designated to the variable is to be used. (See Variable part in Instruction & Operation Manual.)
■ Use of POS array variable which is out of the user determined range	Correct the program to be used within the set up range. (See Variable part in Instruction & Operation Manual.)
■ Use of XPOS variable for OFFS or LIMT command	In OFFS or LIMT command, use the teaching point or POS variable.

E1213. JCALL ERROR

Description	Insufficient memory during the robot Job operation	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1213	
Display on T/P	JCALL Error	

Reason	Resolution
■ Insufficient job memory for JCALL	If Job, in which many program steps or variable uses are included, is JCALL'ed in the case that the number of program steps and teaching points, or the variable uses, occupy much memory space, it may be impossible to perform a normal job due to the short of the memory. Thus, reduce the number of program steps and teaching points, or the variable uses, to progress the job.

E1214. NOT SUPPORT FUNCTION

Description	When motion-related commands are executed, use of the robot is not set up	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code (Display on 7-seg)	ALL	
	1214	
Display on T/P	Not Support function	

Reason	Resolution
■ Motion-related commands are going to be executed, when the robot has not been set up.	1. Check the setup of the system parameter (RENB), and correct it. 2. Delete motion-related commands in Job.

E1216. SOURCE LINE ERR

Description	There are no commands in the executed Job	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code (Display on 7-seg)	ALL	
	1216	
Display on T/P	Source Line Error	

Reason	Resolution
■ There are no commands in the executed Job	Check the contents of the executed Job.

E1217. PASS PALLET OVER ERROR

Description	The number of uses of PASS command is exceeded.	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1217	
Display on T/P	Passing PLT Over	

Reason	Resolution
■ The number of PASS Command used per pallet exceeds 21.	Reduce uses of the command to be 21 or less for each pallet.
■ The number of pallets using PASS command exceeds 5.	Reduce a pallet using PASS command to 5 or less.

E1219 - E1224 RANGE OVER AXIS

Description	Deviate from axis setup range					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	RUN TIME					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	1219	1220	1221	1222	1223	1224
Display on T/P	Range Over Axis1-6 AXIS					

Reason	Resolution
■ The teaching point value exceeds the setup range of the system parameter (RANG)	Check that the taught point value is within the setup range of the system parameter (RANG).
■ Improper parameter (RANG) setup.	Check the robot spec. and correct the parameter (RANG).
■ Deviation from the axis setup range	Move the relevant axis and check it is within the setup range of system parameter (RANG).

E1225. Job NOT READY

Description	Job loading is not completed.	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1225	
Display on T/P	Not ready start	
Reason	**Resolution**	
■ START instruction is received in the state that Job loading is not yet completed.	Fully understand how to exactly use the robot commands, and rewrite the program portion that the error occurred.	
■ If the variable name used in the command and the system variable or the controller	Change, and declare, the variable name.	

E1226. PLEASE ORIGIN

Description	Error requiring the origin searching	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1226	
Display on T/P	Please Origin	
Reason	**Resolution**	
■ Robot operation is tried without origin searching	Perform the origin searching.	

E1227. INVALID PARAMETER

Description	Insufficient number of variables of the string command	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1227	
Display on T/P	Invalid Parameter	
Reason	**Resolution**	
■ Wrong factor value of the entered String Command	Check the factor of String Command in Job command	

E1228. INVAILD STRING LENG

Description	Text string and the number of extracted letters does not correspond to each other in String Command	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1228	
Display on T/P	Invalid string leng	
Reason	**Resolution**	
■ If the text string is less than the number of letters to be extracted from the text string extracting command	Check the text string and the number of text string extraction of SRIGHT, SMID, and SLEFT, and set up the number of text string extraction to be less than the text string.	

E1230. COMM BUFFER OVERFLOW

Description	The received number of the text string is more than the specified text string	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1230	
Display on T/P	Comm buf overflow	

Reason	Resolution
■ The received number of the text string is more than the specified text string	Check that the received number of text strings is not more than 80.

E1231. LPOS READ TIMEOUT

Description	Time to read the latched position data is longer than the specified time	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1231	
Display on T/P	LPOS Read Timeout	

Reason	Resolution
■ Time to read the latched position data is longer than the specified time	Check the number of latched position data and make the time setup factor be greater.

E1232. LATCH SEQUENCE ERR

Description	Latch commands are not executed in the determined order.	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1232	
Display on T/P	Latch Sequence Err	

Reason	Resolution
■ Latch commands are not executed in the determined order.	Check Job program whether Latch commands have been executed in the order of initialization, start, and reading.

E1233 - E1235   MISSMATCH SLAVE (1-3)

Description	Point data of Master and Slave of synchronizing axes do not match		
Alarm clearing	RESET	POWER ON/OFF	
Alarm type	RUN TIME		
Alarm code	1233	1234	1235
(Display on 7-seg)	SLAVE 1	SLAVE 2	SLAVE 3
Display on T/P	Data Miss match SLV1-3		

Reason	Resolution
■ Point data of Master and Slave of synchronizing axes do not match	Match the teaching points of a master axis and a slave axis which have been set up as the synchronizing axes.

E1237.   NOT FIND FIELDBUS

Description	Setups of Fieldbus card and system parameters (FDBUS-CARD) are not identical	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	RUN TIME	
Alarm code	ALL	
(Display on 7-seg)	1237	
Display on T/P	Not find Fieldbus	

Reason	Resolution
■ Setups of Fieldbus card and system parameters (FDBUS-CARD) are not identical	Check that the Fieldbus card is identical to system parameters (FDBUS-CARD), and correct the parameter settings.
■ Fault of a fieldbus card	1. Check the contact condition between the controller and Fieldbus card. 2. If the alarm persistently occurs, consult with the selling agent or the manufacturer.

2.4 Job Compile Alarms (E1301 - E1400)

E1301. SYNTAX ERROR

Description	Job program syntax error	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1301	
Display on T/P	Syntax Error	

Reason	Resolution
■ Commands undefined or unfit to the robot command formation are used.	Fully understand how to exactly use the robot commands, and rewrite the program portion that the error occurs. (See Program Manual – Explanations for commands)
■ A variable name, which is equal to the command and the system variable or is used in the controller, is declared.	Change, and declare, the variable name.

E1302. NOT INIT SYSTEM VARIABLE

Description	System variable (TMR, CNT, and SYS) or the like is used without initialization	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1302	
Display on T/P	Not Init Sys Var	

Reason	Resolution
■ System variable (TMR, CNT, and SYS) or the like is used without initialization	Write a command for initializing a system variable as a necessary value.

E1303. UNDEFINED SYMBOL

Description	Undefined command or non-declared variable name is used	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1303	
Display on T/P	Undefined Symbol	
Reason	**Resolution**	
■ Undefined command or non-declared variable name is used	Use a defined command or a declared variable name.	

E1304. DUPLICATED SYMBOL

Description	The same variable name is declared in duplicate	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1304	
Display on T/P	Duplicated Symbol	
Reason	**Resolution**	
■ The same variable name is declared in duplicate	Change the duplicate declared variable name to another and re-declare it.	
■ The same LABL name is declared in duplicate	Delete, or change, the duplicate LABL name.	

E1305. IMPOS. BRANCH

Description	Branch executional error	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1305	
Display on T/P	Impossible Branch	

Reason	Resolution
■ GOTO branch is executed inside blocks of IF-ENDIF, WHILE-ENDWL, and FOR-NEXT commands.	Rewrite the program conforming to the rule that GOTO branch cannot be executed inside IF-ENDIF command block, WHILE-ENDWL command block, and FOR-NEXT command block.
■ GOTO branch is executed between MAIN-EOP command block and SUBR-RET command block	Rewrite the program conforming to the rule that GOTO branch cannot be executed between MAIN-EOP command block and SUBR-RET command block.

E1306. EXTRA PARAMETER

Description	Exceed the parameter value	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1306	
Display on T/P	Too Many Param	

Reason	Resolution
■ The specified number of factors is exceeded when using mathematical functions.	Check the number of factors for a mathematical function that the error occurs, and correct it. (See Operator Commands in Program Manual)

E1307. NOT ENOUGH PARAMETER

Description	Parameter value not reached	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1307	
Display on T/P	Not Enough Param	

Reason	Resolution
■ The specified number of factors is not reached when using mathematical	Check the number of factors for a mathematical function that the error occurs, and correct it. (See Operator Commands in Program Manual)

E1308. ILLEGAL EXPRESSION

Description	Error in operation format	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1308	
Display on T/P	Illegal Exp	

Reason	Resolution
■ The equation expression does not conform to the specified format of operation.	Check whether the equation expression the error occurs is operable, and correct it. (See Operator Commands in Program Manual)

E1309. ILLEGAL VARIABLE TYPE

Description	Command does not match the variable type	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1309	
Display on T/P	Illegal Var. Type	

Reason	Resolution
■ The index value of FOR command is not an integer type	Correct it to the integer variable.
■ The index value of array variables (IO variable, teaching point variable, POS-type variable, integer global, and real number global) is not an integer type.	Correct it to the integer variable or integer value.

E1310. IMPOSSIBLE ASSIGN

Description	Error in variable assignment formation	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1310	
Display on T/P	Impossible Assign	

Reason	Resolution
■ Data type of the result of the equation computation is different from the variable type, for which such result is to be substituted.	Correct the program such that the result of the equation computation becomes the same as the variable type, for which such result is to be substituted.

E1311. EOF IN COMMENT

Description	Error in Comment statement	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1311	
Display on T/P	EOF In Comment	
Reason	**Resolution**	
■ Error in Comment statement	Check the program that a left declaration symbol (/*) and a right declaration symbol (*/) are used in pair, and correct it.	
■ The number of letters after a one-line declaration symbol (//) is exceeded.	Correct the number of letters after a one-line declaration symbol (//) to be within 80 letters.	

E1312. NO EXIST LABEL

Description	LABL branch error.	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1312	
Display on T/P	No Exist Label	
Reason	**Resolution**	
■ There is no LABL name being branched by CALL or GOTO statement.	If there is no relevant LABL command in a program, write a new program; if the LABL command exists, change the LABL name to the existing value.	

E1313. DECLARATION ERROR

Description	Array declaration error	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1313	
Display on T/P	Declaration Error	

Reason	Resolution
■ Array variable is declared in INT or REAL command.	Change the array variable to the simple variable and declare it, because the array variable can be declare only in POS command.
■ The size of array declared in POS command is equal to or less than 1.	Declare the size of array variable to be 2 or more, or change it to the simple variable, because the size of POS array variable must be 2 or more.

E1314. COMPILE ERROR

Description	Error in robot Job compiling	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1314	
Display on T/P	Compile Error	

Reason	Resolution
■ Controller cannot understand the robot command program written by a user, or a user erroneously writes it.	Check the line numbers and the detailed messages and correct them. Then retry compiling. (See E1301 - E1313.)

E1315. NOT SAME SPEC ROBOT

Description	Information on the robot Job is not identical to the current system parameter	
Alarm clearing	RESET	POWER ON/OFF
Alarm type		
Alarm code	ALL	
(Display on 7-seg)	1315	
Display on T/P	Not Same Spec RBT	

Reason	Resolution
■ Robot spec. of the robot Job is not consistent with the system parameter setups (CONF)	Re-store the robot Job as the current spec. of the robot.

E1316. NOT FIND Job

Description	Job file does not exist	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1316	
Display on T/P	Not Find Job	

Reason	Resolution
■ Job file does not exist	Re-designate Job file number or Job file name to the existing file.

E1317. ROBOT DISABLED

Description	Error when the system parameter (RDIS) has been set to "not used"	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1317	
Display on T/P	Robot Disabled	

Reason	Resolution
■ The system parameter (RDIS) has been set to "not used".	Set up RENB parameter of a channel to be used to ENABLE.

E1318. ROBOT IDLE

Description	Robot tries to check the robot information while it is in idle state.	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1318	
Display on T/P	Robot Idle	
Reason	**Resolution**	
■ Job is tried to be checked, during idle state in System Mode	Select the robot Job and then load it.	

E1319. LOADING ERROR

Description	Job file number exceeds the maximum value	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	Job COMPILE	
Alarm code	ALL	
(Display on 7-seg)	1319	
Display on T/P	Loading Error	
Reason	**Resolution**	
■ Job file number exceeds the maximum value	Re-execute the Job file number with not more than the maximum value (200).	

2.5 Trajectory Alarms (E1401 - E1500)

E1400. TRAJECTORY ERR

Description	Motion trajectory creation is not exact
Alarm clearing	RESET	POWER ON/OFF
Alarm type	PROTECTION
Alarm code	ALL
(Display on 7-seg)	1400
Display on T/P	Trajectory Error

Reason	Resolution
■ A time schedule of FOS, arc insertion, motion is not exact	Check the additional motion alarm, and then change the value of motion related variables.

E1401. CP TIME SCHEDULER ERR

Description	Fail in creation of interpolation motion profile
Alarm clearing	RESET	POWER ON/OFF
Alarm type	TRAJECTORY
Alarm code	ALL
(Display on 7-seg)	1401
Display on T/P	CP Sched. Error

Reason	Resolution
■ Creation of the interpolation motion profile is failed because, during connection motion by using FOS command, the position of next motion is too short or entry velocity is too high.	1. Check, and adjust, the motion velocity. 2. Check, and adjust, the teaching point. 3. Check, and adjust, FOS command setup value.

E1402. RESTART TIME SCHEDULER ERR

Description	Creation of motion profile is failed in restarting after motion stops	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	TRAJECTORY	
Alarm code	ALL	
(Display on 7-seg)	1402	
Display on T/P	Restart Sched. Error	

Reason	Resolution
■ Motion profile creation is failed, when the robot is restarted due to the alarm or malfunction during motion.	Newly start the Job.

E1404. TIME SYNC ERR

Description	Axis-to-axis synchronous motion profile creation is failed	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	TRAJECTORY	
Alarm code	ALL	
(Display on 7-seg)	1404	
Display on T/P	Time Sync. Err	

Reason	Resolution
■ Axis-to-axis synchronous motion profile creation is failed	1. Check, and adjust, the teaching point. 2. Check, and adjust, the motion velocity.

E1405. ARC PLAN ERR

Description	Creation of circular or arc motion trajectory is failed	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	TRAJECTORY	
Alarm code	ALL	
(Display on 7-seg)	1405	
Display on T/P	Arc Plan Error	

Reason	Resolution
■ Creation of circular or arc motion trajectory is failed	Adjust the teaching point.
■ Creation of the circular or arc motion trajectory is failed, during connection motion by using FOS command.	1. Check, and adjust, the motion velocity. 2. Check, and adjust, the teaching point. 3. Check, and adjust, FOS command setup value.

E1406. PLAN TOO MUCH FOS ERR

Description	Error in FOS setup value	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	TRAJECTORY	
Alarm code	ALL	
(Display on 7-seg)	1406	
Display on T/P	Too Much FOS	

Reason	Resolution
■ During connection motion by using FOS command, the position of next motion is too short or entry velocity is too high.	1. Check, and adjust, the motion velocity. 2. Check, and adjust, the teaching point. 3. Check, and adjust, FOS command setup value.

E1413. TRAJ INVERSE ERR

Description	Error in coordinate conversion form X,Y mode to Joint mode	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	TRAJECTORY	
Alarm code	ALL	
(Display on 7-seg)	1413	
Display on T/P	Inverse Kine. Err	

Reason	Resolution
■ X, Y coordinate, to which the current robot cannot move, is entered.	Check and adjust the teaching point.
■ Although there is no problem in coordinate conversion, a certain axis deviates from the permissible range.	Check and adjust the teaching point.

E1414. TRAJ ISNAN ERR

Description	JOINT data error in coordinate conversion form X,Y mode to Joint mode	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	TRAJECTORY	
Alarm code	ALL	
(Display on 7-seg)	1414	
Display on T/P	IK Isnan Error	

Reason	Resolution
■ JOINT data error in coordinate conversion form X, Y mode to Joint mode	Check and adjust the teaching point.

E1415. IK POSITION Error

Description	XY coordinate entered in X,Y mode deviates from the length of the robot arm	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	TRAJECTORY	
Alarm code	ALL	
(Display on 7-seg)	1415	
Display on T/P	IK Position Error	

Reason	Resolution
■ When the coordinate is converted from X, Y mode to Joint mode, the XY coordinate entered in X, Y mode deviates from the length of the robot arm.	Check, and adjust, the teaching point.

E1416 - E1421. IK Range Over

Description	The coordinate entered in X,Y mode deviates from the setup range of the system parameter (RANG)					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	TRAJECTORY					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS4	AXIS5	AXIS6
(Display on 7-seg)	E1416	E1417	E1418	E1419	E1420	E1421
Display on T/P	IK Range Over 1-6 Axis					

Reason	Resolution
■ When the coordinate is converted from X, Y mode to Joint mode, the entered coordinate deviates from the setup range of the system parameter (RANG).	Check whether the taught point value is within the setup range of RANG, and adjust it.

E1422. PTP_TIME_SCHEDULER_ERR

Description	Failure in PTP motion profile creation	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	TRAJECTORY	
Alarm code	ALL	
(Display on 7-seg)	1422	
Display on T/P	PTP Sched. Err	

Reason	Resolution
■ Creation of PTP motion profile is failed, because, during the connection motion by using FOS command, the position of next motion is too short or entry velocity is too high.	1. Check, and adjust, the motion velocity. 2. Check, and adjust, the teaching point. 3. Check, and adjust, FOS command setup value.

E1423. OVER_RANGE_ERR

Description	Permissible range of axis moving is deviated during the robot operation	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	TRAJECTORY	
Alarm code	ALL	
(Display on 7-seg)	1423	
Display on T/P	Over Range Err	

Reason	Resolution
■ The teaching point value exceeds the setup range of the system parameter (RANG)	Check that the taught point value is within the setup range of system parameter (RANG).
■ Improper setup of parameter (RANG)	Check the robot spec. and correct the parameter (RANG).
■ Deviation from the axis setup range	After moving the relevant axis, and check that it is within the setup range of system parameter (RANG).

E1424. OVER SPEED (REF) ERR

Description	Velocity instruction exceeds the specified value	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	TRAJECTORY	
Alarm code (Display on 7-seg)	ALL	
	1424	
Display on T/P	Over Speed (Ref) Error	

Reason	Resolution
■ Wrong setup of system parameter (OVS)	Adjust the setup value if the setup value of system parameter (OVS) has been set up too low.
■ Wrong setup of system parameter (JONT, LINE)	Adjust the setup value of Mv, Jv, and At of system parameter (JONT, LINE).
■ Improper robot operating commands	Check the suitability of MOVE command, operation conditions (FOS, ACC, DEC), and teaching point in Job.

E1425. OVER ACCELERATION (REF) ERR

Description	Acceleration and deceleration instructions exceeds the specified value	
Alarm clearing	RESET	POWER ON/OFF
Alarm type	TRAJECTORY	
Alarm code (Display on 7-seg)	ALL	
	1425	
Display on T/P	Over Accel (Ref) Err	

Reason	Resolution
■ Wrong setup of system parameter (OVA)	Adjust the setup value if the setup value of system parameter (OVA) has been set up too low.
■ Wrong setup of system parameter (JONT, LINE)	Adjust the setup value of Mv, Jv, and At of system parameter (JONT, LINE).
■ Improper robot operating commands	Check the suitability of MOVE command, operation conditions (FOS, ACC, DEC), and teaching point in Job.

E1439. IN RANGE ERR

Alarm Description	When the robot motion path is out of the already-set IN RANGE	
Alarm Disabling	RESET	POWER ON/OFF
Alarm Classification	TRAJECTORY	
Alarm Code	ALL	
(7-Seg Display)	1439	
T/P Display	IN RANGE Err	

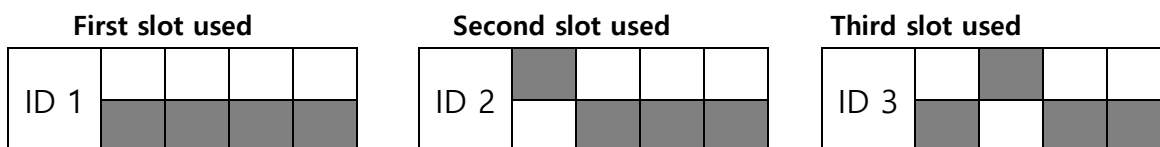| Causes	Measures
■ Error in system parameter (IRNG) and robot path planning	Check if robot motion path stays out of the set range of system parameter (IRNG) and adjust the motion path and the set range of system parameter (INRANG), only when setting IRNG->Alarm to "ENB".
■ Error in system parameter (URNG) and robot path planning	Check if robot motion path stays out of the set range of system parameter (URNG) and adjust the motion path and the set range of system parameter (URNG).
■ Error in robot's Z-axis movement exceeding the set level	This happens when a robot in USER RANGE moves along the Z-axis more than what is set in system parameter (URNG->Z DELTA). Control the fixed parameter and movement on Z-axis.

2.6 COMMUNICATION (E2101 - E2145)

E2101 - E2103. MAIN COM TIME OUT ALARM

Description	No reply from the servo module		
Alarm clearing	RESET		POWER ON/OFF
Alarm type	COMMUNICATION		
Alarm code	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
(Display on 7-seg)	E2101	E2102	E2103
Display on T/P	Main Com Time Out (1, 2, and 3) SM		

Reason	Resolution
■ Failure in communication between a servo module and a main module	1. Check the connected state between a servo module and a main module. 2. If the alarm persistently occurs, consult with the selling agent or the manufacturer.
■ Insertion of a servo module and the setup value of the system parameter (USAX) do not match.	Check the setup value of system parameter (USAX), and correct it. (See Instruction and Operation Manual – USAX parameter)
■ Communicational error due to external noise	1. Check FG line in U·V·W cable of AC source and a motor. 2. Install a ferrite core at the output of U·V·W cable of the controller.
■ The software version of a main module and a servo module do not match	Consult with the selling agent or the manufacturer.

E2104 - E2106. RX TIME OUT ALARM

Description	Data not received as much as the specified number of packet from the servo module		
Alarm clearing	RESET		POWER ON/OFF
Alarm type	COMMUNICATION		
Alarm code	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
(Display on 7-seg)	E2104	E2105	E2106
Display on T/P	RX Time out (1, 2, and 3) SM		

Reason	Resolution
■ Failure in communication between a servo module and a main module	1. Check the connected state between a servo module and a main module. 2. If the alarm persistently occurs, consult with the selling agent or the manufacturer.
■ Communicational error due to external noise	1. Check FG line in U·V·W cable of AC source and a motor. 2. Install a ferrite core at the output of U·V·W cable of the controller.
■ The software version of a main module and a servo module do not match	Consult with the selling agent or the manufacturer.

E2107 - E2109. LRC ERR ALARM

Description	CRC operation and CRC data of the received frame in a servo module do not match		
Alarm clearing	RESET		POWER ON/OFF
Alarm type	COMMUNICATION		
Alarm code	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
(Display on 7-seg)	E2107	E2108	E2109
Display on T/P	LRC Err (1, 2, and 3) SM		

Reason	Resolution
■ Failure in communication between a servo module and a main module	1. Check the connected state between a servo module and a main module. 2. If the alarm persistently occurs, consult with the selling agent or the manufacturer.
■ Communicational error due to external noise	1. Check FG line in U·V·W cable of AC source and a motor. 2. Install a ferrite core at the output of U·V·W cable of the controller.
■ The software version of a main module and a servo module do not match	Consult with the selling agent or the manufacturer.

E2110 - E2112. ID MISMATCH ALARM

Description	ID setup value and the slot position in a servo module do not match		
Alarm clearing	RESET		POWER ON/OFF
Alarm type	COMMUNICATION		
Alarm code	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
(Display on 7-seg)	E2110	E2111	E2112
Display on T/P	Com ID Err (1, 2, and 3) SM		

Reason	Resolution
■ ID setup value and the slot number in a servo module do not match	Check ID and slot of the servo module.

First slot used   **Second slot used**   **Third slot used**

ID 1   ID 2   ID 3

[Setup of ID switches of servo module]

E2113 - E2115. PACKET DATA ERR ALARM

Description	Loss in communication data between a main module and a servo module		
Alarm clearing	RESET		POWER ON/OFF
Alarm type	COMMUNICATION		
Alarm code	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
(Display on 7-seg)	E2113	E2114	E2115
Display on T/P	Packet Data Err (1, 2, and 3) SM		

| Reason	Resolution
■ Failure in communication between a servo module and a main module	1. Check the connected state between a servo module and a main module. 2. If the alarm persistently occurs, consult with the selling agent or the manufacturer.
■ Communicational error due to external noise	1. Check FG line in U·V·W cable of AC source and a motor. 2. Install a ferrite core at the output of U·V·W cable of the controller.
■ The software version of a main module and a servo module do not match	Consult with the selling agent or the manufacturer.

E2122 - E2124. PARA READ ERR ALARM

Description	Failure in the parameter data read from the servo module		
Alarm clearing	RESET		POWER ON/OFF
Alarm type	COMMUNICATION		
Alarm code	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
(Display on 7-seg)	E2122	E2123	E2124
Display on T/P	PARA Read Err (1, 2, and 3) SM		

Reason	Resolution
■ Failure in parameter value	Check the parameter value setup is in the permissible range, and correct it.
■ Communicational error due to external noise	1. Check FG line in U·V·W cable of AC source and a motor. 2. Install a ferrite core at the output of U·V·W cable of the controller.
■ Failure in servo module	1. Check EEPROM in a servo module. 2. If the alarm persistently occurs, consult with the selling agent

E2125 - E2127. PARA WRITE ERR ALARM

Description	Parameter is not normally written in the servo module		
Alarm clearing	RESET		POWER ON/OFF
Alarm type	COMMUNICATION		
Alarm code	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
(Display on 7-seg)	E2125	E2126	E2127
Display on T/P	PARA Write Err (1, 2, and 3) SM		

| Reason	Resolution
■ Failure in parameter value	Check the parameter value setup is in the permissible range, and correct it.
■ Communicational error due to external noise	1. Check FG line in U·V·W cable of AC source and a motor. 2. Install a ferrite core at the output of U·V·W cable of the controller.
■ Failure in servo module	1. Check EEPROM in a servo module. 2. If the alarm persistently occurs, consult with the selling agent or the manufacturer.

E2128 - E2130. PARA SAVE ERR ALARM

Description	The parameter is not normally saved in the servo module		
Alarm clearing	RESET		POWER ON/OFF
Alarm type	COMMUNICATION		
Alarm code (Display on 7-seg)	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
	E2128	E2129	E2130
Display on T/P	PARA Save Err (1, 2, and 3) SM		

Reason	Resolution
■ Failure in parameter value	Check the parameter value setup is in the permissible range, and correct it.
■ Communicational error due to external noise	1. Check FG line in U·V·W cable of AC source and a motor. 2. Install a ferrite core at the output of U·V·W cable of the controller.
■ Failure in servo module	1. Check EEPROM in a servo module. 2. If the alarm persistently occurs, consult with the selling agent or the manufacturer.

E2131 - E2133. SV SYNC SIGNAL ALARM

Description	Failure in Sync signal for synchronization of the servo module		
Alarm clearing	RESET		POWER ON/OFF
Alarm type	COMMUNICATION		
Alarm code (Display on 7-seg)	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
	E2128	E2129	E2130
Display on T/P	SYNC SIGNAL Err (1, 2, and 3) SM		

Reason	Resolution
■ Failure in a Sync signal input line of the servo module	If the alarm persistently occurs, consult with the selling agent or the manufacturer.
■ Failure in a Sync signal output line of the main module	1. Replace a main module. 2. Replace a back board.
■ Communicational error due to external noise	1. Check the FG line in U·V·W cable of AC source and a motor. 2. Install a ferrite core at both ends of U·V·W cable of a motor.

E2134 - E2136. SV EXT EMG ERR ALARM

Description	External emergency signal is entered the servo module		
Alarm clearing	RESET		POWER ON/OFF
Alarm type	SERVO		
Alarm code	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
(Display on 7-seg)	E2134	E2135	E2136
Display on T/P	SV Ext EMG Err (1, 2, and 3) SM		

Reason	Resolution
■ External emergency signal is entered the servo module	Alarm occurrence in the controller is to notify the servo module of the alarming state. Check the causes to the alarm, and resolve them.
■ Insertion of the servo module and the switch setup of the back board do not match	Check whether or not the servo module is inserted, and the switch setup values.
■ Failure in external emergency signal line of the servo module	1. Check the signal line of the back board. 2. If the alarm persistently occurs, consult with the selling agent or the manufacturer.
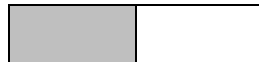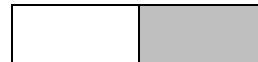
Servo module is inserted   **Servo module is not inserted**
[Switch setup for use of servo module]

E2137 - E2139. SV Com Time Out ALARM

Description	Servo module does not receive the communication data within the specified time		
Alarm clearing	RESET		POWER ON/OFF
Alarm type	COMMUNICATION		
Alarm code	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
(Display on 7-seg)	E2137	E2138	E2139
Display on T/P	SV Com Time Out (1, 2, and 3) SM		

Reason	Resolution
■ Failure in communication between a servo module and a main module	1. Check the connected state between a servo module and a main module. 2. If the alarm persistently occurs, consult with the selling agent or the manufacturer.
■ Communicational error due to external noise	1. Check FG line in U·V·W cable of AC source and a motor. 2. Install a ferrite core at the output of U·V·W cable of the controller.

E2140 - E2145. ENC MULTI_TURN_FAIL_ALARM

Description	Multi-turn data of an encoder is not cleared within the specified time					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	COMMUNICATION					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2140	E2141	E2142	E2143	E2144	E2145
Display on T/P	M-Turn Clear Fail 1-6 Axis					

Reason	Resolution
■ An encoder of the motor is not supported ABS mode	1. Check the encoder spec. of the motor used. 2. Check the system parameter (ENC), and correct it.
■ Communicational error due to external noise	1. Check FG line in U·V·W cable of AC source and a motor. 2. Install a ferrite core at the output of U·V·W cable of the controller.

2.7 SERVO AMP (E2160 - E2219)

E2160 - E2162. OVER VOLATAGE ALARM			
Description	DC link voltage of the servo module exceeds 400V		
Alarm clearing	RESET	POWER ON/OFF	
Alarm type	SERVO		
Alarm code	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
(Display on 7-seg)	E2160	E2161	E2162
Display on T/P	Over Voltage (1, 2, and 3) SM		

Reason	Resolution
■ Too short acceleration and deceleration time for the motor load	Adjust the acceleration and deceleration time setup of the system parameter to be longer.
■ Failure in regenerative resistor in the servo module	1. Check that the regenerative resistor is inserted in the servo module. 2. Check the resistance value and the state of the regenerative resistor in the servo module.
■ Input voltage excess the permissible voltage.	Check the input source voltage, and apply the proper voltage.
■ Servo module fault	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

E2163 - E2165. UNDER VOLTAGE ALARM

Description	DC link voltage of the servo module is under 180V		
Alarm clearing	RESET		POWER ON/OFF
Alarm type	SERVO		
Alarm code	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
(Display on 7-seg)	E2163	E2164	E2165
Display on T/P	Under Voltage (1, 2, and 3) SM		

Reason	Resolution
■ Too short acceleration and deceleration time for the motor load	Adjust the acceleration and deceleration time setup of the system parameter to be longer.
■ Source voltage is lower than the permissible input voltage.	Check the input source voltage, and apply the proper voltage.
■ Failure in a power relay in the electrical module.	Check whether the power relay in the electrical module normally works. Replace the electrical module.
■ Servo module fault	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

E2166~E2168. MOTOR POWER FAIL ALARM

Alarm Description	When instantaneous power outage lasts longer than the set value of system parameter (MPDT) for motor power detection time.		
Alarm Disabling	RESET		POWER ON/OFF
Alarm Classification	SERVO		
Alarm Code	SERVO MODLE 1	SERVO MODLE 2	SERVO MODLE 3
(7-Seg Display)	E2166	E2167	E2168
T/P Display	Motor Power Fail (1,2,3) SM		

Causes	Measures
■ In the event of instant power outage	1. Set MPDT set value longer than instant power outage time. 2. Set the detection function on motor power supply to 0 when not wanted for use.
■ Breakdown of power relay in electric field module	Check if the power relay in electric field module is working. Replace the electric field module.
■ Servo Module breakdown	If alarm occurs persistently, ask the agency and manufacturer for inspection.

E2178~E2183. E-STOP OVS ALARM

Alarm Description	When the motor rotation rate is beyond the set level of system parameter (E-STOP->OVS) in case of an emergency stop					
Alarm Disabling	RESET			POWER ON/OFF		
Alarm Classification	SERVO					
Alarm Code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(7-Seg Display)	E2178	E2179	E2180	E2181	E2182	E2183
T/P Display	E-STOP OVS 1~6 AXIS					

Causes	Measures
■ System parameter (E-STOP OVS) set at low level	Check that E-STOP->OVS set value is set over 110% of JOINT speed (Mv).
■ Occurrence of vibration or noise due to poor gain control	Readjust the gain. (Refer to Gain Manual – How to set gain)

E2184 - E2189. IPM FAULT ALARM

Description	Failure in IPM of servo module					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	SERVO					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2184	E2185	E2186	E2187	E2188	E2189
Display on T/P	IPM Fault 1-6 AXIS					

Reason	Resolution
■ Motor cables U, V, and W are short-circuited	1. Check the short-circuit of U·V·W·FG cables of the motor, and connect them properly. 2. Check the correct order of the controller U·V·W·FG cables and the motor U·V·W·FG input terminals. 3. Exactly connect encoders of each axis and U·V·W cables, one-to-one.
■ Permissible maximum current of IPM for each axis is exceeded	1. If 300% of excess occurs after monitoring maximum torque, adjust the parameter acceleration and deceleration time to be longer. 2. Adjust the gain. 3. Raise the capacity of the motor and the servo module.
■ Permissible maximum temperature for IPM module is exceeded	1. Check the operation of a fan of the controller, and if it does not normally work, replace it. 2. Install the controller at the outside, when the controller has in it the regenerative resistor.
■ IPM broken	If the alarm persistently occurs, consult with the selling agent or the manufacturer

E2190 - E2195. CURRENT SENSING ALARM

Description	Failure in the current sensing circuit in the servo module					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	SERVO					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2190	E2191	E2192	E2193	E2194	E2195
Display on T/P	Current Sen Err 1-6 AXIS					

Reason	Resolution
■ Failure in the current sensing circuit in the servo module	Replace a servo module.

E2196 - E2201. OVER CURRENT ALARM

Description	The current of the alarmed axis motor exceeds the permissible maximum value.					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	SERVO					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2196	E2197	E2198	E2199	E2200	E2201
Display on T/P	Over Current 1-6 AXIS					

Reason	Resolution
■ Motor cable U, V, and W short-circuited.	1. Check the short-circuit of U·V·W·FG cables of the motor, and connect them properly. 2. Check the correct order of the controller U·V·W·FG cables and the motor U·V·W·FG input terminals. 3. Exactly connect encoders of each axis and U·V·W cables, one-to-one.
■ Motor burnt or damaged	Check the insulation resistance and line-to-line resistance of the motor, and replace the motor if necessary.
■ Relay for dynamic braking is melted down due to frequently Servo On-Off.	Check the operation of a dynamic braking relay of a servo module, and replace the servo module. (If the dynamic breaking relay does not work, do not perform Servo ON/Off.)
■ Vibration or noise generation due to wrong gain adjustment	Readjust the gain. (See "How to set up the gain" in Gain Setup Manual.)
■ Failure in the rated load capacity, and excessive accel./decel. setup.	If 300% or more of excess occurs after monitoring the maximum torque during the robot operation, change the decel./accel. setup and enlarge the motor capacity.

E2202 - E2207. OVER LOAD ALARM

Description	Torque load rate exceeds the system parameter (OVL)					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	SERVO					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2202	E2203	E2204	E2205	E2206	E2207
Display on T/P	Over Load 1-6 AXIS					

Reason	Resolution
■ A motor is operated for a given time, under the state of wrong ratings and when the effective torque exceeds the rated torque.	1. Enlarge the capacity of the servo module and the motor. 2. Set the accel/decal operation time to be longer. 3. Reduce the load.
■ Vibration or noise generation due to wrong gain adjustment	Readjust the gain. (See Gain Setup Manual.)
■ Miss-wiring or disconnection of the motor cable	1. Check the disconnection of motor U·V·W·FG cables, and connect them exactly. 2. Check the correct order of the controller U·V·W·FG cables and the motor U·V·W·FG input terminals. 3. Exactly connect encoders of each axis and U·V·W cables, one-to-one.
■ Mechanical external interference during operation	Check whether there is any mechanical external interference.
■ Failure in an electromagnetic brake of the motor	Check the wiring of the brake terminals and its operation.
■ System parameter (OVL) value is set up too low.	If the system parameter (OVL) setup value is too low, change it properly.

E2208 - E2213. OVER SPEED ALARM

Description	Rotating velocity of the motor exceeds the system parameter (OVS).					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	SERVO					
Alarm code	AXIS1	AXIS2	AXIS3	AXIS4	AXIS5	AXIS6
(Display on 7-seg)	E2208	E2209	E2210	E2211	E2212	E2213
Display on T/P	Over Speed 1-6 AXIS					

Reason	Resolution
■ The system parameter (OVS) value is set up too low	Check that OVS setup value is set up to be not less than 110% of JOINT velocity (Mv).
■ Excessive velocity instruction	1. Reduce the maximum RPM velocity. 2. Set up accel/decel time to be longer.
■ The motor encoder setup value and the motor do not match	Check the motor encoder setup value and the part number of the motor.
■ Vibration or noise generation due to wrong gain adjustment	Re-adjust the gain. (See "How to set up the gain" in Gain Setup Manual.)

E2214 - E2219. FOLLOWING ERR ALARM

Description	Positional error value of a motor exceeds the setup value range of the system parameter (FOW)					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	SERVO					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2214	E2215	E2216	E2217	E2218	E2219
Display on T/P	Following Err 1-6 AXIS					

Reason	Resolution
■ The system parameter (FOW) value is set up too low	If the error occurs when in accel/decel during the robot operation, increased the setup value of the system parameter (FOW).
■ Excessive velocity instruction is entered, than the robot spec.	1. Reduce the maximum RPM velocity. 2. Set up accel/decel time to be longer.
■ Mechanical external interference during operation	Check whether there is any mechanical external interference.
■ Vibration or noise generation due to wrong gain adjustment	Re-adjust the gain. (See "How to set up the gain" in Gain Setup Manual.)

2.8   ENCODER (E2220 - E2291, E2316 - E2321)

E2220 - E2225. ENCODER OPEN ALARM

Description	Disconnection of an encoder line when in use of a pulse encoder					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	ENCODER					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2220	E2221	E2222	E2223	E2224	E2225
Display on T/P	Enc Open 1-6 AXIS					

Reason	Resolution
■ Poor contact in encoder connector	Check the connecting state of encoder connectors of a controller and a motor.
■ Low source voltage for encoder	Measure whether the source voltage is 4.75 to 5.25V on a motor encoder. If it is less than 4.75V, reinforce the power source for a robot cable, or shorten the cable length.
■ Encoder cable disconnection	Check the encoder cable disconnection, and if so, replace it.

E2226 - E2231. ENCODER INIT ALARM

Description	Failure in an encoder signal during initialization of a servo module					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	ENCODER					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2226	E2227	E2228	E2229	E2230	E2231
Display on T/P	Enc INIT Err 1-6 AXIS					

Reason	Resolution
■ Poor contact in encoder connector	Check the connecting state of encoder connectors of a controller and a motor.
■ Low source voltage for encoder	Measure whether the source voltage is 4.75 to 5.25V on a motor encoder. If it is less than 4.75V, reinforce the power source for a robot cable, or shorten the cable length.
■ Encoder cable disconnection	Check the encoder cable disconnection, and if so, replace it.

E2232 - E2238. ENCODER HALL OPEN ALARM

Description	Failure in a Hall sensor signal of the encoder						
Alarm clearing	RESET			POWER ON/OFF			
Alarm type	ENCODER						
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6	AXIS 7
(Display on 7-seg)	E2232	E2233	E2234	E2235	E2236	E2237	E2238
Display on T/P	Enc Hall Open 1-6 AXIS						

Reason	Resolution
■ Poor contact in encoder connector	Check the connecting state of encoder connectors of a controller and a motor.
■ Low source voltage for encoder	Measure whether the source voltage is 4.75 to 5.25V on a motor encoder. If it is less than 4.75V, reinforce the power source for a robot cable, or shorten the cable length.
■ Encoder cable disconnection	Check the encoder cable disconnection, and if so, replace it.

E2238 - E2243. ENCODER HALL INIT ALARM

Description	Failure in a Hall sensor signal of the encoder during initialization of a servo module					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	ENCODER					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2238	E2239	E2240	E2241	E2242	E2243
Display on T/P	Enc Hall Init Err 1 AXIS					

Reason	Resolution
■ Poor contact in encoder connector	Check the connecting state of encoder connectors of a controller and a motor.
■ Low source voltage for encoder	Measure whether the source voltage is 4.75 to 5.25V on a motor encoder. If it is less than 4.75V, reinforce the power source for a robot cable, or shorten the cable length.
■ Encoder cable disconnection	Check the encoder cable disconnection, and if so, replace it.

E2244 - E2249. ENCODER TIME OUT ALARM

Description	There is no reply from a communicational encoder in a servo module					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	ENCODER					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2244	E2245	E2246	E2247	E2248	E2249
Display on T/P	Enc Timeout 1-6 AXIS					

Reason	Resolution
■ Poor contact in encoder connector	Check the connecting state of encoder connectors of a controller and a motor.
■ Low source voltage for encoder	Measure whether the source voltage is 4.75 to 5.25V on a motor encoder. If it is less than 4.75V, reinforce the power source for a robot cable, or shorten the cable length.
■ The setup value of the system parameter (MOTOR) and the actual motor do not match.	Check the setup value of the system parameter and the actual motor.　(See Instruction and Operation Manual – Motor parameter.)

⚠ Caution	**Since this alarm may cause the positional error of the mechanism, ORG-completed signal is to be turned off.** **< How to do origin searching >** **- ABS Type : Perform the reboot.　　- INC Type : Perform the origin searching.**

E2250 - E2255. SERIAL ENCODER ID ALARM

Description	The setup value of the system parameter is different from the actual motor type					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	ENCODER					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2250	E2251	E2252	E2253	E2254	E2255
Display on T/P	Enc ID Miss 1-6 AXIS					

Reason	Resolution
■ The setup value of the system parameter (Watt, ENC, and ABS) and the actual motor do not match	1. Check the actual motor and the setup value of the system parameter (Watt), and correct it. 2. Check the number of pulses per encoder rotation of the actual motor and the setup value of the system parameter (ENC), and correct it. 3. Check ENC type of the actual motor and the setup value of the system parameter (ABS), and correct it. (See Instruction and Operation Manual – Motor parameter)

E2256 - E2261. ENCODER OVER SPEED ALARM

Description	Failure in multi-turn data detection in an absolute encoder					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	ENCODER					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2256	E2257	E2258	E2259	E2260	E2261
Display on T/P	Enc Over Speed 1-6 AXIS					

Reason	Resolution
■ Low source voltage for encoder	Measure whether the source voltage is 4.75 to 5.25V on a motor encoder. If it is less than 4.75V, reinforce the power source for a robot cable, or shorten the cable length.
■ If only the battery source is supplied when in electricity power failure in a 17-bit absolute encoder, the rotating velocity of the motor exceeds the specified value.	After connecting the power source for a battery, perform the absolute encoder Multi–Turn Clear. (See Instruction and Operation Manual – M-Turn parameter.)

⚠ **Caution**   **This alarm is retained until Multi-Turn Clear is performed.**

E2262 - E2267. ENCODER STATUS ALARM

Description	Power source is applied when an absolute encoder rotates over 100 rpm.					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	ENCODER					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2262	E2263	E2264	E2265	E2266	E2267
Display on T/P	Enc Status 1-6 AXIS					

Reason	Resolution
■ When the power source is applied, the 17-bit absolute encoder rotates, exceeding the specified value.	When applying the source, check whether the motor moves, and have the motor not move.

E2268 - 2273. ENCODER SIGNLE TURN ALARM

Description	Failure in 1-turn data of an absolute encoder					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	ENCODER					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2268	E2269	E2270	E2271	E2272	E2273
Display on T/P	Enc S-Turn Err 1-6 AXIS					

Reason	Resolution
■ 17-bit absolute encoder detects a failure in 1-turn counter.	Replace the motor.

E2274 - 2279. ENCODER OVER FLOW ALARM

Description	Multi-turn data overflow of an absolute encoder					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	ENCODER					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2274	E2275	E2276	E2277	E2278	E2279
Display on T/P	Enc Over Flow 1-6 AXIS					

Reason	Resolution
■ 17-bit absolute encoder detects a failure in multi-turn counter.	Replace the motor.

E2280 - 2285. ENCODER MUTI TURN ALARM

Description	Failure in multi-turn counter of an absolute encoder					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	ENCODER					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2280	E2281	E2282	E2283	E2284	E2285
Display on T/P	Enc M-Turn Err 1-6 AXIS					

Reason	Resolution
■ 17-bit absolute encoder detects a failure in multi-turn counter.	Replace the motor.

E2286 - 2291. ENC SYSTEM DOWN ALARM

Description	The battery voltage of an absolute encoder is under 2.5V					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	ENCODER					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2286	E2287	E2288	E2289	E2290	E2291
Display on T/P	Enc Sys Down 1-6 AXIS					

Reason	Resolution
■ Supply voltage and battery source of the 17-bit absolute encoder are increased, and so, the built-in capacitor voltage is under the specified value.	Replace the battery, and perform Multi–Turn Clear of the absolute encoder. (See Instruction and Operation Manual – M-Turn parameter.)

⚠ Caution	**This alarm is retained until Multi-Turn Clear is performed.**

E2316 - 2321. ENC TYPE MISS MATCH ALARM

Description	The setup value of the system parameter is different from the encoder type of the actual motor					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	ENCODER					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2316	E2317	E2318	E2319	E2320	E2321
Display on T/P	Enc Type Miss 1-6 AXIS					

Reason	Resolution
■ The setup value of the system parameter (ABS) and the actual motor do not match.	Check the setup value of the system parameter (ABS) and the encoder type of the actual motor. E.g.) For a motor with 2,500 pulses per turn, only INC is supported in the system parameter (ABS), and if it is set to ABS, this alarm occurs.

2.9 SV_MEMORY (E2292 - E2303)

E2292 - E2297. PARA EEPROM ALARM

Description	Failure in an internal EEPROM of the servo module					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	MEMORY					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2292	E2293	E2294	E2295	E2296	E2297
Display on T/P	SV ParaRom Err 1-6 AXIS					

Reason	Resolution
■ The internal EEPROM of the servo module damaged.	If the alarm persistently occurs, consult with the selling agent or the manufacturer.

E2298 - E2303. FACTORY PARA ALARM

Description	Failure in the parameter					
Alarm clearing	RESET			POWER ON/OFF		
Alarm type	MEMORY					
Alarm code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(Display on 7-seg)	E2298	E2299	E2300	E2301	E2302	E2303
Display on T/P	Fac. Para Err 1-6 AXIS					

Reason	Resolution
■ The parameter of the internal EEPROM of the servo module exceeds the setup range	1. Check the value range of the parameter. 2. Save the parameter of the servo module.

E2322~E2327. ENC DATA ERR ALARM

Alarm Description	In case the data received from motor encoder is not correct					
Alarm Disabling	RESET			POWER ON/OFF		
Alarm Classification	ENCODER					
Alarm Code	AXIS 1	AXIS 2	AXIS 3	AXIS 4	AXIS 5	AXIS 6
(7-Seg Display)	E2322	E2323	E2324	E2325	E2326	E2327
T/P Display	Enc Data Err 1~6 AXIS					

Causes	Measures
■ Poor contact with encoder connector	Check the connection between the controller and encoder connector at both ends of a motor.
■ Power supply voltage for encoder at low level	Check the power supply voltage (4.75~5.25V) on side of motor encoder. If below 4.75V, supplement the power supply to robot cable or shorten the cable.
■ Occurrence of communication error by external noise	1. Check AC power and FG line on U·V·W cables of motor. 2. Install a ferrite core on U·V·W cable output terminal of the controller.

Chapter 3   Warning Occurrences and Their Resolution (Explanation for Alarm Codes)

FAN FAULT

Description	Failure in cooling fan operation
Display on T/P	FAN FAULT

Reason	Resolution
■ Failure in cooling fan operation	1. Check the connecting status of a connection of the cooling fan, and exactly connect it. 2. Check the foreign materials adhered to the fan, and remove it. 3. Check that the cooling fan turns smoothly without supplying the power, if it is not smooth, replace the fan.

ENC Low Battery

Description	The voltage of the encoder backup battery is under 3.2V
Display on T/P	ENC Low Battery

Reason	Resolution
■ The voltage of the encoder backup battery goes down under 3.2V	1. Check the connecting status of the encoder backup battery, and exactly connect it. 2. Measure the voltage of the encoder backup battery. If it is under 3.2V, replace the battery.

Caution ⚠	When in situation of Enc Low Battery, the battery replacement must be done, under the state of the controller power is being supplied. If the controller power is not supplied for a long time after Enc Low Battery Warning occurred, the position data of the robot may be lost.

Rev.	Revision Date	Description	Reviser	S/W Version
V.1.0	2012.07.30	**First Edition Printed**		
V2.0	2013.01.17	"OVER LOAD 2" "IN RANG ERR" "MOTOR POWER FAIL" "E-STOP OVS" "ENC DATA ERR"	**ESCHO**	

N1 ROBOT CONTROLLER

CONTROLLER MANUAL

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