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Purpose

This document describes the basic troubleshooting process for the Universal Gripper (UG). The most common situations are covered below, along with helpful information for other potential issues.

Required Material and Equipment

Universal Gripper

PC with SciPrint Software installed

Intended Audience

Field Service Representative from Scinomix, approved vendors, or Scinomix Super User.

Prerequisites

N/A

Procedure

Failure to Home

1. Determine if the Gripper Status LED is Red immediately upon power-up. Use the E-Stop to check this.
2. If yes, open the SciPrint software Hardware window to determine the error code.
 - a. In the **Motor Console** field, type *GPR ER* and press **Enter**.

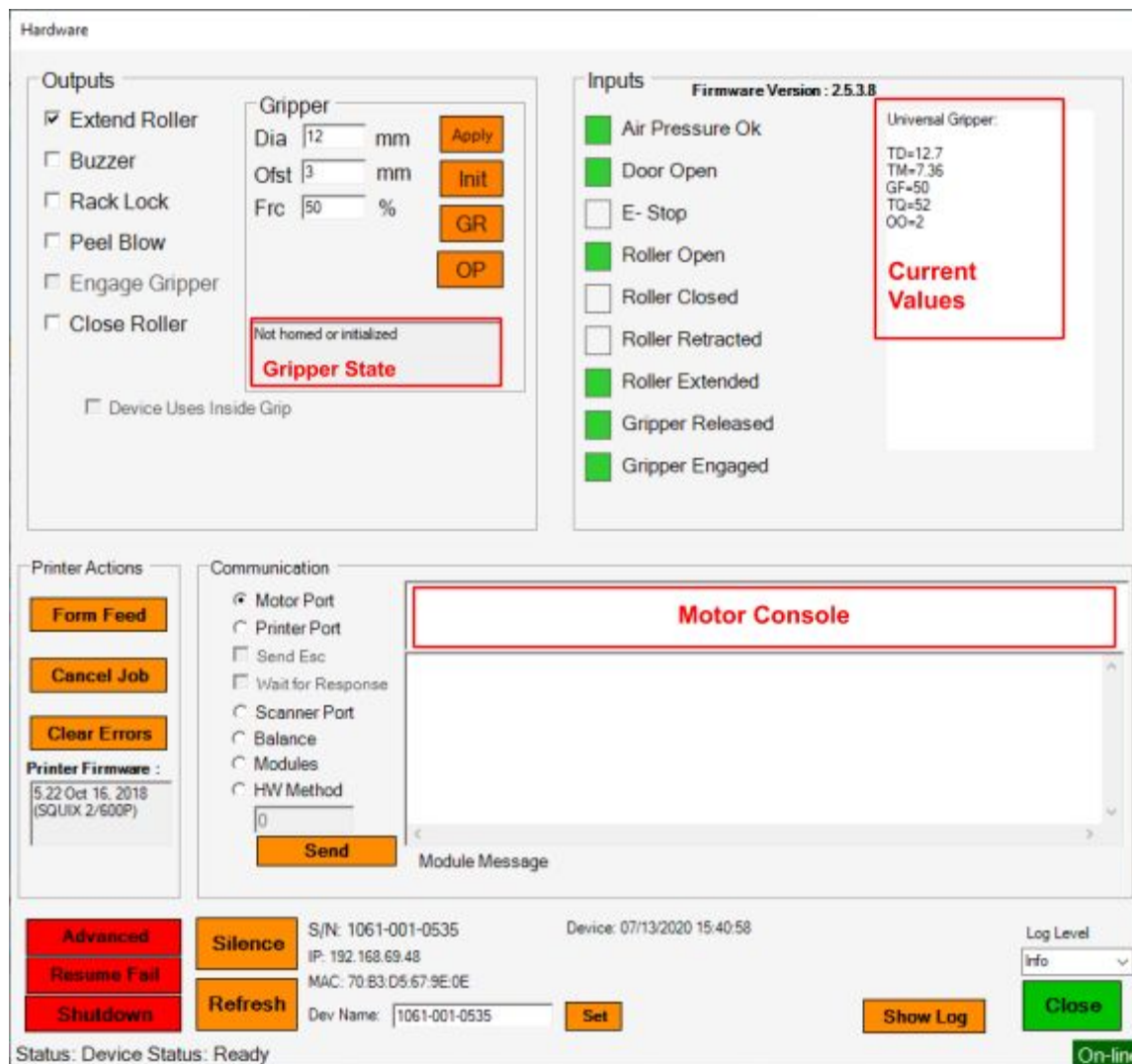
- b. Identify the Error Code below:

GPR ER	Error	Action
1	Driver Error.	Replace Board.
2	Driver Overheat.	Reduce Force, or Replace Board
3	N/A	
4	Motor Stall.	Check Tube Settings. Check Grip Head.
5	N/A	
6	N/A	
7	Encoder Error.	Check Cables and Connectors. Check for Motor/Encoder cables swapped.

Table 1.a

3. If the Status LED does not turn Red until motion has started, identify the error code above.
 - a. If the code is 1, the control board is likely damaged and needs to be replaced.

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The screenshot displays the 'Hardware' configuration page of the Universal Gripper control interface. It is divided into several sections:

- Outputs:** Includes checkboxes for 'Extend Roller' (checked), 'Buzzer', 'Rack Lock', 'Peel Blow', 'Engage Gripper', and 'Close Roller'. Below these are input fields for 'Gripper' settings: 'Dia' (12 mm), 'Ofst' (3 mm), and 'Frc' (50 %). Buttons for 'Apply', 'Init', 'GR', and 'OP' are present. A red box highlights the 'Gripper State' section, which shows 'Not homed or initialized'.
- Inputs:** Lists various status indicators with green checkmarks: 'Air Pressure Ok', 'Door Open', 'Roller Open', 'Roller Closed', 'Roller Retracted', 'Roller Extended', 'Gripper Released', and 'Gripper Engaged'. A red box highlights the 'Current Values' section, showing 'Universal Gripper' parameters: TD=12.7, TM=7.36, GF=50, TQ=52, and OQ=2.
- Printer Actions:** Includes buttons for 'Form Feed', 'Cancel Job', and 'Clear Errors'. Below these is the 'Printer Firmware' section showing '5.22 Oct 16, 2018 (SQUIX 2/600P)'.
- Communication:** Includes a 'Send' button and a 'Module Message' field. A red box highlights the 'Motor Console' section.
- Advanced Settings:** Includes buttons for 'Advanced', 'Silence', 'Resume Fail', 'Shutdown', and 'Refresh'. Below these are fields for 'S/N: 1061-001-0535', 'IP: 192.168.69.48', 'MAC: 70:B3:D5:67:9E:0E', and 'Dev Name: 1061-001-0535'. A 'Set' button is also present.
- Status:** At the bottom, it shows 'Status: Device Status: Ready' and 'On-line'.

Figure 1.a

- For the other errors, check that all flex cables are properly seated in their sockets.
- If the motor sounds rough or loud, the motor cable is likely loose, or the control board is damaged and needs to be replaced.

Gripper Stalling

If the tube is significantly smaller than the Universal Gripper setting, or if the **Grip Force** is set too high, or some combination of these two occurs, the gripper is likely to stall during tube handling:

- Open **Tube Diameter Settings**.

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2. If the tube has a large diameter (>32mm), check that the sum of **Open Offset** and **Tube Diameter** are not larger than 37mm as this will cause a stall on opening and cannot be used.
3. Check the diameter as seen by the gripper on the Hardware window (*TM* indicates the measured diameter of the tube in the gripper).
4. If none of these factors seem to affect the stall, or it is very intermittent, it is possible that the gripper head is damaged and needs to be replaced.

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General Info

Status LEDs:

LED Color	Status
Solid Yellow or Purple	Gripper is Booting
Flashing Yellow/Blue	Gripper is Not Homed or is Homing
Solid Blue	Gripper is Homed and Idle
Flashing Blue	Gripper is in Motion OR Setpoint was Not Achieved
Flashing Red	Gripper Error (see Failure to Home procedure)

Table 1.b

Useful Gripper Variables

Note: These can be printed in the SciPrint VX Hardware screen using the same procedure as in [Failure to Home](#).

GPR XX	Description
FF	Firmware Version
SN	Serial Number
TM	Actual Tube Diameter
TQ	Actual Grip Force
ER	Error Code (see above)
C2	Motor Encoder Position (deg)
C3	Finger Encoder Position (deg)

Table 1.c

If you need additional assistance, please call our Service department at 314-298-9800 or email service@scinomix.com.

Definitions

N/A.

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Revision History

Version:	Change:	Effective Date:	Approved by:
A	NEW	JUL-13-2020	M. Chrisco