Dobot M1 ALARM Description

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Shenzhen Yuejiang Technology Co., Ltd

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Preface

Purpose

This document describes the alarms of Dobot M1 and provides the solutions to clear alarm.

Intended Audience

This document is intended for:

- Customer Engineer
- Installation and Commissioning Engineer
- Technical Support Engineer

Change History

Date	Description
2019/06/30	The first release

Contents

1. ALARM Description

1.1   Getting the Alarm Status of System

Table 1.1   The description of getting system alarm

Prototype	int GetAlarmsState(uint8_t *alarmsState, uint32_t *len, unsigned int maxLen)
Description	Get the alarm status of system
Parameter	alarmsState: The first address of the array. Each byte in the array **alarmsState** identifies the alarms status of the eight alarm items, with the MSB (Most Significant Bit) at the top and LSB (Least Significant Bit) at the bottom len: The byte occupied by the alarm maxLen: Maximum array length, to avoid overflow
return	DobotCommunicate_NoError: The command returns with no error DobotCommunicate_Timeout: The command does not return, resulting in a timeout

📖NOTE

Each byte in the array **alarmsState** identifies the alarms status of the eight alarm items, with the MSB (Most Significant Bit) at the top and LSB (Least Significant Bit) at the bottom.

1.2   Clearing All Alarms

Table 1.2   Clear all alarms

Prototype	int ClearAllAlarmsState(void)
Description	Clear all alarms
Parameter	None
return	DobotCommunicate_NoError: The command returns a value with no error DobotCommunicate_Timeout: The command does not return any value, resulting in a timeout

1.3   Alarm Content

```
enum {
    // Common error
    ERR_COMMON_MIN = 0x00,
    ERR_COMMON_RESET = ERR_COMMON_MIN,


    ERR_COMMON_MAX = 0x0f,


    // Plan error
    ERR_PLAN_MIN = 0x10,
    ERR_PLAN_INV_SINGULARITY = ERR_PLAN_MIN,
```

```
ERR_PLAN_INV_CALC,

ERR_PLAN_INV_LIMIT,

ERR_PLAN_PUSH_DATA_REPEAT,

ERR_PLAN_ARC_INPUT_PARAM,

ERR_PLAN_JUMP_PARAM,

ERR_PLAN_LINE_HAND,

ERR_PLAN_LINE_OUT_SPACE,

ERR_PLAN_ARC_OUT_SPACE,

ERR_PLAN_MOTIONTYPE,

ERR_PLAN_SPEED_INPUT_PARAM,

ERR_PLAN_CP_CALC,


ERR_PLAN_MAX = 0x1f,


// Move error

ERR_MOVE_MIN = 0x20,

ERR_MOVE_INV_SINGULARITY = ERR_MOVE_MIN,

ERR_MOVE_INV_CALC,

ERR_MOVE_INV_LIMIT,


ERR_MOVE_MAX = 0x2f,


// Over speed error

ERR_OVERSPEED_MIN = 0x30,

ERR_OVERSPEED_AXIS1 = ERR_OVERSPEED_MIN,

ERR_OVERSPEED_AXIS2,

ERR_OVERSPEED_AXIS3,

ERR_OVERSPEED_AXIS4,


ERR_OVERSPEED_MAX = 0x3f,


// Limit error

ERR_LIMIT_MIN = 0x40,

ERR_LIMIT_AXIS1_POS = ERR_LIMIT_MIN,

ERR_LIMIT_AXIS1_NEG,


ERR_LIMIT_AXIS2_POS,
```

```
ERR_LIMIT_AXIS2_NEG,

ERR_LIMIT_AXIS3_POS,
ERR_LIMIT_AXIS3_NEG,

ERR_LIMIT_AXIS4_POS,
ERR_LIMIT_AXIS4_NEG,

ERR_LIMIT_AXIS23_POS,
ERR_LIMIT_AXIS23_NEG,

//ERR_LIMIT_SINGULARITY,

ERR_LIMIT_MAX = 0x4f,

// Lose Step error
ERR_LOSE_STEP_MIN = 0x50,
ERR_LOSE_STEP_AXIS1 = ERR_LOSE_STEP_MIN,
ERR_LOSE_STEP_AXIS2,

ERR_LOSE_STEP_AXIS3,
ERR_LOSE_STEP_AXIS4,

ERR_LOSE_STEP_MAX = 0x5f,

// Other error
ERR_OTHER_MIN = 0x60,
ERR_OTHER_AXIS1_DRV_ALARM = ERR_OTHER_MIN,
ERR_OTHER_AXIS1_OVERFLOW,
ERR_OTHER_AXIS1_FOLLOW,

ERR_OTHER_AXIS2_DRV_ALARM,
ERR_OTHER_AXIS2_OVERFLOW,
ERR_OTHER_AXIS2_FOLLOW,

ERR_OTHER_AXIS3_DRV_ALARM,
ERR_OTHER_AXIS3_OVERFLOW,
```

ERR_OTHER_AXIS3_FOLLOW,

ERR_OTHER_AXIS4_DRV_ALARM,

ERR_OTHER_AXIS4_OVERFLOW,

ERR_OTHER_AXIS4_FOLLOW,

ERR_OTHER_MAX = 0x6f,

ERR_MOTOR_REAR_MIN = 0x70,

ERR_MOTOR_REAR_ENCODER = ERR_MOTOR_REAR_MIN,

ERR_MOTOR_REAR_TEMPERATURE_HIGH,

ERR_MOTOR_REAR_TEMPERATURE_LOW,

ERR_MOTOR_REAR_LOCK_CURRENT,

ERR_MOTOR_REAR_BUSV_HIGH,

ERR_MOTOR_REAR_BUSV_LOW,

ERR_MOTOR_REAR_OVERHEAT,

ERR_MOTOR_REAR_RUNAWAY,

ERR_MOTOR_REAR_BATTERY_LOW,

ERR_MOTOR_REAR_PHASE_SHORT,

ERR_MOTOR_REAR_PHASE_WRONG,

ERR_MOTOR_REAR_LOST_SPEED,

ERR_MOTOR_REAR_NOT_STANDARDIZE,

ERR_ENCODER_REAR_NOT_STANDARDIZE,

ERR_MOTOR_REAR_CAN_BROKE,

ERR_MOTOR_REAR_MAX = 0x7f,

ERR_MOTOR_FRONT_MIN = 0x80,

ERR_MOTOR_FRONT_ENCODER = ERR_MOTOR_FRONT_MIN,

ERR_MOTOR_FRONT_TEMPERATURE_HIGH,

ERR_MOTOR_FRONT_TEMPERATURE_LOW,

ERR_MOTOR_FRONT_LOCK_CURRENT,

ERR_MOTOR_FRONT_BUSV_HIGH,

ERR_MOTOR_FRONT_BUSV_LOW,

ERR_MOTOR_FRONT_OVERHEAT,

ERR_MOTOR_FRONT_RUNAWAY,

ERR_MOTOR_FRONT_BATTERY_LOW,

ERR_MOTOR_FRONT_PHASE_SHORT,

ERR_MOTOR_FRONT_PHASE_WRONG,

ERR_MOTOR_FRONT_LOST_SPEED,

ERR_MOTOR_FRONT_NOT_STANDARDIZE,

ERR_ENCODER_FRONT_NOT_STANDARDIZE,

ERR_MOTOR_FRONT_CAN_BROKE,

ERR_MOTOR_FRONT_MAX = 0x8f,

ERR_MOTOR_Z_MIN = 0x90,

ERR_MOTOR_Z_ENCODER = ERR_MOTOR_Z_MIN,

ERR_MOTOR_Z_TEMPERATURE_HIGH,

ERR_MOTOR_Z_TEMPERATURE_LOW,

ERR_MOTOR_Z_LOCK_CURRENT,

ERR_MOTOR_Z_BUSV_HIGH,

ERR_MOTOR_Z_BUSV_LOW,

ERR_MOTOR_Z_OVERHEAT,

ERR_MOTOR_Z_RUNAWAY,

ERR_MOTOR_Z_BATTERY_LOW,

ERR_MOTOR_Z_PHASE_SHORT,

ERR_MOTOR_Z_PHASE_WRONG,

ERR_MOTOR_Z_LOST_SPEED,

ERR_MOTOR_Z_NOT_STANDARDIZE,

ERR_ENCODER_Z_NOT_STANDARDIZE,

ERR_MOTOR_Z_CAN_BROKE,

ERR_MOTOR_Z_MAX = 0x9f,

ERR_MOTOR_R_MIN = 0xA0,

ERR_MOTOR_R_ENCODER = ERR_MOTOR_R_MIN,

ERR_MOTOR_R_TEMPERATURE_HIGH,

ERR_MOTOR_R_TEMPERATURE_LOW,

ERR_MOTOR_R_LOCK_CURRENT,

ERR_MOTOR_R_BUSV_HIGH,

ERR_MOTOR_R_BUSV_LOW,

ERR_MOTOR_R_OVERHEAT,

ERR_MOTOR_R_RUNAWAY,

ERR_MOTOR_R_BATTERY_LOW,

ERR_MOTOR_R_PHASE_SHORT,

```
        ERR_MOTOR_R_PHASE_WRONG,

        ERR_MOTOR_R_LOST_SPEED,

        ERR_MOTOR_R_NOT_STANDARDIZE,

        ERR_ENCODER_R_NOT_STANDARDIZE,

        ERR_MOTOR_R_CAN_BROKE,

        ERR_MOTOR_R_MAX = 0xAf,


        ERR_MOTOR_ENDIO_MIN = 0xB0,

        ERR_MOTOR_ENDIO_IO = ERR_MOTOR_ENDIO_MIN,

        ERR_MOTOR_ENDIO_RS485_WRONG,

        ERR_MOTOR_ENDIO_CAN_BROKE,

        ERR_MOTOR_ENDIO_MAX = 0xBf,


        ERR_ERROR_MAX = ALARMS_BITS – 1
};
```

1.4   Alarm Index Calculation Description

Table 1.3   Alarm Index Calculation description

Alarm command	0x AA AA 02 14 00 EC
	Protocol command consists of packet header, payload length, payload frame, and check.
	AAAA: Packet header
	02: Payload length
	14: ID Payload ID
	00: Payload data(read\write status and queue command status)
	EC: Check
Returned command	0x AA AA 12 14 00 00 00 00 00 00 00 00 00 08 00 00 00 00 00 00 00 00 EC
Analysis process	In the returned command, 00 00 00 00 00 00 00 00 08 00 00 00 00 00 00 00 00 is an array with 16 bytes. One byte identifies eight alarm items, and the payload frame uses little endian mode, we should calculate alarm index by little endian mode
	Binary : 0x 00000000…...00001000……00000000
	When alarm item is 1, this means there is an alarm. So we can calculate that the first alarm is at the 67th bit. Transform decimal to hex: 0x43
Analysis result	0x43: Joint 2 negative limitation alarm

2. Planned Alarm

2.1 Inverse Kinematics Singularity Alarm

Table 2.1 Inverse kinematics singularity alarm description

Index	0x10
Trigger condition	The planned target point (starting point or end point) is at the singular position where the joint angle of Forearm ranges from -20 °to 20 °, resulting in an inverse kinematics solution error
Reset condition	Clear the alarm

📖NOTE

Inverse kinematics solution is to obtain each joint angle based on the robot pose in the Cartesian space.

Description

The planned target point (starting point or end point) is at the singular position where the joint angle of Forearm ranges from -20 °to 20 °, resulting in an inverse kinematics solution error.

Reason

- The planned target point is at the singular position in MOVL mode.
- The planned middle point or the target point is at the singular position in ARC mode.
- The planned target point is at the singular position in CP mode.
- The planned target point is at the singular position in JUMP_MOVL mode.

Solution

1） Check whether the target point is at the singular point. Modify and resave it.

2） Click ClearAlarm.

2.2 No Inverse Kinematics Solution Alarm

Table 2.2 No inverse kinematics solution alarm description

Index	0x11
Trigger condition	The planned target point is out of range of the workspace, resulting in that there is no inverse kinematics solution
Reset condition	Clear the alarm

Description

The planned target point is out of range of the workspace, resulting in that there is no inverse kinematics solution.

Reason

The planned target point is out of range of the workspace in all modes.

Solution

1） Check whether the target point is out of range of the workspace. Modify and resave it.

For details about the workspace of Dobot M1, please see *Dobot M1 User Guide*.

2） Click ClearAlarm.

2.3 Inverse Kinematics Limit Alarm

Table 2.3   Inverse kinematics limit alarm

Index	0x12
Trigger condition	The inverse kinematics solution calculated according to the planned target point is greater than the specified joint angle
Reset condition	Clear the alarm

Description

The inverse kinematics solution calculated according to the planned target point is greater than the specified joint angle.

Reason

The inverse kinematics solution calculated according to the planned target point is greater than the specified joint angle in all modes.

Solution

1） Check whether the joint angle of the target point is greater than the specified joint angle. Modify and resave it.

Table 2.4   Joint limit description

Joint	Negative Limit	Positive Limit
J1	-85 °	85 °
J2	-135 °	135 °
J3	10mm	235mm
J4	-360 °	360 °

2） Click **ClearAlarm**.

2.4 Data Repeatability Alarm

Table 2.5   Data repeatability alarm description

Index	0x13
Trigger condition	The planed points are the same in ARC or JUMP_MOVL mode
Reset condition	Clear the alarm

Description

The planed points are the same in ARC or JUMP_MOVL mode.

Reason

- Any two of the three points of the arc are coincided in ARC mode.

- The starting point and the end point are the same in JUMP_MOVL mode.

Solution

1） Check whether the points are the same. Modify and resave them.

2） Click **ClearAlarm**.

2.5 Input Parameter Error Alarm in ARC Mode

Table 2.6   Input parameter error alarm description in ARC mode

Index	0x14
Trigger condition	The planned middle point and the planned end point cannot form an arc
Reset condition	Clear the alarm

Description

The planned middle point and the planned end point cannot form an arc.

Reason

The three points in ARC mode are the same or in a line.

Solution

1） Check whether the saved points are the same or in a line. Modify and resave them.

2） Click **ClearAlarm**.

2.6 JUMP Parameter Error Alarm

Table 2.7   JUMP parameter error alarm description

Index	0x15
Trigger condition	The **Height**, **Limit** parameters are wrong
Reset condition	Clear the alarm

Description

The **Height**, **Limit** parameters are wrong.

Reason

- **Limit** is higher than the maximum height (235 mm).
- **Limit** is lower than the minimum height (10 mm).
- **Limit** is lower than 0.

Solution

1） Check the JUMP parameters, and reset them.

2） Click **ClearAlarm**.

2.7 Arm Orientation Error Alarm

Table 2.8 Arm orientation error alarm description

Index	0x16
Trigger condition	The arm orientations of the starting point and the end point are different in MOVL, ARC, CP or JUMP_MOVL mode, resulting in that the trajectory will go through the singular position
Reset condition	Clear the alarm

Description

The arm orientations of the starting point and the end point are different in MOVL, ARC, CP or JUMP_MOVL mode, resulting in that the trajectory will go through the singular position.

Reason

- The arm orientations of the starting point and the end point are different in MOVL mode.
- The arm orientations of the starting point and the end point are different in ARC mode.
- The arm orientations of the starting point and the end point are different in CP mode.
- The arm orientations of the starting point and the end point are different in JUMP_MOVL mode.

Solution

1） Check the arm orientations of the two saved points, and ensure that the arm orientations are the same.

2） Click **ClearAlarm**.

2.8 Planned Point Out of Range of Workspace in MOVL Mode

Table 2.9 Planned point out of range of workspace in MOVL mode

Index	0x17
Trigger condition	The planned point is out of range of the workspace in MOVL mode

Reset condition	Clear the alarm

Description

The planned point is out of range of the workspace in MOVL mode.

Reason

The planned trajectory is out of range of the workspace in MOVL mode.

Solution

1） Check whether the planned trajectory from the starting point to the end point is out of range of the workspace. Modify and resave it.

2） Click **ClearAlarm**.

2.9 Planned Point Out of Range of Workspace in ARC Mode

Table 2.10 Planned point out of range of workspace in ARC mode

Index	0x18
Trigger condition	The planned point is out of range of the workspace in ARC mode
Reset condition	Clear the alarm

Description

The planned point is out of range of the workspace in ARC mode.

Reason

The planned trajectory is out of range of the workspace in ARC mode

Solution

1） Check whether the planned trajectory in ARC mode is out of range of the workspace. Modify and resave it.

2） Click **ClearAlarm**.

2.10 Motion Command Error Alarm

Table 2.11 Motion command error alarm description

Index	0x19
Trigger condition	The motion command is unknown
Reset condition	Clear the alarm

Description

The motion command is unknown.

Reason

The motion command is not provided by the API interface.

Solution

1） Check whether the motion command is correct. Modify and resave it.

2） Click **ClearAlarm**.

2.11 Speed Parameter Error Alarm

Table 2.12   Speed parameter error alarm description

Index	0x1A
Trigger condition	The relevant speed parameters are set to 0 or negative
Reset condition	Clear the alarm

Description

The relevant speed parameters are set to 0 or negative.

Reason

The relevant speed parameters are set to 0 or negative.

Solution

1） Check the relevant speed parameters. Modify and resave them.

2） Click **ClearAlarm**.

2.12 Planned Trajectory Error in CP Mode

Table 2.13   Planned trajectory error alarm description in CP mode

Index	0x1B
Trigger condition	The planned trajectory is abnormal in CP mode, resulting in that Dobot M1 cannot work
Reset condition	Clear the alarm

Description

The planned trajectory is abnormal in CP mode, resulting in that Dobot M1 cannot work.

Reason

- The interpolation of the trajectory is abnormal in CP mode, and the running cycle is negative.

- The interpolation speed of the trajectory is negative.

Solution

The data is abnormal, and replace the data file.

3. Motion Alarm

3.1   Inverse Kinematics Solution Singularity Alarm

Table 3.1   Inverse kinematics solution singularity alarm description

Index	0x20
Trigger condition	A point on the trajectory is at the singular position where the joint angle of Forearm ranges from -20 ° to 20 °, resulting in an inverse kinematics solution error
Reset condition	Clear the alarm

Description

A point on the trajectory is at the singular position where the joint angle of Forearm ranges from -20 ° to 20 °, resulting in an inverse kinematics solution error.

Reason

- Dobot M1 is jogged to the singular position under the Cartesian coordinate system.
- The trajectory passes through the singular position when Dobot M1 moves in MOVL mode.
- The trajectory passes through the singular position when Dobot M1 moves in ARC mode.
- The trajectory passes through the singular position when Dobot M1 moves in CP mode.
- The trajectory passes through the singular position when Dobot M1 moves in JUMP_MOVL mode.

Solution

- If you jog Dobot M1 to the singular position, please jog Joint2 to clear the alarm.
- If a point on the trajectory is at the singular position when Dobot M1 moves with motion commands, please modify and resave the target point, then click **ClearAlarm**.

3.2   No Inverse Kinematics Solution Alarm

Table 3.2   No inverse kinematics solution alarm description

Index	0x21
Trigger condition	The trajectory is out of range of the workspace when Dobot M1 moves with motion commands, resulting in that there is no inverse kinematics solution
Reset condition	Clear the alarm

Description

The trajectory is out of range of the workspace when Dobot M1 moves with motion commands, resulting in that there is no inverse kinematics solution.

Reason

The trajectory is out of range of the workspace when Dobot M1 moves in all modes.

Solution

1） Check whether the trajectory is out of range of the workspace. Modify and resave it.

2） Click **ClearAlar**m.

3.3   Inverse Kinematics Limit Alarm

Table 3.3   Inverse kinematics limit alarm description

Index	0x22
Trigger condition	The inverse kinematics solution calculated according to the point on the trajectory is greater than the specified joint angle
Reset condition	Clear the alarm

Description

The inverse kinematics solution calculated according to the point on the trajectory is greater than the specified joint angle

Reason

The joint angle of a point on the trajectory is greater than the specified joint angle when Dobot M1 moves in all modes.

Solution

1） Check whether joint angle of a point on the trajectory is greater than the specified joint angle when Dobot M1 moves. Modify the starting point or the end point and resave it.

2） Click **ClearAlarm**.

4. Over-speed Alarm

4.1 Over-speed Alarm of Joint1

Table 4.1 Over-speed alarm description of Joint1

Index	0x30
Trigger condition	The speed of J1 motor is greater than the specific speed
Reset condition	Clear the alarm

Description

The speed of J1 motor is greater than the specific speed.

Reason

The speed of J1 motor is greater than the specific speed in MOVL and ARC modes.

Solution

1） Decrease the ratio of the speed to make the speed of J1 motor within the allowed speed range.

2） Click **ClearAlarm**.

4.2 Over-speed Alarm of Joint2

Table 4.2 Over-speed alarm description of Joint2

Index	0x31
Trigger condition	The speed of J2 motor is greater than the specific speed
Reset condition	Clear the alarm

Description

The speed of J2 motor is greater than the specific speed.

Reason

The speed of J2 motor is greater than the specific speed in MOVL and ARC modes.

Solution

1） Decrease the ratio of the speed to make the speed of J2 motor within the allowed speed range.

2） Click **ClearAlarm**.

4.3 Over-speed Alarm of Joint3

Table 4.3 Over-speed alarm description of Joint3

Index	0x32
Trigger condition	The speed of J3 motor is greater than the specific speed
Reset condition	Clear the alarm

Description

The speed of J3 motor is greater than the specific speed.

Reason

The speed of J3 motor is greater than the specific speed in MOVL and ARC modes.

Solution

1） Decrease the ratio of the speed to make the speed of J3 motor within the allowed speed range.

2） Click **ClearAlarm**.

4.4 Over-speed Alarm of Joint4

Table 4.4 Over-speed alarm description of Joint4

Index	0x33
Trigger condition	The speed of J4 motor is greater than the specific speed
Reset condition	Clear the alarm

Description

The speed of J4 motor is greater than the specific speed

Reason

The speed of J3 motor is greater than the specific speed in MOVL and ARC modes.

Solution

1） Decrease the ratio of the speed to make the speed of J4 motor within the allowed speed range.

2） Click **ClearAlarm**.

5. Limit Alarm

5.1   Positive Limit Alarm of Joint1

<p align="center">Table 5.1   Positive limit alarm description of Joint1</p>

Index	0x40
Trigger condition	The joint1 is at the positive limited position
Reset condition	Jog the joint1 towards the opposite direction and the alarm will be automatically cleared

5.2   Negative Limit Alarm of Joint1

<p align="center">Table 5.2   Negative limit alarm description of Joint1</p>

Index	0x41
Trigger condition	The joint1 is at the negative limited position
Reset condition	Jog the joint1 towards the opposite direction and the alarm will be automatically cleared

5.3   Positive Limit Alarm of Joint2

<p align="center">Table 5.3   Positive limit alarm description of Joint2</p>

Index	0x42
Trigger condition	The joint2 is at the positive limited position
Reset condition	Jog the joint2 towards the opposite direction and the alarm will be automatically cleared

5.4   Negative Limit Alarm of Joint2

<p align="center">Table 5.4   Negative limit alarm description of Joint2</p>

Index	0x43
Trigger condition	The joint2 is at the negative limited position
Reset condition	Jog the joint2 towards the opposite direction and the alarm will be automatically cleared

5.5   Positive Limit Alarm of Joint3

Table 5.5   Positive limit alarm description of Joint3

Index	0x44
Trigger condition	The joint3 is at the positive limited position
Reset condition	Jog the joint3 towards the opposite direction and the alarm will be automatically cleared

5.6   Negative Limit Alarm of Joint3

Table 5.6   Negative limit alarm description of Joint3

Index	0x45
Trigger condition	The joint3 is at the negative limited position
Reset condition	Jog the joint3 towards the opposite direction and the alarm will be automatically cleared

5.7   Positive Limit Alarm of Joint4

Table 5.7   Positive limit alarm description of Joint4

Index	0x46
Trigger condition	The joint4 is at the positive limited position
Reset condition	Jog the joint4 towards the opposite direction and the alarm will be automatically cleared

5.8   Negative Limit Alarm of Joint4

Table 5.8   Negative limit alarm description of Joint4

Index	0x47
Trigger condition	The joint4 is at the negative limited position
Reset condition	Jog the joint4 towards the opposite direction and the alarm will be automatically cleared

5.9   Rear Arm and Forearm Machine-Limit Alarm

Table 5.9   Rear arm and Forearm machine-limit alarm description

Index	0x48
Trigger condition	The end-effector of Dobot M1 goes through the protection area of Z-axis Screw
Reset condition	Move Rear Arm or Forearm towards the opposite direction to clear the alarm

	automatically

5.10 Lost-step Alarm

This function is reserved.

5.11 Other Alarms in Controller

This function is reserved.

6. Rear Arm Motor Alarm

6.1　Multi-turn Number Abnormal Alarm Description of Rear Arm Encoder

Table 6.1　Multi-turn number abnormal alarm description of Rear arm Encoder

Index	0x70
Trigger condition	The Multi-turn number of Rear arm Encoder is abnormal
Reset condition	Clear the alarm and reboot Dobot M1

Description

The Multi-turn number of Rear arm Encoder is abnormal.

Reason

- The cable connection between the Rear arm Encoder and Driver board is abnormal.
- The battery is disconnected or reconnected to the Encoder.
- The battery capacity of Rear arm Encoder is too low.

Solution

1）　Check the cable connection between Rear arm Encoder board and Driver board.

2）　Check the battery capacity. If the battery capacity is too low, it will trigger the alarm ERR_MOTOR_REAR_BATTERY_LOW as well.

3）　Reset Rear arm Encoder using the debugging software of Dobot M1. For details, please see *Dobot M1 User Guide*.

4）　Reboot Dobot M1.

6.2　High Temperature Alarm of Rear Arm Driver Board

Table 6.2　High temperature alarm description of Rear arm Driver board

Index	0x71
Trigger condition	The temperature of Rear arm Driver board is too high
Reset condition	Reboot Dobot M1 when the temperature is normal

Description

The temperature of Rear arm Driver board is too high.

Reason

The temperature of Rear arm Driver board is too high.

Solution

Improve the heat dissipation of Driver board and reboot the Dobot M1.

6.3   Low Temperature Alarm of Rear Arm Driver Board

Table 6.3   Low temperature alarm description of Rear arm Driver board

Index	0x72
Trigger condition	The temperature of Rear arm Driver board is too low
Reset condition	Reboot Dobot M1 when the temperature is normal

Description

The temperature of Rear arm Driver board is too low.

Reason

The operating temperature of Dobot M1 is too low.

Solution

Place the Dobot M1 in a proper operating environment and reboot it.

6.4   Motor-locked Alarm of Rear Arm Driver Board

Table 6.4   Motor-locked alarm description of Rear arm Driver board

Index	0x73
Trigger condition	The Rear arm motor is stalled and the Driver board detects an abnormal current
Reset condition	Clear the alarm and reboot Dobot M1

Description

The Rear arm motor is stalled and the Driver board detects an abnormal current.

Reason

The Rear arm motor is stalled and the Driver board detects an abnormal current.

Solution

1）   Check whether the Rear arm is in a machine-limited position or blocked by obstacles.

2）   Reboot Dobot M1.

6.5   High DC Bus Voltage of Rear Arm Driver Board

Table 6.5   High DC bus voltage alarm description of Rear arm Driver board

Index	0x74
Trigger condition	The DC bus voltage of Rear arm Driver is too high

Reset condition	Clear the alarm and reboot Dobot M1

Description

The DC bus voltage of Rear arm Driver is too high.

Reason

The DC bus voltage of Rear arm Driver is too high.

Solution

1）   Check the power supply of Dobot M1

2）   Reboot Dobot M1.

6.6   Low DC Bus Voltage of Rear Arm Driver Board

Table 6.6 Low DC bus voltage alarm description of Rear arm Driver board

Index	0x75
Trigger condition	The DC bus voltage of Rear arm Driver is too low
Reset condition	Clear the alarm and reboot Dobot M1

Description

The DC bus voltage of Rear arm Driver is too low

Reason

The DC bus voltage of Rear arm Driver is too low

Solution

1）   Check the power supply of Dobot M1

2）   Reboot Dobot M1.

6.7   IIT Alarm of Rear Arm Driver Board

Table 6.7   IIT alarm of Rear arm Driver board

Index	0x76
Trigger condition	IIT alarm of the Rear arm Driver board
Reset condition	Clear the alarm and reboot Dobot M1

Description

IIT alarm of the Rear arm Driver board.

Reason

Rear arm motor works too long time (longer than the specific time) in overload state.

Solution

1）   Check the load and working condition of Dobot M1.

2）   Reboot Dobot M1.

6.8   Over-speed Alarm of Rear Arm Driver Board

Table 6.8   Over-speed alarm description of Rear arm Driver board

Index	0x77
Trigger condition	Over-speed alarm of the Rear arm driver board
Reset condition	Clear the alarm and reboot Dobot M1

Description

Rear arm motor working speed is over the rated speed or much higher than the expected speed.

Reason

- The power cable of Rear arm motor is abnormal.
- Rear arm Encoder is abnormal.
- The angle self-learning of Rear arm motor is abnormal.

Solution

1）   Check the power cable connection between Rear arm motor and Rear arm Driver board.

2）   Check the cable connection between Rear arm Encoder and Rear arm Driver board.

3）   Re-execute self-learning using Dobot M1 debugging software.

6.9   Low Battery Capacity of Rear Arm Encoder

Table 6.9   Low battery capacity alarm description of Rear arm Encoder

Index	0x78
Trigger condition	The battery capacity of Rear arm Encoder is too low
Reset condition	Clear the alarm and reboot Dobot M1

Description

The battery capacity of Rear arm Encoder is too low.

Reason

- The connection between Rear arm Encoder and the battery is abnormal.
- The battery capacity of Rear arm Encoder is low.

Solution

1）   Check the connection between Rear arm Encoder and the battery.

2）   Replace the battery and reset the Encoder based on the battery change guide on the M1Studio.

6.10　Phase-lack Alarm of Rear Arm Motor

Table 6.10　Phase-lack alarm description of Rear arm motor

Index	0x79
Trigger condition	Rear arm motor lacks phase
Reset condition	Clear the alarm and reboot Dobot M1

Description

Rear arm motor lacks phase

Reason

The power cable of Rear arm motor is disconnected or poor connected.

Solution

1）   Check the power cable connection of Rear arm motor.

2）   Reboot Dobot M1.

6.11　Wrong Phase Alarm of Rear Arm Motor

Table 6.11　Wrong phase alarm description of Rear arm motor

Index	0x7A
Trigger condition	The power cable of Rear arm motor has wrong phase
Reset condition	Clear the alarm and reboot Dobot M1

Description

The power cable of Rear arm motor has wrong phase.

Reason

The power cable connection between Rear arm motor and Rear arm Driver board is wrong.

Solution

1）   Check the power cable connection of Rear arm motor.

2）   Reboot Dobot M1.

6.12　Lost-speed Alarm of Rear Arm Driver Board

Table 6.12   Lost-speed alarm description of Rear arm Driver board

Index	0x7B
Trigger condition	The working speed of Rear arm motor is zero or much lower than the expected speed
Reset condition	Clear the alarm and reboot Dobot M1

Description

The working speed of Rear arm motor is zero or much lower than the expected speed.

Reason

- The power cable of Rear arm motor is abnormal.

- Rear arm Encoder is abnormal.

- The angle self-learning of Rear arm motor is abnormal.

Solution

1） Check the power cable connection between Rear arm motor and Rear arm Driver board.

2） Check the cable connection between Rear arm Encoder and Rear arm Driver board.

3） Re-execute angle self-learning using Dobot M1 debugging software.

4） Reboot Dobot M1.

6.13 Angle Self-learning Alarm of Rear Arm Driver Board

Table 6.13   Self-learning alarm description of Rear arm Driver board

Index	0x7C
Trigger condition	The angle self-learning of Rear arm Driver board is abnormal
Reset condition	Clear the alarm and reboot Dobot M1

Description

The angle self-learning of Rear arm Driver board is abnormal.

Reason

- The angle self-learning of Rear arm Driver board has not been started.

- The self-learning data in EEPROM is lost.

Solution

Re-execute self-learning using Dobot M1 debugging software.

6.14 Calibration Alarm of Rear Arm Encoder

Table 6.14 Calibration alarm description of Rear arm Encoder

Index	0x7D
Trigger condition	Rear arm Encoder is not calibrated.
Reset condition	Clear the alarm and reboot Dobot M1

Description

Rear arm Encoder is not calibrated.

Reason

- Rear arm Encoder is not calibrated.
- The calibration data of Rear arm Encoder is lost.

Solution

Please recalibrate Rear arm Encoder. For details, please see *Dobot M1 User Guide*.

6.15 CAN Communication Interruption Alarm of Rear Arm

Table 6.15 CAN communication interruption alarm description of Rear arm

Index	0x7E
Trigger condition	The CAN communication with Rear arm is interrupted
Reset condition	Clear the alarm and reboot Dobot M1

Description

The CAN communication with Rear arm is interrupted.

Reason

- Rear arm Driver board is not working.
- The CAN cable connection between Rear arm and the controller is abnormal.
- The hardware circuit related to the CAN chip is abnormal.

Solution

Restart Dobot M1 after checking the CAN cable and the CAN chip.

7. Forearm Motor Alarm

7.1 Multi-turn Number Abnormal Alarm Description of Forearm Encoder

Table 7.1 Multi-turn number abnormal alarm description of Forearm Encoder

Index	0x80
Trigger condition	The Multi-turn number of Forearm Encoder is abnormal
Reset condition	Clear the alarm and reboot Dobot M1

Description

The Multi-turn number of Forearm Encoder is abnormal.

Reason

- The cable connection between the Forearm Encoder and Driver board is abnormal.
- The battery is disconnected or reconnected to the Encoder.
- The battery capacity of Forearm Encoder is too low.

Solution

1） Check the cable connection between Forearm Encoder and Driver board.

2） Check the battery capacity. If the battery capacity is too low, it will trigger the alarm ERR_MOTOR_FRONT_BATTERY_LOW as well.

3） Reset Forearm Encoder using the debugging software of Dobot M1. For details, please see *Dobot M1 User Guide*.

4） Reboot Dobot M1.

7.2 High Temperature Alarm of Forearm Driver Board

Table 7.2 High temperature alarm description of Forearm Driver board

Index	0x81
Trigger condition	The temperature of Forearm Driver board is too high
Reset condition	Reboot Dobot M1 when the temperature is normal

Description

The temperature of Forearm Driver board is too high.

Reason

The temperature of Forearm Driver board is too high.

Solution

Improve the heat dissipation of Driver board and reboot Dobot M1.

7.3 Low Temperature Alarm of Forearm Driver Board

Table 7.3   Low temperature alarm description of Forearm Driver

Index	0x82
Trigger condition	The temperature of Forearm Driver board is too low
Reset condition	Reboot Dobot M1 when the temperature is normal

Description

The temperature of Forearm Driver board is too low.

Reason

The operating temperature of Dobot M1 is too low.

Solution

Place the Dobot M1 in a proper operating environment and reboot it.

7.4 Motor-locked Alarm of Forearm Driver Board

Table 7.4   Motor-locked alarm description of Forearm Driver board

Index	0x83
Trigger condition	The Forearm motor is stalled and the Driver board detects an abnormal current
Reset condition	Clear the alarm and reboot Dobot M1

Description

The Forearm motor is stalled and the Driver board detects an abnormal current.

Reason

The Forearm motor is stalled and the Driver board detects an abnormal current.

Solution

1）   Check whether the Forearm is in a machine-limited position or blocked by obstacles.

2）   Reboot Dobot M1.

7.5 High DC Bus Voltage of Forearm Driver Board

Table 7.5   High DC bus voltage alarm description of Forearm Driver board

Index	0x84
Trigger condition	The DC bus voltage of Forearm Driver is too high

Reset condition	Clear the alarm and reboot Dobot M1

Description

The DC bus voltage of Forearm Driver is too high.

Reason

The DC bus voltage of Forearm Driver is too high.

Solution

1） Check the power supply of Dobot M1.

2） Reboot Dobot M1.

7.6 Low DC Bus Voltage of Forearm Driver Board

Table 7.6   Low DC bus voltage alarm description of Forearm Driver board

Index	0x85
Trigger condition	The DC bus voltage of Forearm Driver is too low
Reset condition	Clear the alarm and reboot Dobot M1

Description

The DC bus voltage of Forearm Driver is too low.

Reason

The DC bus voltage of Forearm Driver is too low.

Solution

1） Check the power supply of Dobot M1.

2） Reboot Dobot M1.

7.7 IIT Alarm of Forearm Driver Board

Table 7.7   IIT alarm of Forearm Driver board

Index	0x86
Trigger condition	IIT alarm of the Forearm Driver board
Reset condition	Clear the alarm and reboot Dobot M1

Description

IIT alarm of the Forearm Driver board.

Reason

Forearm motor works too long time (longer than the specific time) in overload state.

Solution

1） Check the load and working condition of Dobot M1.

2） Reboot Dobot M1.

7.8 Over-speed Alarm of Forearm Driver Board

Table 7.8 Over-speed alarm description of Forearm Driver board

Index	0x87
Trigger condition	Over-speed alarm of Forearm Driver board
Reset condition	Clear the alarm and reboot Dobot M1

Description

Forearm motor working speed is over the rated speed or much higher than the expected speed.

Reason

- The power cable of Forearm motor is abnormal.
- Forearm Encoder is abnormal.
- The angle self-learning of Forearm motor is abnormal.

Solution

1） Check the power cable connection between Forearm motor and Forearm Driver board.

2） Check the cable connection between Forearm Encoder and Forearm Driver board.

3） Re-execute self-learning using Dobot M1 debugging software.

7.9 Low Battery Capacity of Forearm Encoder

Table 7.9 Low battery capacity alarm description of Forearm Encoder

Index	0x88
Trigger condition	The battery capacity of Forearm Encoder is too low
Reset condition	Clear the alarm and reboot Dobot M1

Description

The battery capacity of Forearm Encoder is too low.

Reason

- The connection between Forearm Encoder and the battery is abnormal.
- The battery capacity of Forearm Encoder is low.

Solution

1） Check the connection between Forearm Encoder and the battery.

2） Replace the battery and reset the Encoder based on the battery change guide on the M1Studio.

7.10 Phase-lack Alarm of Forearm Motor

Table 7.10   Phase-lack alarm description of Forearm motor

Index	0x89
Trigger condition	Forearm motor lacks phase
Reset condition	Clear the alarm and reboot Dobot M1

Description

Forearm motor lacks phase

Reason

The power cable of Forearm motor is disconnected or poor connected.

Solution

1） Check the power cable connection of Forearm motor.

2） Reboot Dobot M1.

7.11 Wrong Phase Alarm of Forearm Motor

Table 7.11   Wrong phase alarm description of Forearm motor

Index	0x8A
Trigger condition	The power cable of Forearm motor has wrong phase
Reset condition	Clear the alarm and reboot Dobot M1

Description

The power cable of Forearm motor has wrong phase.

Reason

The power cable connection between Forearm motor and Forearm Driver board is wrong.

Solution

1） Check the power cable connection of Forearm motor.

2） Reboot Dobot M1.

7.12 Lost-speed Alarm of Forearm Driver Board

Table 7.12   Lost-speed alarm description of Forearm Driver board

Index	0x8B
Trigger condition	The working speed of Forearm motor is zero or much lower than the expected speed
Reset condition	Clear the alarm and reboot Dobot M1

Description

The working speed of Forearm motor is zero or much lower than the expected speed.

Reason

- The power cable of Forearm motor is abnormal.
- Forearm Encoder is abnormal.
- The angle self-learning of Forearm motor is abnormal.

Solution

1） Check the power cable connection between Forearm motor and Forearm Driver board.
2） Check the cable connection between Forearm Encoder and Forearm Driver board.
3） Re-execute angle self-learning using Dobot M1 debugging software.
4） Reboot Dobot M1.

7.13 Angle Self-learning Alarm of Forearm Driver Board

Table 7.13   Angle self-learning alarm description of Forearm Driver board

Index	0x8C
Trigger condition	The angle self-learning of Forearm Driver board is abnormal
Reset condition	Clear the alarm and reboot Dobot M1

Description

The angle self-learning of Forearm Driver board is abnormal.

Reason

- The angle self-learning of Forearm Driver board has not been started.
- The self-learning data in EEPROM is lost.

Solution

Re-execute self-learning using Dobot M1 debugging software.

7.14 Calibration Alarm of Forearm Encoder

Table 7.14   Calibration alarm description of Forearm Encoder

Index	0x8D
Trigger condition	小臂编码器未校准报警 Forearm Encoder is not calibrated.
Reset condition	清除错误并重新启动 Dobot M1 Clear the alarm and reboot Dobot M1

Description

Forearm Encoder is not calibrated.

Reason

- Forearm Encoder is not calibrated.
- The calibration data of Forearm Encoder is lost.

Solution

Please recalibrate Forearm Encoder. For details, please see *Dobot M1 User Guide*.

7.15 CAN Communication Interruption Alarm of Forearm

Table 7.15   CAN communication interruption alarm description of Forearm

Index	0x8E
Trigger condition	The CAN communication with Forearm is interrupted
Reset condition	Clear the alarm and reboot Dobot M1

Description

The CAN communication with Forearm is interrupted.

Reason

- Forearm Driver board is not working.
- The CAN cable connection between Forearm and the controller is abnormal.
- The hardware circuit related to the CAN chip is abnormal.

Solution

Restart Dobot M1 after checking the CAN cable and the CAN chip.

8. Z-axis Motor Alarm

8.1 Multi-turn Number Abnormal Alarm Description of Z-axis Encoder

Table 8.1 Multi-turn number abnormal alarm description of Z-axis Encoder

Index	0x90
Trigger condition	The Multi-turn number of Z-axis Encoder is abnormal
Reset condition	Clear the alarm and reboot the M1

Description

The Multi-turn number of Z-axis Encoder is abnormal.

Reason

- The cable connection between the Z-axis Encoder and Driver board is abnormal.
- The battery is disconnected or reconnected to the Encoder.
- The battery capacity of Z-axis Encoder is too low.

Solution

1） Check the cable connection between Z-axis Encoder and Driver board.
2） Check the battery capacity. If the battery capacity is too low, it will trigger the alarm ERR_MOTOR_Z_BATTERY_LOW as well.
3） Reset Z-axis Encoder using the debugging software of Dobot M1. For details, please see *Dobot M1 User Guide*.
4） Reboot Dobot M1.

8.2 High Temperature Alarm of Z-axis Driver Board

Table 8.2 High temperature alarm description of Z-axis Driver board

Index	0x91
Trigger condition	The temperature of Z-axis Driver board is too high
Reset condition	Reboot Dobot M1 when the temperature is normal

Description

The temperature of Z-axis Driver board is too high.

Reason

- The temperature of Z-axis Driver board is too high.
- The energy regeneration is abnormal.

Solution

1） Improve heat dissipation of Z-axis Driver.

2） Check the energy regeneration.

3） Reboot Dobot M1.

8.3 Low Temperature Alarm of Z-axis Driver Board

Table 8.3 Low temperature alarm description of Z-axis Driver board

Index	0x92
Trigger condition	The temperature of Z-axis Driver board is too low
Reset condition	Reboot Dobot M1 when the temperature is normal

Description

The temperature of Z-axis Driver board is too low.

Reason

The operating temperature of Dobot M1 is too low.

Solution

Place the Dobot M1 in a proper operating environment and reboot it.

8.4 Motor-locked Alarm of Z-axis Driver Board

Table 8.4 Motor-locked alarm description of Z-axis Driver board

Index	0x93
Trigger condition	The Z-axis motor is stalled and the Driver board detects an abnormal current
Reset condition	Clear the alarm and reboot the Dobot M1

Description

The Z-axis motor is stalled and the Driver board detects an abnormal current.

Reason

- Z-axis Motor is stalled, resulting in that the current is too large, and Z-axis Driver detects an abnormal current.
- The angle self-learning of Z-axis Motor is abnormal.

Solution

1） Check whether Z-axis is in a machine-limited position or blocked by obstacles, and restart Dobot M1

2） If the problem persists, please re-execute angle self-learning of Z-axis Motor using

the debugging software of Dobot M1. For details, please contact technical support engineer.

8.5 High DC Bus Voltage of Z-axis Driver Board

Table 8.5　High DC bus voltage alarm description of Z-axis Driver board

Index	0x94
Trigger condition	The DC bus voltage of Z-axis Driver is too high
Reset condition	Clear the alarm and reboot Dobot M1

Description

The DC bus voltage of Z-axis Driver is too high.

Reason

- The DC bus voltage of Z-axis Driver is too high.
- The energy regeneration is abnormal.

Solution

1）　　　Check the power supply of Dobot M1.

2）　　　Check the energy regeneration.

3）　　　Restart Dobot M1.

8.6 Low DC Bus Voltage of Z-axis Driver Board

Table 8.6　Low DC bus voltage alarm description of Z-axis Driver board

Index	0x95
Trigger condition	The DC bus voltage of Z-axis Driver is too low
Reset condition	Clear the alarm and reboot Dobot M1

Description

The DC bus voltage of Z-axis Driver is too low.

Reason

The DC bus voltage of Z-axis Driver is too low.

Solution

1）　　　Check the power supply of Dobot M1.

2）　　　Reboot Dobot M1.

8.7 IIT Alarm of Z-axis Driver Board

Table 8.7   IIT alarm of Z-axis Driver board

Index	0x96
Trigger condition	IIT alarm of Z-axis Driver board
Reset condition	Clear the alarm and reboot Dobot M1

Des

IIT alarm of Z-axis Driver board.

Reason

Z-axis motor works too long time (longer than the specific time) in overload state.

Solution

1） Check the load and working condition of Dobot M1.

2） Reboot Dobot M1.

8.8   Over-speed Alarm of Z-axis Driver Board

Table 8.8   Over-speed alarm description of Z-axis Driver board

Index	0x97
Trigger condition	Over-speed alarm of Z-axis driver board
Reset condition	Clear the alarm and reboot Dobot M1

Description

Z-axis motor working speed is over the rated speed or much higher than the expected speed.

Reason

- The power cable of Z-axis motor is abnormal.
- Z-axis Encoder is abnormal.
- The angle self-learning of Z-axis motor is abnormal.

Solution

1） Check the power cable connection between Z-axis motor and Z-axis Driver board.

2） Check the cable connection between Z-axis Encoder and Z-axis Driver board.

3） Re-execute self-learning using Dobot M1 debugging software.

8.9   Low Battery Capacity of Z-axis Encoder

Table 8.9   Low battery capacity alarm description of Z-axis Encoder

Index	0x98

Trigger condition	The battery capacity of Z-axis Encoder is too low
Reset condition	Clear the alarm and reboot Dobot M1

Description

The battery capacity of Z-axis Encoder is too low.

Reason

- The connection between Z-axis Encoder and the battery is abnormal.
- The battery capacity of Z-axis Encoder is low.

Solution

1） Check the connection between Z-axis Encoder and the battery.

2） Replace the battery and reset the Encoder based on the battery change guide on the M1Studio.

8.10 Phase-lack Alarm of Z-axis Motor

Table 8.10   Phase-lack alarm description of Z-axis motor

Index	0x99
Trigger condition	Z-axis motor lacks phase
Reset condition	Clear the alarm and reboot Dobot M1

Description

Z-axis motor lacks phase.

Reason

The power cable of Z-axis motor is disconnected or poor connected.

Solution

1） Check the power cable connection of Z-axis motor.

2） Reboot Dobot M1.

8.11 Wrong Phase Alarm of Z-axis Motor

Table 8.11   Wrong phase alarm description of Z-axis motor

Index	0x9A
Trigger condition	The power cable of Z-axis motor has wrong phase
Reset condition	Clear the alarm and reboot Dobot M1

Description

The power cable of Z-axis motor has wrong phase.

Reason

The power cable connection between Z-axis motor and Z-axis Driver board is wrong.

Solution

1） Check the power cable connection of Z-axis motor.

2） Reboot Dobot M1.

8.12 Lost-speed Alarm of Z-axis Driver Board

Table 8.12   Lost-speed alarm description of Z-axis Driver board

Index	0x9B
Trigger condition	The working speed of Z-axis motor is zero or much lower than the expected speed
Reset condition	Clear the alarm and reboot Dobot M1

Description

The working speed of Z-axis motor is zero or much lower than the expected speed.

Reason

- The power cable of Z-axis motor is abnormal.
- Z-axis Encoder is abnormal.
- The angle self-learning of Z-axis motor is abnormal.

Solution

1） The power cable of Z-axis motor is abnormal.

2） Check the cable connection between Z-axis Encoder and Z-axis Driver board.

3） Re-execute angle self-learning using Dobot M1 debugging software.

8.13 Angle Self-learning Alarm of Z-axis Driver Board

Table 8.13   Self-learning alarm description of Z-axis driver board

Index	0x9C
Trigger condition	The angle self-learning of Z-axis Driver board is abnormal
Reset condition	Clear the alarm and reboot Dobot M1

Description

The angle self-learning of Z-axis Driver board is abnormal.

Reason

- The angle self-learning of Z-axis Driver board has not been started.
- The self-learning data in EEPROM is lost.

Solution

Re-execute self-learning using Dobot M1 debugging software.

8.14 Calibration Alarm of Z-axis Encoder

Table 8.14   Calibration alarm description of Z-axis Encoder

Index	0x9D
Trigger condition	Z-axis Encoder is not calibrated
Reset condition	Clear the alarm and reboot Dobot M1

Description

Z-axis Encoder is not calibrated.

Reason

- Z-axis Encoder is not calibrated.
- The calibration data of Z-axis Encoder is lost.

Solution

Please recalibrate Z-axis Encoder. For details, please see *Dobot M1 User Guide*.

8.15 CAN Communication Interruption Alarm of Z-axis

Table 8.15   CAN communication interruption alarm description of Z-axis

Index	0x9E
Trigger condition	The CAN communication with Z-axis is interrupted
Reset condition	Clear the alarm and reboot Dobot M1

Description

The CAN communication with Z-axis is interrupted.

Reason

- Z-axis Driver board is not working.
- The CAN cable connection between Z-axis and the controller is abnormal.
- The hardware circuit related to the CAN chip is abnormal.

Solution

Restart Dobot M1 after checking the CAN cable and the CAN chip.

9. R-axis Motor Alarm

9.1 Multi-turn Number Abnormal Alarm Description of R-axis Encoder

Table 9.1   Multi-turn number abnormal alarm description of R-axis Encoder

Index	0xA0
Trigger condition	The Multi-turn number of R-axis Encoder is abnormal
Reset condition	Clear the alarm and reboot the Dobot M1

Description

The Multi-turn number of R-axis Encoder is abnormal.

Reason

- The cable connection between the R-axis Encoder and Driver board is abnormal.
- The battery is disconnected or reconnected to the Encoder.
- The battery capacity of R-axis Encoder is too low.

Solution

1） Check the cable connection between R-axis Encoder board and Driver board.

2） Check the battery capacity. If the battery capacity is too low, it will trigger the alarm ERR_MOTOR_R_BATTERY_LOW as well.

3） Reset R-axis Encoder using the debugging software of Dobot M1. For details, please see *Dobot M1 User Guide*.

4） Reboot Dobot M1.

9.2 High Temperature Alarm of R-axis Driver Board

Table 9.2   High temperature alarm description of R-axis Driver board

Index	0xA1
Trigger condition	The temperature of R-axis Driver board is too high
Reset condition	Reboot the Dobot M1 when the temperature is normal

Description

The temperature of R-axis Driver board is too high.

Reason

The temperature of R-axis Driver board is too high.

Solution

Improve the heat dissipation of Driver board and reboot Dobot M1.

9.3 Low Temperature Alarm of R-axis Driver Board

Table 9.3 Low temperature alarm description of R-axis Driver board

Index	0xA2
Trigger condition	The temperature of R-axis Driver board is too low
Reset condition	Reboot the Dobot M1 when the temperature is normal

Description

The temperature of R-axis Driver board is too low.

Reason

The operating temperature of Dobot M1 is too low.

Solution

Place the Dobot M1 in a proper operating environment and reboot it.

9.4 Motor-locked Alarm of R-axis Driver Board

Table 9.4 Motor-locked alarm description of R-axis driver board

Index	0xA3
Trigger condition	The R-axis motor is stalled and the Driver board detects an abnormal current
Reset condition	Clear the alarm and reboot the Dobot M1

Description

The R-axis motor is stalled and the Driver board detects an abnormal current.

Reason

The R-axis motor is stalled and the Driver board detects an abnormal current.

Solution

1） Check whether the R-axis is in a machine-limited position or blocked by obstacles.

2） Reboot Dobot M1.

9.5 High DC Bus Voltage of R-axis Driver Board

Table 9.5 High DC bus voltage alarm description of R-axis Driver board

Index	0xA4
Trigger condition	The DC bus voltage of R-axis Driver is too high

Reset condition	Clear the alarm and reboot Dobot M1

Description

The DC bus voltage of R-axis Driver is too high.

Reason

The DC bus voltage of R-axis Driver is too high.

Solution

1） Check the power supply of Dobot M1.

2） Reboot Dobot M1.

9.6 Low DC Bus Voltage of R-axis Driver Board

Table 9.6 Low DC bus voltage alarm description of R-axis Driver board

Index	0xA5
Trigger condition	The DC bus voltage of R-axis Driver is too low
Reset condition	Clear the alarm and reboot Dobot M1

Description

The DC bus voltage of R-axis Driver is too low.

Reason

The DC bus voltage of R-axis Driver is too low.

Solution

1） Check the power supply of Dobot M1.

2） Reboot Dobot M1.

9.7 IIT Alarm of R-axis Driver Board

Table 9.7 IIT alarm of R-axis Driver board

Index	0xA6
Trigger condition	IIT alarm of R-axis Driver board
Reset condition	Clear the alarm and reboot Dobot M1

Description

IIT alarm of R-axis Driver board.

Reason

R-axis motor works too long time (longer than the specific time) in overload state.

Solution

1） Check the load and working condition of Dobot M1.

2） Reboot Dobot M1.

9.8 Over-speed Alarm of R-axis Driver Board

Table 9.8 Over-speed alarm description of R-axis Driver board

Index	0xA7
Trigger condition	Over-speed alarm of R-axis Driver board
Reset condition	Clear the alarm and reboot Dobot M1

Description

R-axis motor working speed is over the rated speeds or much higher than the expected speed.

Reason

- The power cable of R-axis motor is abnormal.
- R-axis Encoder is abnormal.
- The angle self-learning of R-axis motor is abnormal.

Solution

1） Check the power cable connection between R-axis motor and R-axis Driver board.

2） Check the cable connection between R-axis Encoder and R-axis Driver board.

3） Re-execute self-learning using Dobot M1 debugging software.

9.9 Low Battery Capacity of R-axis Encoder

Table 9.9 Low battery capacity alarm description of R-axis Encoder

Index	0xA8
Trigger condition	The battery capacity of R-axis Encoder is too low
Reset condition	Clear the alarm and reboot Dobot M1

Description

The battery capacity of R-axis Encoder is too low.

Reason

- The connection between R-axis Encoder and the battery is abnormal.
- The battery capacity of R-axis Encoder is low.

Solution

1）   Check the connection between R-axis Encoder and the battery.

2）   Replace the battery and reset the Encoder based on the battery change guide on the M1Studio.

9.10 Phase-lack Alarm of R-axis Motor

Table 9.10   Phase-lack alarm description of R-axis motor

Index	0xA9
Trigger condition	R-axis motor lacks phase
Reset condition	Clear the alarm and reboot Dobot M1

Description

R-axis motor lacks phase

Reason

The power cable of R-axis motor is disconnected or poor connected.

Solution

1）   Check the power cable connection of R-axis motor.

2）   Reboot Dobot M1.

9.11 Wrong Phase Alarm of R-axis Motor

Table 9.11   Wrong phase alarm description of R-axis motor

Index	0xAA
Trigger condition	The power cable of R-axis motor has wrong phase
Reset condition	Clear the alarm and reboot Dobot M1

Description

The power cable of R-axis motor has wrong phase.

Reason

The power cable connection between R-axis motor and R-axis Driver board is wrong.

Solution

1）   Check the power cable connection of R-axis motor.

2）   Reboot Dobot M1.

9.12 Lost-speed Alarm of R-axis Driver Board

Table 9.12   Lost-speed alarm description of R-axis Driver board

Index	0xAB
Trigger condition	The working speed of R-axis motor is zero or much lower than the expected speed
Reset condition	Clear the alarm and reboot Dobot M1

Description

The working speed of R-axis motor is zero or much lower than the expected speed.

Reason

- The power cable of R-axis motor is abnormal.
- R-axis Encoder is abnormal.
- The angle self-learning of R-axis motor is abnormal.

Solution

1）   Check the power cable connection between R-axis motor and R-axis Driver board.
2）   Check the cable connection between R-axis Encoder and R-axis Driver board.
3）   Re-execute angle self-learning using Dobot M1 debugging software.
4）   Reboot Dobot M1.

9.13 Angle Self-learning Alarm of R-axis Driver Board

Table 9.13   Self-learning alarm description of R-axis Driver board

Index	0xAC
Trigger condition	The angle self-learning of R-axis Driver board is abnormal
Reset condition	Clear the alarm and reboot Dobot M1

Description

The angle self-learning of R-axis Driver board is abnormal.

Reason

- The angle self-learning of R-axis Driver board has not been started.
- The self-learning data in EEPROM is lost.

Solution

Re-execute self-learning using Dobot M1 debugging software.

9.14 Calibration Alarm of R-axis Encoder

Table 9.14   Calibration alarm description of R-axis Encoder

Index	0xAD
Trigger condition	R-axis Encoder is not calibrated
Reset condition	Clear the alarm and reboot Dobot M1

Description

R-axis Encoder is not calibrated.

Reason

- R-axis Encoder is not calibrated.
- The calibration data of R-axis Encoder is lost.

Solution

Please recalibrate R-axis Encoder. For details, please see *Dobot M1 User Guide*.

9.15 CAN Communication Interruption Alarm of R-axis

Table 9.15   CAN communication interruption alarm description of R-axis

Index	0xAE
Trigger condition	The CAN communication with R-axis is interrupted
Reset condition	清除错误并重新启动 Dobot M1 Clear the alarm and reboot Dobot M1

Description

The CAN communication with R-axis is interrupted.

Reason

- R-axis Driver board is not working.
- The CAN cable connection between R-axis and the controller is abnormal.
- The hardware circuit related to the CAN chip is abnormal.

Solution

Restart Dobot M1 after checking the CAN cable and the CAN chip.

10. I/O Alarm of End-effector

10.1 I/O Abnormality Alarm of End-effector

Table 10.1   I/O abnormality alarm of End-effector

Index	0xB0
Trigger condition	The I/O interface of end-effector is abnormal
Reset condition	Clear the alarm and reboot Dobot M1

Description

The I/O interface of end-effector is abnormal.

Reason

- The cable connection is abnormal when testing I/O interface.
- The I/O interface is unavailable.

Solution

Restart Dobot M1 after checking the cable connection.

10.2 RS485 Communication Alarm of End-effector I/O Interface

Table 10.2   RS485 communication alarm description of end-effector I/O interface

Index	0xB1
Trigger condition	RS485 communication of the end-effector I/O interface is abnormal.
Reset condition	Clear the alarm and reboot Dobot M1

Description

RS485 communication of the end-effector I/O interface is abnormal.

Reason

The cable connection of RS485 communication is abnormal.

Solution

Restart Dobot M1 after checking the cable connection.

10.3 CAN Communication Interruption Alarm of End-effector I/O Interface

Table 10.3   CAN communication interruption alarm description of End-effector I/O interface

Index	0xB2

Trigger condition	CAN communication of the end-effector I/O interface is interrupted
Reset condition	Clear the alarm and reboot Dobot M1

Description

CAN communication of the end-effector I/O interface is interrupted.

Reason

- The end-effector I/O interface is not working.

- The CAN cable connection between the end-effector I/O interface and Driver is abnormal.

- The hardware circuit related to the CAN chip is abnormal.

Solution

Restart Dobot M1 after checking the CAN cable and the CAN chip. For details, please contact technical support engineer.

11. Other Alarms

11.1 Emergency Stop Alarm

Table 11.1   Emergency stop alarm description

Index	0x6C
Trigger condition	Dobot M1 is in the emergency-stopped status
Reset condition	Clear the alarm based on the solution

Description

Dobot M1 is in the emergency-stopped status

Reason

Hold down the emergency stop button, resulting in that Dobot M1 is in the stopped status.

Solution

Rotate the emergency stop button clockwise to clear the stopped status. It will be released when rotating to 45 °.