Instruction Manual

AVW Controls Ltd

Stage Automation

V11.00

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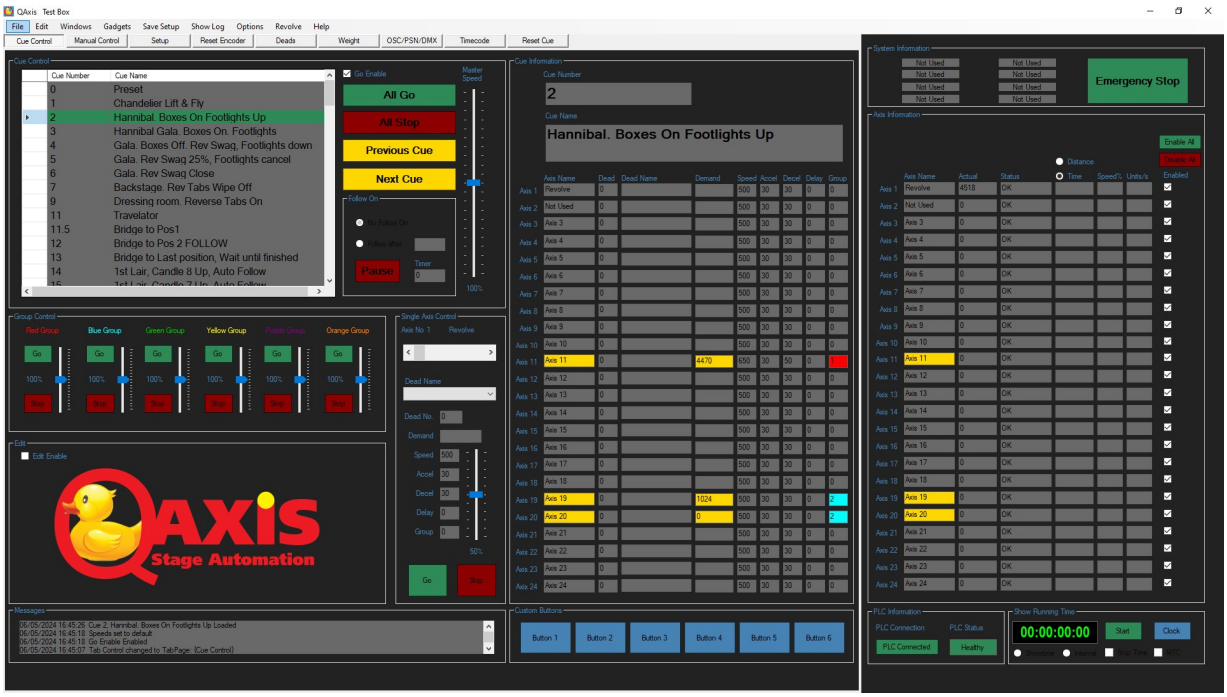
Introduction

QAxis® is a stage automation system developed by AVW Controls Ltd specifically for use in the entertainment industry. It is designed to provide reliable and flexible motion control for a wide range of stage applications.



QAxis enables users to create, edit, and run motion control cues through an intuitive and user-friendly interface. The system is designed to streamline both programming and live operation, allowing operators to work efficiently and confidently.

The interface presents all key information—including cues, axes, groups, and editing tools—on a single screen. This allows for rapid transitions between operational and editing environments without disrupting workflow.

QAxis utilises proprietary Omron PLCs (Programmable Logic Controllers) as its core hardware platform. These PLCs are widely used in industrial environments and are known for their reliability, robustness, and global availability. This ensures that AVW can deliver a high-performance, world-class automation system tailored to individual project requirements.

The QAxis software is developed using Microsoft Visual Studio, ensuring modern performance and compatibility.

General Description

QAxis includes a comprehensive range of features designed to support complex stage automation tasks:

- The system supports a large number of cues, with each cue capable of controlling up to 24 axes simultaneously.
- Up to 128 named “deads” (trims) can be defined and reused across cues and axes.
- Six playback groups allow axes to be controlled together or independently, each with adjustable speed.
- Cues can be linked to create complex automated sequences.
- Real-time display of axis position and status is continuously available.
- Remaining time or distance for movements, along with cue speeds, is always visible.
- Optional weight monitoring with configurable over/under limits (additional hardware required).
- A dedicated revolve interface simplifies programming of rotational movements, including both absolute and relative moves.
- A show log records all operator actions and system errors for diagnostics.
- Safety features include password protection, keyswitch operation, and deadman controls to prevent unintended motion.
- A single-axis controller allows manual control of individual axes during cue execution.
- A manual control page enables direct axis movement for installation and maintenance.
- Compatible with Windows 11 systems featuring Full HD displays and Ethernet connectivity.
- Remote diagnostics are available via internet connection (requires Windows Pro).
- DMX output via sACN enables integration with lighting systems.
- PosiStageNet output allows integration with AV systems (e.g. Disguise D3).
- OSC input enables cue triggering from external systems (e.g. QLab) or other QAxis systems.
- MIDI Timecode (MTC) input supports synchronisation with external controllers.
- Timecode scripting allows cues to be triggered automatically.
- A 3D scene viewer provides animated visualisation of stage elements.
- Axis patching supports up to 24 axes across 6 drives.
- Built-in IP scanner and PSN sniffer assist with system setup and troubleshooting.

Operation

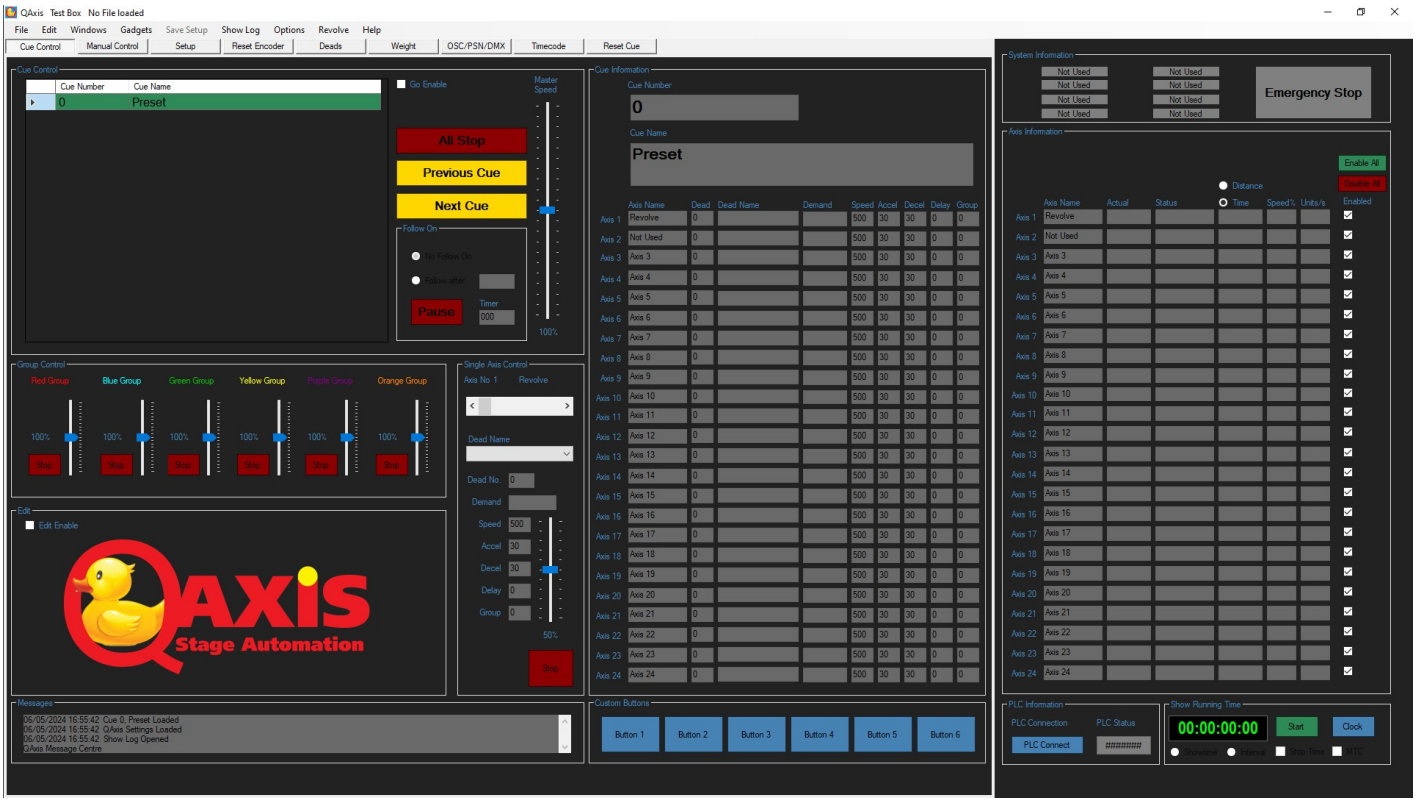
QAxis is a Windows-based application, meaning many of its functions and behaviours will be familiar to users of standard Windows software.

Common file operations—such as **New, Open, Save, Print, and Exit**—function in the same way as other modern applications. For completeness, these functions are described in this manual.

Start-Up

QAxis is launched in the standard Windows manner, typically by double-clicking the QAxis icon on the desktop.

Upon launch, a splash screen will appear while the software loads. This screen displays the current software version.



Once loading is complete, the main screen will open. At this stage:

- No show file will be loaded
- The system will not yet be connected to the PLC

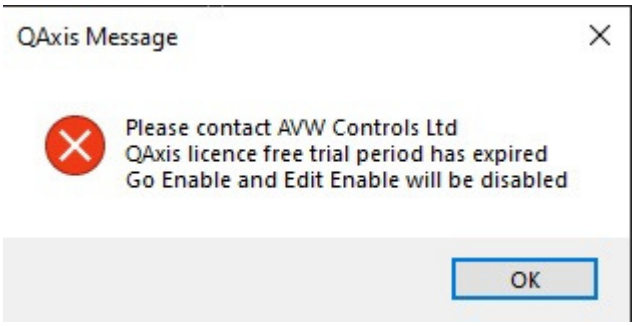
QAxis Licence Expired — IMPORTANT

If a licence expiry message appears, you must contact AVW Controls Ltd to renew or reset the licence.

- The software will still open
- However, you will **not** be able to run or edit cues

Contact AVW via:

www.avw.co.uk



Connect to the PLC

Connecting to the PLC

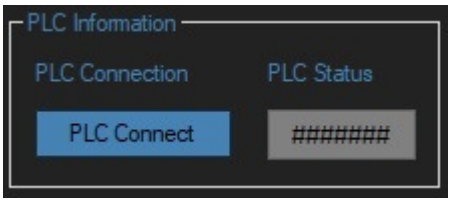
To connect to the PLC, press the **PLC Connect** button.

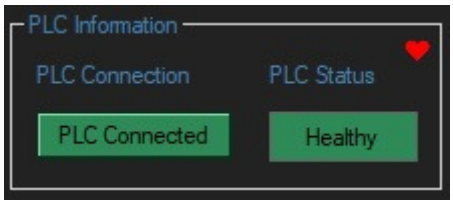
If the PLC is successfully detected:

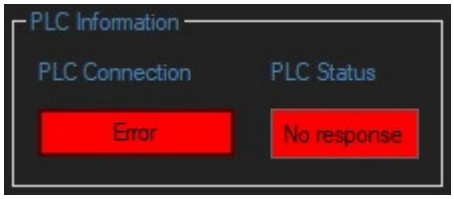
- The status indicator will turn **green** and display *"Healthy"*

If the PLC is not detected:

- The status indicator will turn **red** and display *"No Response"*







Connection Requirements and Notes

- A valid Ethernet port must be selected (usually automatic).
- If the IP address has changed, a communication error may occur.

The correct IP address can be selected via:

- The Setup page
- The IP Scanner tool

Omron communication uses **Port 9000**, which must be:

- Open
- Allowed through firewall/antivirus software

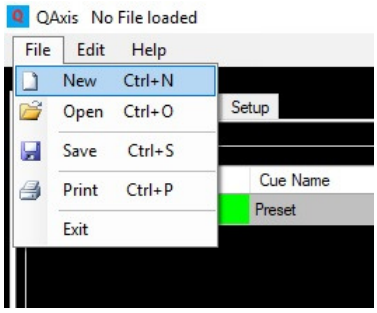
A "heartbeat" signal is continuously sent to the PLC to confirm that the system is being actively monitored.

The File Menu

The **File menu** is located in the top-left corner of the main screen. From this menu, you can create a new show file, open an existing file, save your work, print cue sheets, or exit the program.

QAxis stores cue data in files with the **.QAX** extension. By default, these files are saved and opened from:
C:\QAxis\Shows

Show files can also be saved to external storage devices such as USB drives.



File Operations
New

Important: Ensure you save any work you wish to keep before creating a new show file.

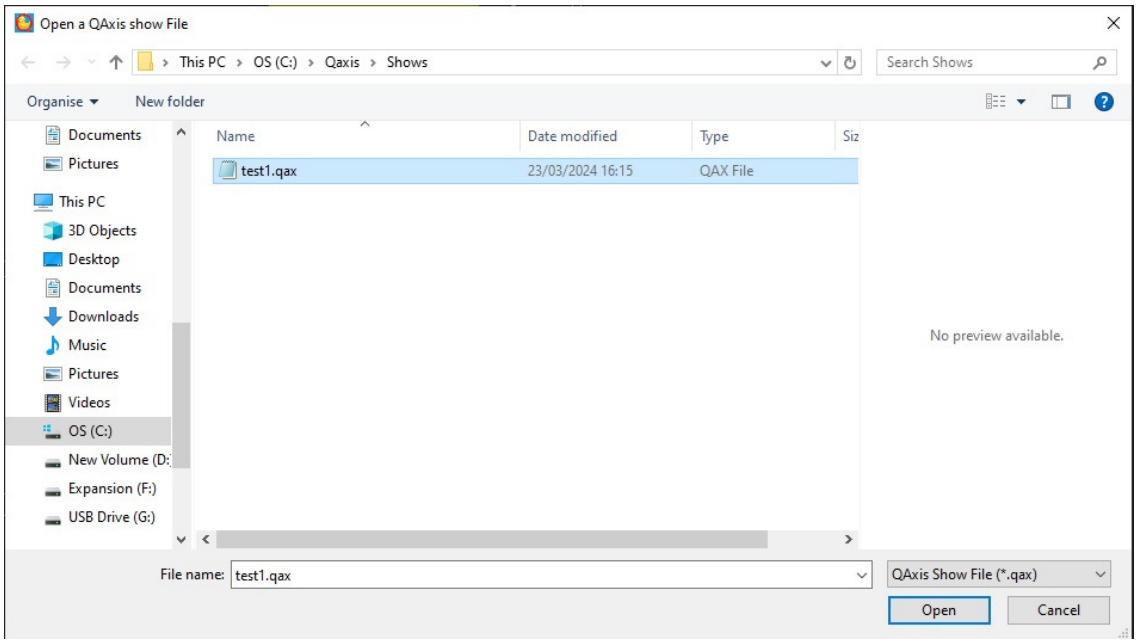
Creating a new file will delete all current cue information (after confirmation). The system will reset to a single cue:

- Cue Number: 0
- Cue Name: *Preset*
- All demand values: cleared
- All other parameters: set to default values

Open

Opens a file browser to locate and load an existing **.QAX** file.

- Default location: **C:\QAxis\Shows**
- Select a file and click **Open**, or double-click the file
- The selected show file will then be loaded into QAxis



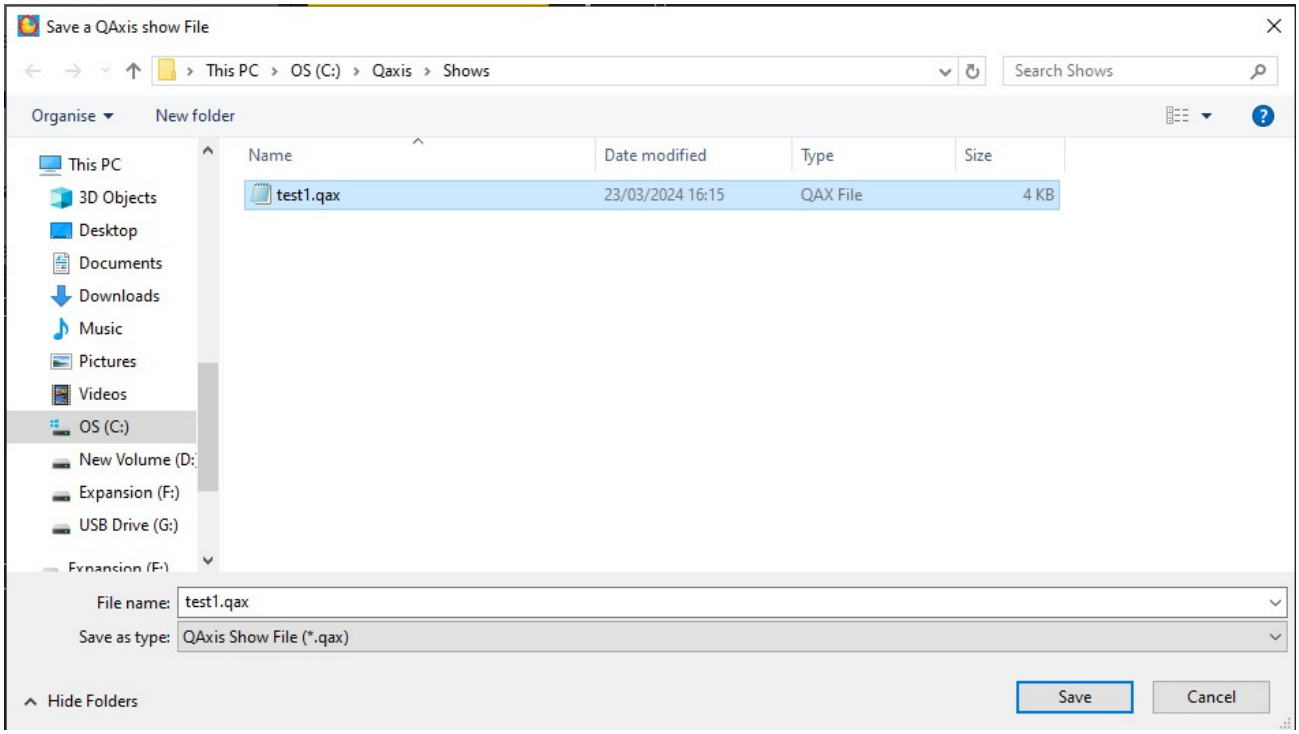
Save

Opens a file browser to save the current show file.

- Default location: **C:\QAxis\Shows**

You can:

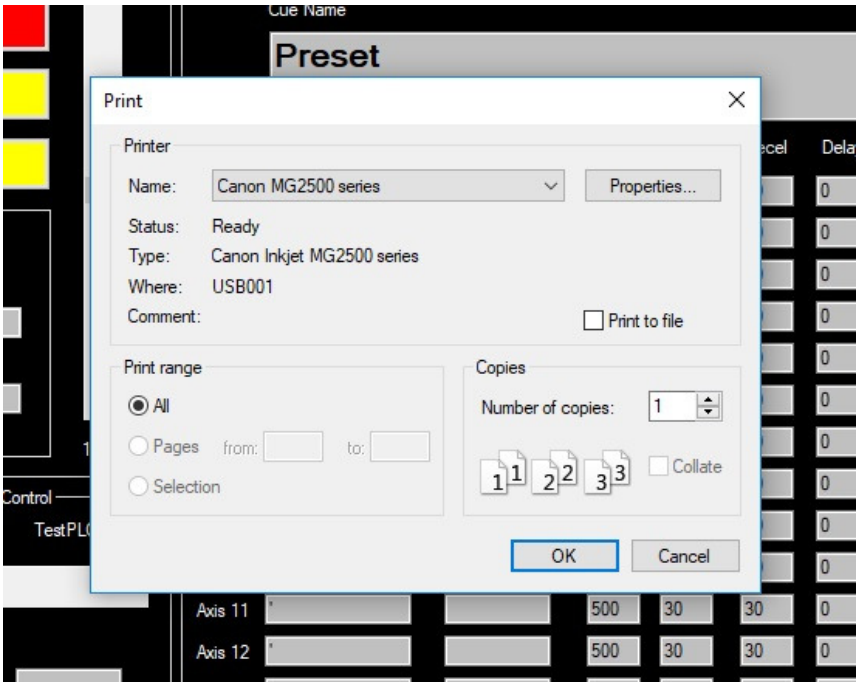
- Overwrite an existing file by selecting it and clicking **Save**
- Create a new file by entering a new filename and clicking **Save**



Print

Opens the standard printer dialog.

- Each cue is printed on a separate sheet
- Printing options (copies, page range, etc.) are controlled by your printer settings
- Cue sheets are formatted for **A4 portrait orientation**



Printed Cue Sheet

QAxis by AVW Controls Ltd

Cue Sheet

Show File: C:\Qaxis\QAxis Show Files\Joseph1.qax

Cue number: 0

Cue name: Preset

Axis	Demand	Speed	Accel	Decel	Delay	Dead	Group
Left Leg	0	500	30	30	0	Dead 1	0
Right Leg	0	500	30	30	0	Dead 1	0
Free Leg	0	500	30	30	0	Dead 1	0
Header	0	500	30	30	0	Dead 1	0
Gauze		500	30	30	0	0	0
Footer		500	30	30	0	0	0
Axis 7		500	30	30	0	0	0
Axis 8		500	30	30	0	0	0
Axis 9		500	30	30	0	0	0
Axis 10		500	30	30	0	0	0
Axis 11		500	30	30	0	0	0
Axis 12		500	30	30	0	0	0
Axis 13		500	30	30	0	0	0
Axis 14		500	30	30	0	0	0
Axis 15		500	30	30	0	0	0
Axis 16		500	30	30	0	0	0
Axis 17		500	30	30	0	0	0
Axis 18		500	30	30	0	0	0
Axis 19		500	30	30	0	0	0
Axis 20		500	30	30	0	0	0
Axis 21		500	30	30	0	0	0
Axis 22		500	30	30	0	0	0
Axis 23		500	30	30	0	0	0
Axis 24		500	30	30	0	0	0

Printed Cue Sheet

A printed cue sheet includes:

- Show file name
- Cue number and name
- Axis data, including:
- Demand
- Speed
- Acceleration
- Deceleration
- Delay
- Dead
- Group

This provides a clear reference for programming and operation.

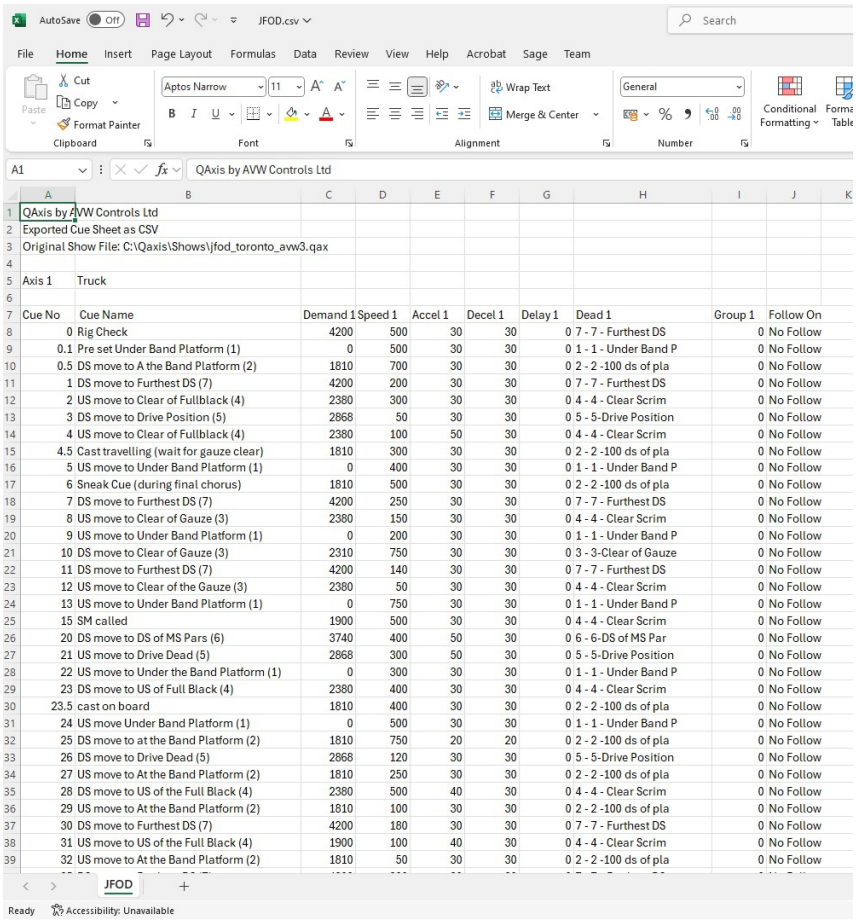
Export CSV

This function exports cue data as a **CSV (Comma-Separated Values)** file.

- Can be opened in Microsoft Excel or similar software
- Useful for:
- Data analysis
- Sharing with third-party automation systems

By default, files are saved to:
C:\QAxis\Show

The **Deads file** can also be exported in CSV format.



QAxis by AVW Controls Ltd
Exported Cue Sheet as CSV
Original Show File: C:\Qaxis\Shows\jfod_toronto_avw3.qax

Axis 1 Truck

Cue No	Cue Name	Demand 1	Speed 1	Accel 1	Decel 1	Delay 1	Dead 1	Group 1	Follow On
0	Rig Check	4200	500	30	30	0	7 - 7 - Furthest DS	0	No Follow
0.1	Pre set Under Band Platform (1)	0	500	30	30	0	1 - 1 - Under Band P	0	No Follow
0.5	DS move to A the Band Platform (2)	1810	700	30	30	0	2 - 2 -100 ds of pla	0	No Follow
1	DS move to Furthest DS (7)	4200	200	30	30	0	7 - 7 - Furthest DS	0	No Follow
2	US move to Clear of Fullblack (4)	2380	300	30	30	0	4 - 4 - Clear Scrim	0	No Follow
3	DS move to Drive Position (5)	2868	50	30	30	0	5 - 5-Drive Position	0	No Follow
4	US move to Clear of Fullblack (4)	2380	100	50	30	0	4 - 4 - Clear Scrim	0	No Follow
4.5	Cast travelling (wait for gauze clear)	1810	300	30	30	0	2 - 2 -100 ds of pla	0	No Follow
5	US move to Under Band Platform (1)	0	400	30	30	0	1 - 1 - Under Band P	0	No Follow
6	Sneak Cue (during final chorus)	1810	500	30	30	0	2 - 2 -100 ds of pla	0	No Follow
7	DS move to Furthest DS (7)	4200	250	30	30	0	7 - 7 - Furthest DS	0	No Follow
8	US move to Clear of Gauze (3)	2380	150	30	30	0	4 - 4 - Clear Scrim	0	No Follow
9	US move to Under Band Platform (1)	0	200	30	30	0	1 - 1 - Under Band P	0	No Follow
10	DS move to Clear of Gauze (3)	2310	750	30	30	0	3 - 3-Clear of Gauze	0	No Follow
11	DS move to Furthest DS (7)	4200	140	30	30	0	7 - 7 - Furthest DS	0	No Follow
12	US move to Clear of the Gauze (3)	2380	50	30	30	0	4 - 4 - Clear Scrim	0	No Follow
13	US move to Under Band Platform (1)	0	750	30	30	0	1 - 1 - Under Band P	0	No Follow
15	SM called	1900	500	30	30	0	4 - 4 - Clear Scrim	0	No Follow
20	DS move to DS of MS Pars (6)	3740	400	50	30	0	6 - 6-DS of MS Par	0	No Follow
21	US move to Drive Dead (5)	2868	300	50	30	0	5 - 5-Drive Position	0	No Follow
22	US move to Under the Band Platform (1)	0	300	30	30	0	1 - 1 - Under Band P	0	No Follow
23	DS move to US of Full Black (4)	2380	400	30	30	0	4 - 4 - Clear Scrim	0	No Follow
23.5	cast on board	1810	400	30	30	0	2 - 2 -100 ds of pla	0	No Follow
24	US move Under Band Platform (1)	0	500	30	30	0	1 - 1 - Under Band P	0	No Follow
25	DS move to at the Band Platform (2)	1810	750	20	20	0	2 - 2 -100 ds of pla	0	No Follow
26	DS move to Drive Dead (5)	2868	120	30	30	0	5 - 5-Drive Position	0	No Follow
27	US move to At the Band Platform (2)	1810	250	30	30	0	2 - 2 -100 ds of pla	0	No Follow
28	DS move to US of the Full Black (4)	2380	500	40	30	0	4 - 4 - Clear Scrim	0	No Follow
29	US move to At the Band Platform (2)	1810	100	30	30	0	2 - 2 -100 ds of pla	0	No Follow
30	DS move to Furthest DS (7)	4200	180	30	30	0	7 - 7 - Furthest DS	0	No Follow
31	US move to US of the Full Black (4)	1900	100	40	30	0	4 - 4 - Clear Scrim	0	No Follow
32	US move to At the Band Platform (2)	1810	50	30	30	0	2 - 2 -100 ds of pla	0	No Follow

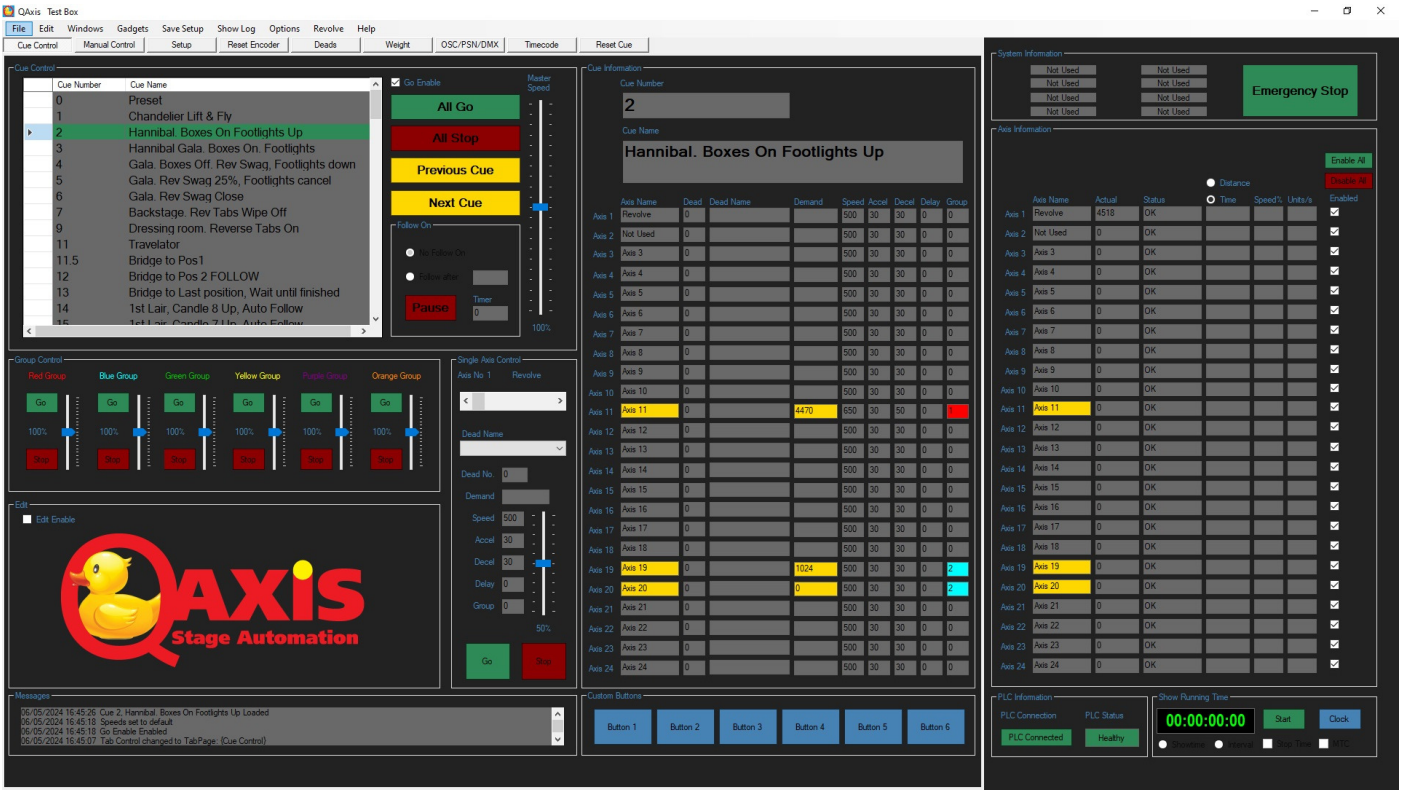
Exit

Closes the program.

Before closing, a prompt will appear:

- **Yes** → Opens the Save dialog, then exits
- **No** → Exits without saving
- **Cancel** → Returns to the program without exiting

Main Screen



Main Screen

The main screen is divided into several functional windows:

- Cue Control
- Group Control
- Edit
- Single Axis Control
- Cue Information
- Axis Information
- System Information
- PLC Information
- Running Clock / MIDI Timecode display
- Message Centre
- Custom Buttons

Additional pages are accessible via tabs, including:

- Manual Control
- Setup
- Encoder Reset
- Deads
- Weight
- DMX / PSN / OSC
- Reset Cue

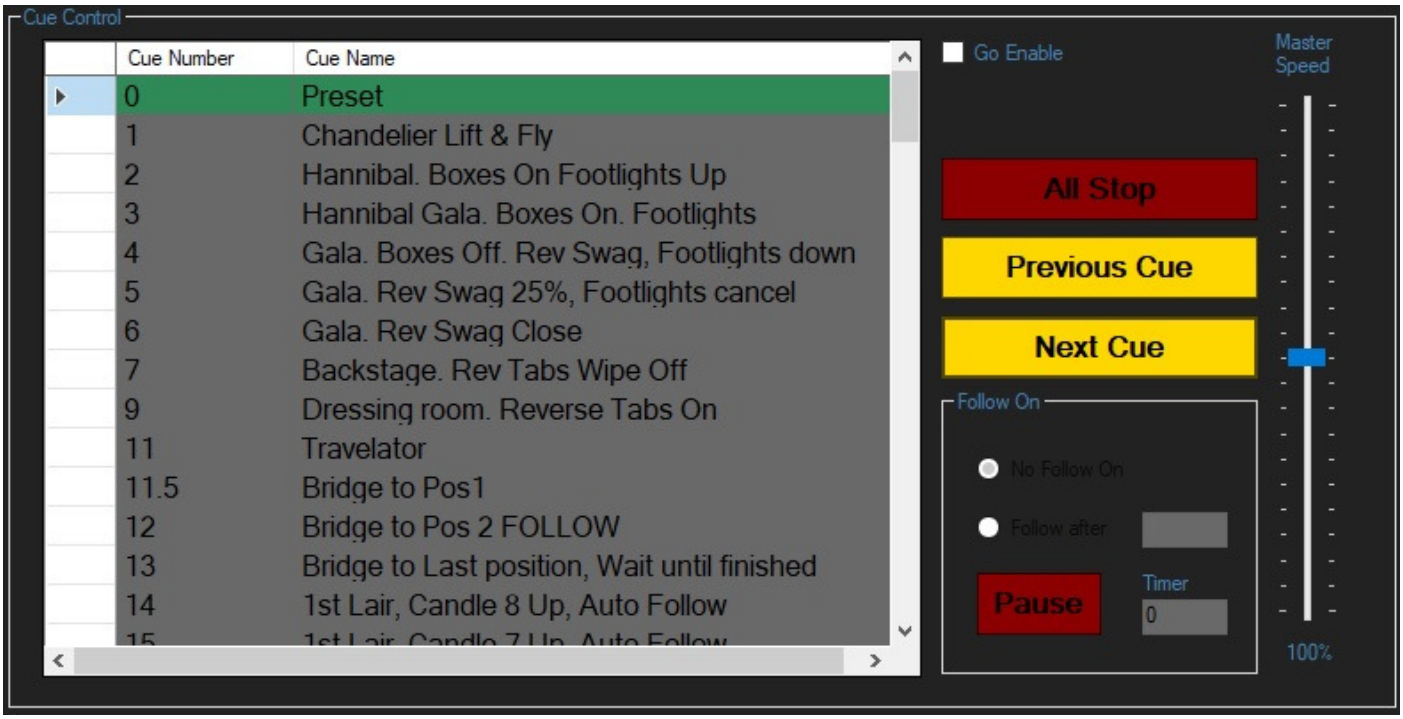
Initial State
When the main screen is first opened:

- The system is **not connected to the PLC**
- The **PLC Connect** button must be pressed to establish communication

Once connected:

- Axis **Actual positions** and **Status** will be displayed
- System information will populate
- The PLC status indicator will turn **green (Healthy)**

Cue Control Window



When QAxis is first launched, the **Go button is hidden**.

To enable it:

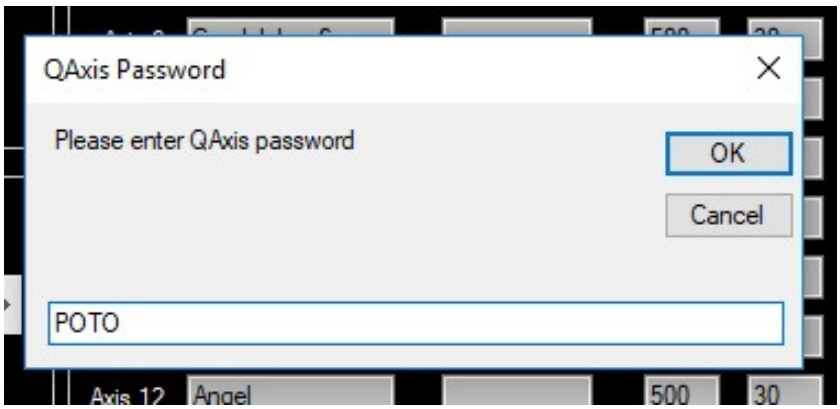
1. Click the **Go Enable** checkbox
2. Enter the system password (required on first activation)

The password is project-specific.

Once the correct password is entered, the **Go button becomes available**.

Cue Control Functions
The Cue Control window contains:

- Cue list (in numerical order)
- Control buttons:
- Go
- Stop
- Previous Cue
- Next Cue
- Follow-On timer
- Master Speed slider



Selecting Cues
A cue can be selected by:

- Using **Next / Previous** buttons
- Clicking directly on the cue list
- Using keyboard shortcuts

- F1 Go
- F2 Stop
- F3 Next
- F4 Previous
- F5 Pause
- F6 Master Speed Faster
- F7 Master Speed Slower

Running a Cue
Pressing **Go** will:

- Start all axes with valid demands (highlighted in yellow in the Cue Information window)

While moving:

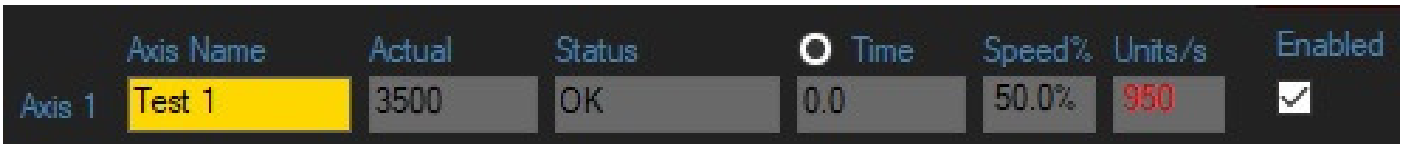
- Status displays **"Positioning"**
- Actual position updates in real time
- Remaining time or distance is shown
- Speed is displayed (may be affected by master or group speed controls)

Speed Behaviour Notes
- Speed is shown in **units per second**
- If displayed in **pink**, the move is too short to achieve full programmed speed
- The system will automatically reduce speed (creep mode)
- This ensures the target position is not overshot

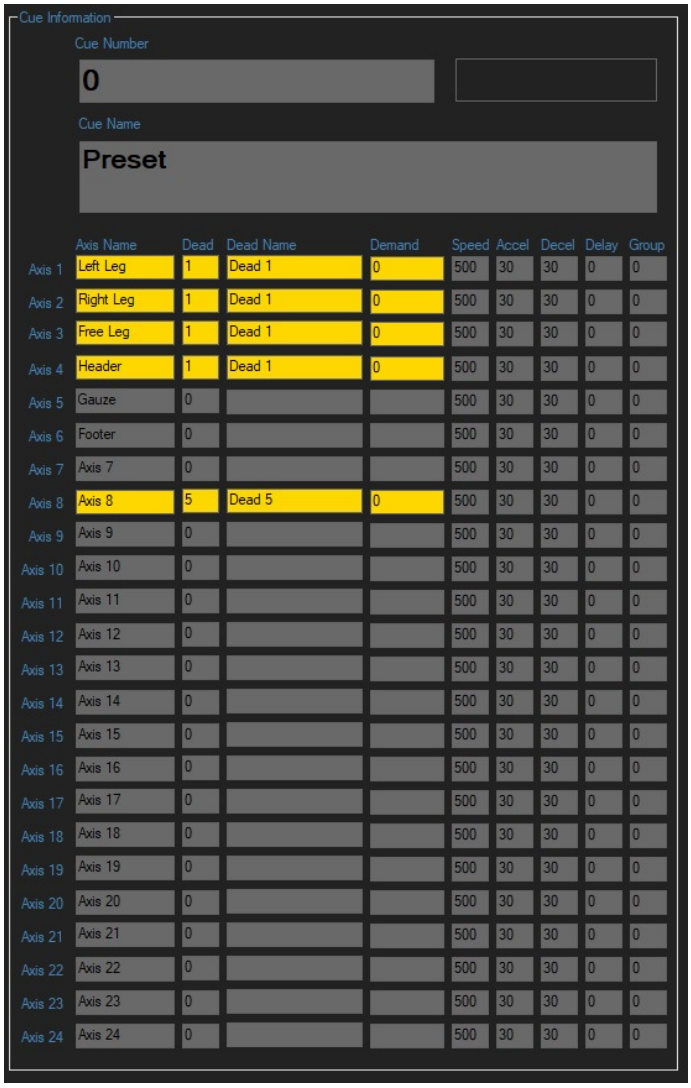
Pink values are normal near the end of a move

Completion of Movement
When a move completes:

1. Status briefly changes to **"At Position"** (yellow)
2. Then returns to **"OK"** (grey), indicating readiness for the next command



Cue Information Window



The Cue Information window displays all data for the currently selected cue.

- Any **yellow-highlighted demand** indicates an axis that will move when **Go** is pressed

Displayed parameters include:

- Demand
- Speed
- Acceleration
- Deceleration
- Delay
- Group
- Dead

Additional Information

- Current cue number and name are displayed
- Follow-On status is shown if programmed
- Deads can be selected via a dropdown when in Edit mode

Out-of-Limit Warning

If a demand field is shown in **red**:

- The value exceeds system soft limits
- The axis will move toward the demand
- Movement will stop at the configured limit

Cue Information Window

Cue Parameter Definitions

Demand

- Typically in millimetres (or hundredths of a degree for revolves)
- Range: –9,999,999 to 99,999,999
- Value **–1** = Null

Speed

- Percentage with implied decimal (e.g. 567 = 56.7%)

Acceleration (Accel)

- Time to reach full speed (tenths of a second)
- Example: 30 = 3 seconds

Deceleration (Decel)

- Time to reduce from full speed to zero
- Same format as Accel

Delay

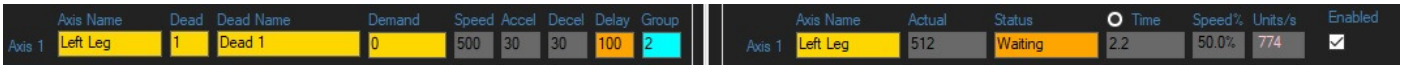
- Wait time before movement begins (tenths of a second)
- Status shows **"Waiting"** during delay

Group

- 0 = no group
- 1–6 correspond to:
- Red, Blue, Green, Yellow, Purple, Orange

Dead

- Range: 0–128
- 0 = no dead



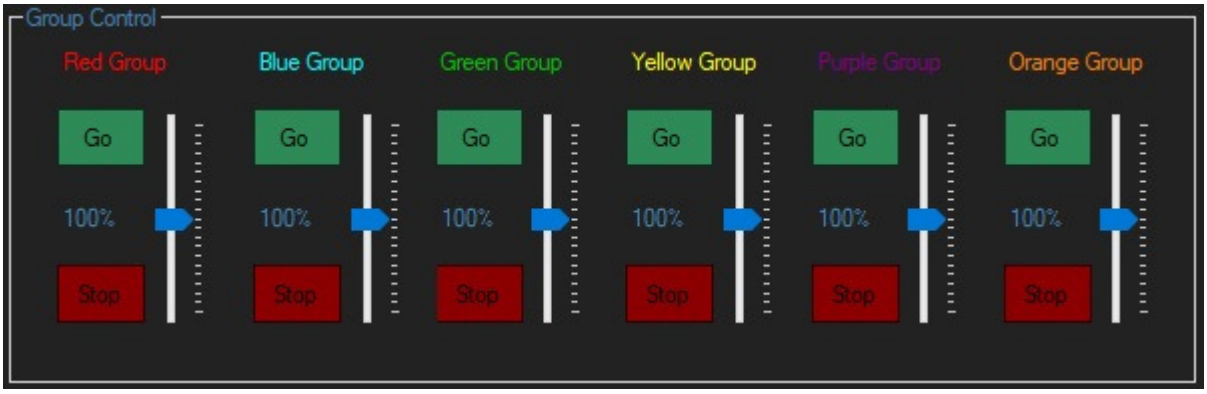
	Axis Name	Dead	Dead Name	Demand	Speed	Accel	Decel	Delay	Group
Axis 1	Left Leg	1	Dead 1	0	500	30	30	0	1
Axis 2	Right Leg	1	Dead 1	0	500	30	30	0	2
Axis 3	Free Leg	1	Dead 1	0	500	30	30	0	3
Axis 4	Header	1	Dead 1	0	500	30	30	0	4
Axis 5	Gauze	0			500	30	30	0	5
Axis 6	Footer	0			500	30	30	0	6

Special Dead Values

- **129** → Relative moves (commonly used for revolves)
- **130–999** → Custom project-specific functions
- e.g. axis interlocks or synchronisation

	Axis Name	Dead	Dead Name	Demand	Speed	Accel	Decel	Delay	Group
Axis 1	Truck	129	Relative Mode	1000	500	30	30	0	0

Group Control Window



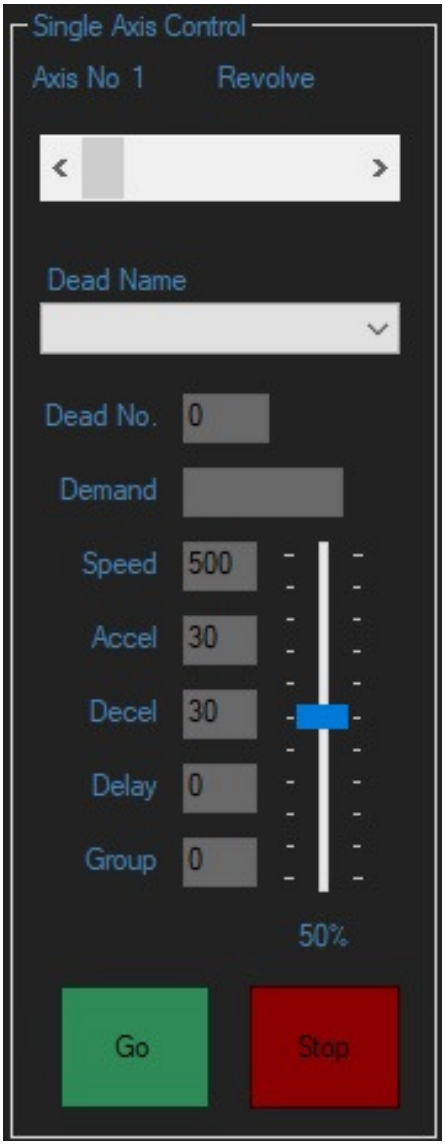
The Group Control window allows grouped axis control within cues.

Six groups available:

- Red, Blue, Green, Yellow, Purple, Orange

Each group can:

- Start (Go)
- Stop
- Adjust speed independently
- Axes can be assigned to groups per cue.



Single Axis Control Window

This window allows manual control of a single axis independently of cues.

- Axis is selected via a horizontal scroll bar
- Parameters match those in the Cue Information window
- Controls affect **only the selected axis**

This is useful for:

- Quick adjustments
- Testing
- Situations where creating a cue is unnecessary

Axis Information Window

Displays real-time information for all axes:

- Axis name
- Actual position
- Status
- Remaining time or distance
- Speed (%) and units

Axis Enable / Disable

- Disabled axes will **not respond to Go commands**
- Disabling does **not stop** an axis already in motion
- A disabled axis will still respond to a **Stop command**

Axis Information Window

Status Indicators

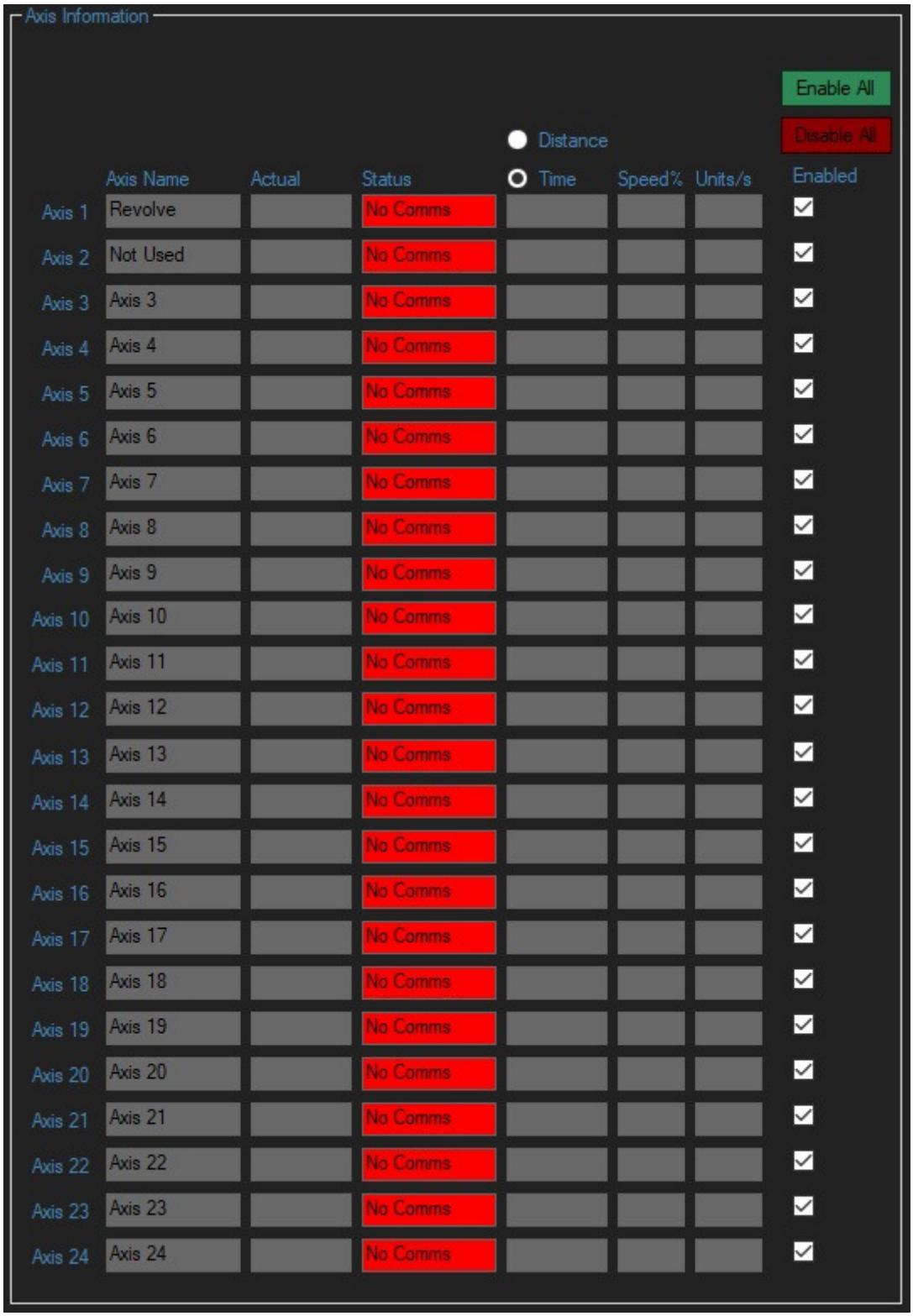
- **OK (Grey)** → Ready
- **Positioning (Green)** → Moving
- **No Comms (Red)** → Communication lost

If communication with the PLC fails:

- All axes display **"No Comms"**
- No commands will be accepted

Common causes:

- PLC powered off
- Ethernet disconnected
- Incorrect IP address

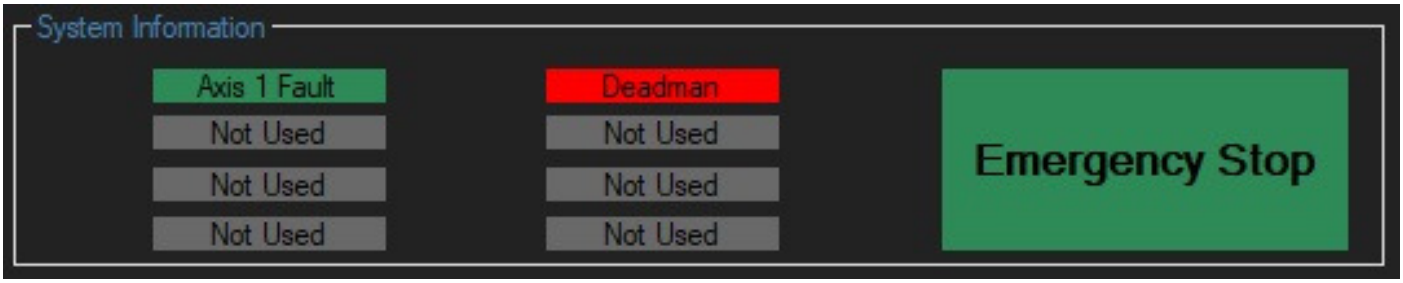


Axis Information Window

The **Status** field provides real-time feedback on axis conditions using colour-coded messages:

- **Yellow – "At Position"** Displayed briefly when an axis reaches its target position.
- **Orange – "Waiting"** Indicates a programmed delay before movement begins.
- **Black – No message** Axis is disabled via the **Enabled checkbox**. → The axis will not respond to Go commands.
- **Blue – "Disabled"** Axis is disabled via a **hardware input** (e.g. Emergency Stop or Deadman).
- **Red – "High Limit"** High limit switch activated. → Movement stops in the high direction.
- **Red – "Low Limit"** Low limit switch activated. → Movement stops in the low direction.
- **Red – "Ultimate Limit"** Ultimate limit switch activated. → Movement stops in both directions.
- **Red – "Overload"** Overload signal missing for more than one second. → Movement stops in the high direction.
- **Red – "Underload"** Underload signal missing for more than one second. → Movement stops in the low direction.
- **Red – "Encoder Fault"** Encoder signal missing for more than one second. → Actual position display turns dark green → Manual movement at creep speed is still possible

System Information Window



The System Information window displays:

- **Eight configurable status indicators**
- **Emergency Stop indicator**

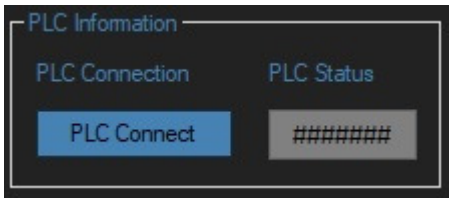
These indicators are defined during system commissioning.

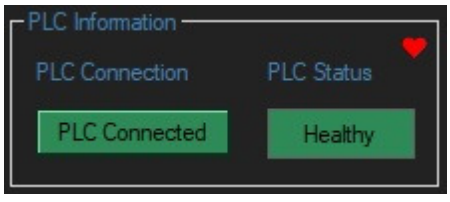
- **Green** → Condition is safe for movement
- **Red** → Condition prevents movement

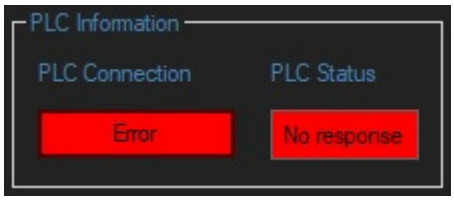
The **Emergency Stop indicator** behaves similarly:

- Green → Movement allowed
- Red → Movement inhibited

PLC Information Window







This window shows communication status between the PC and the PLC.

Status Indicators

- **Green – "Healthy"** → Communication is active → PLC is ready to accept commands
- **Flashing Green – "Healthy"** → PLC battery is low and requires replacement
- **Dark Green – "Busy"** → PLC is communicating but currently processing
- **Red – "Error / No Response"** → No communication with PLC

- A Heartbeat is sent to the PLC to ensure that the QAxis software is in constant communication

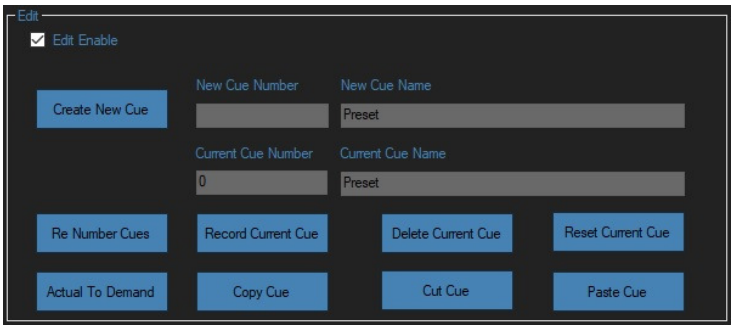
Edit Window

The Edit window is accessed by selecting the **Edit Enable** checkbox.

- If Go Enable is not already active, a **password is required**
- If Go Enable is active, it will be **disabled when Edit Enable is selected**

Important:

Go Enable and Edit Enable are **mutually exclusive**.



Creating a New Cue

To create a new cue:

1. Enter a **unique cue number**
Up to 7 digits (including decimal point)
Supports very large cue ranges 9,999,999

2. Enter a **cue name**
If left blank, a default name will be generated (e.g. Q1.0)

3. The cue will automatically appear in the cue list in numerical order
4. Enter required data in the Cue Information window
5. Click **Record Current Cue** to store the cue (session only)

Default Values

New cues are pre-filled with default values for:

- Speed
- Acceleration
- Deceleration
- Delay
- Group
- Dead

These can be overwritten as required.

Editing Cue Data

All cue parameters can be edited directly in the Cue Information window
Data can be:

- Copied
- Cut
- Pasted
- Transferred between cues

This allows fast and efficient programming.

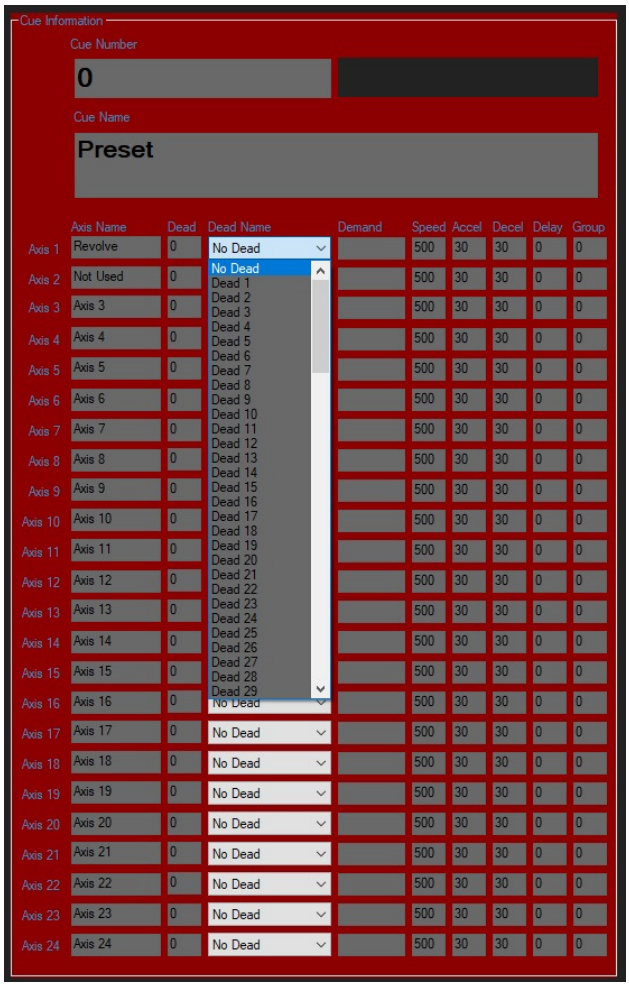
Additional Edit Functions

- **Delete Current Cue** Removes the selected cue
- **Reset Current Cue** Clears all data for the selected cue
- **Copy / Cut / Paste Cue** Allows duplication and reorganisation of cues

Re-Number Cues Converts decimal cue numbers to whole integers

Deads

The **Deads page** is accessed via the tab control.



- Up to **128 deads** can be defined

Each dead has:
- A name
- A value

Dead File Behaviour
A default dead file is loaded automatically at startup
Multiple dead files can be:
- Created
- Saved
- Loaded

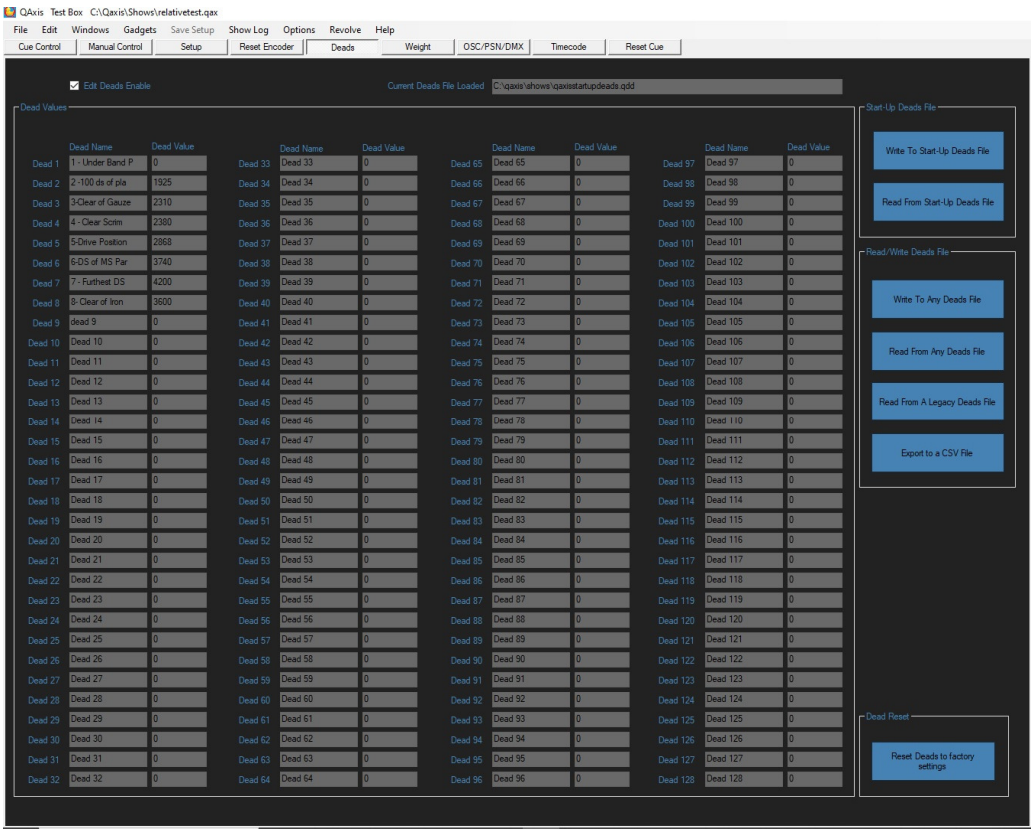
If no default file is found: All dead values revert to **zero (factory default)**

Using Deads
Deads are selected via dropdown menus in Edit mode
- Any dead can be reused across:
- Multiple cues
- Multiple axes

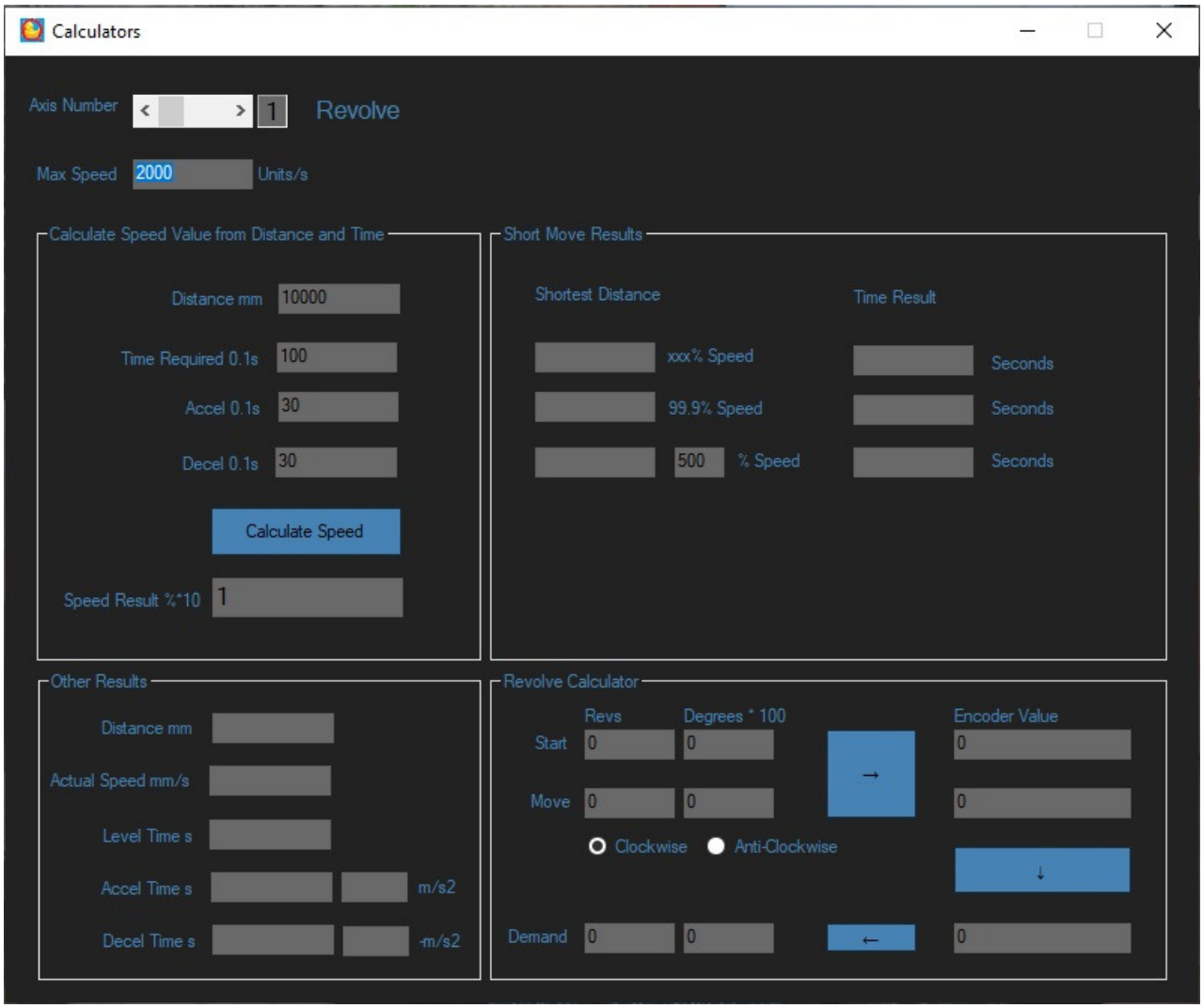
Editing Deads
If a dead value or name is changed:

- All cues using that dead are automatically updated

This allows efficient global changes without editing each cue individually.



Calculators



Calculators are accessed from the **Gadgets menu**.

They assist with determining correct motion parameters.

Speed Calculator
Calculates required speed for a movement based on:

- Distance
- Time
- Acceleration
- Deceleration

Requirements:

- A valid **max speed file** must be configured
- Otherwise, the calculator will display **"undefined"**

Input Units
- Distance → millimetres (or degrees for revolves)
- Time → tenths of a second (e.g. 100 = 10 seconds)
- Accel/Decel → tenths of a second

Results
- Displays calculated speed if achievable
- Can be copied into cue data
- Provides additional useful motion data

Short Move Calculator
Calculates the shortest achievable move using:

- Speed
- Acceleration
- Deceleration

Used for analysing short-distance movements.

Revolve Calculator
Simplifies rotational calculations:

- Converts:
- Revolutions
- Degrees → into encoder counts

Manual Page

.The Manual page is accessed via the tab control.

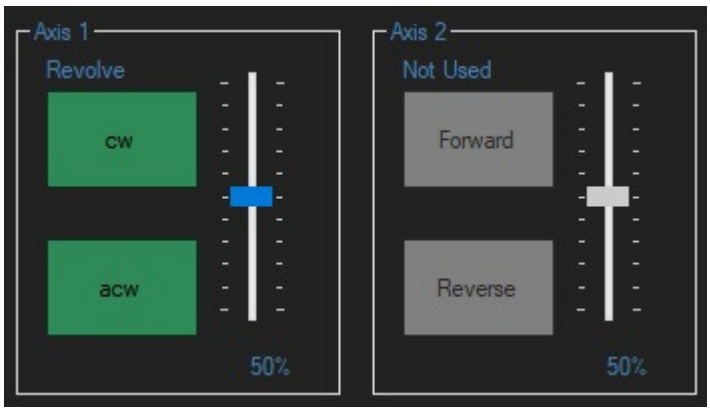
It provides **direct manual control of up to 24 axes**.

Display Behaviour

- Disabled axes are hidden
- Unused axes are greyed out
- System, axis, and PLC information remain visible.

Manual Controls

Each axis includes:



- Forward button
- Reverse button
- Speed control slider
- Default speed = **50%**

- Speed changes apply to:
- Touchscreen controls
- Physical controls

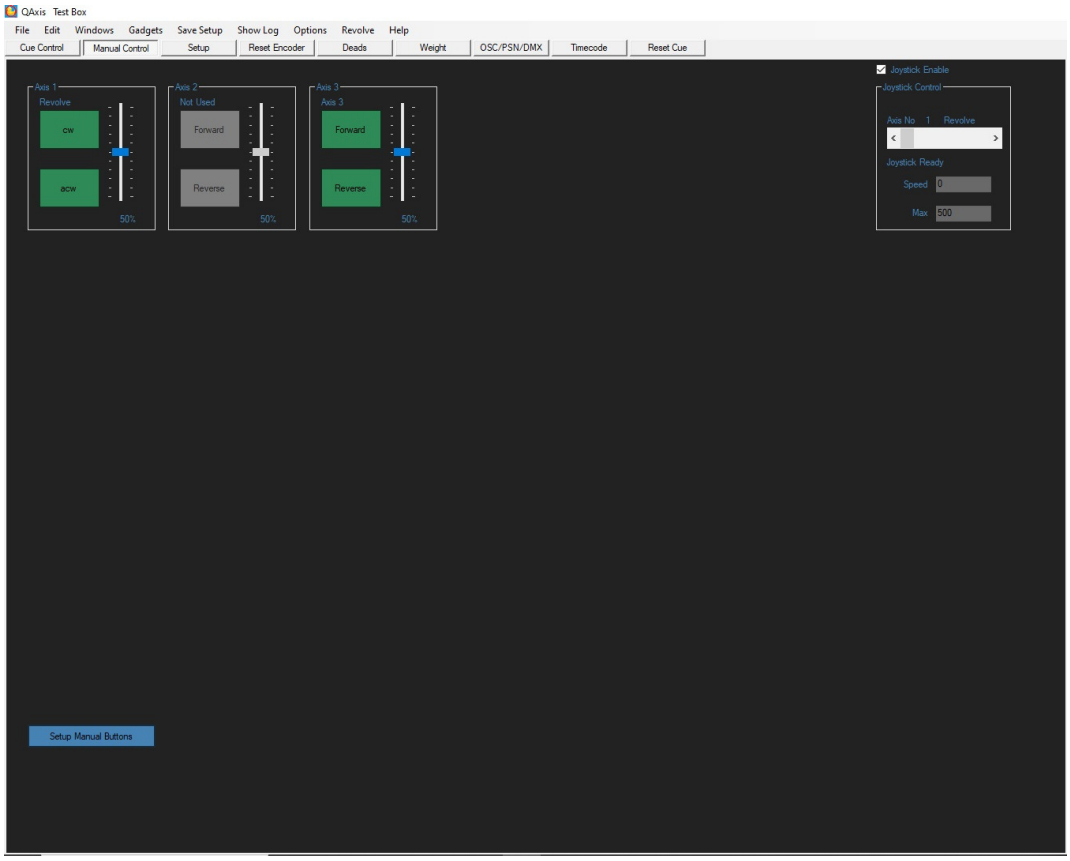
Additional Features

Axis movement will stop at:

- Soft limits
- Hard limits

- USB joystick control is supported for single-axis operation

Button labels can be customised via the Setup page



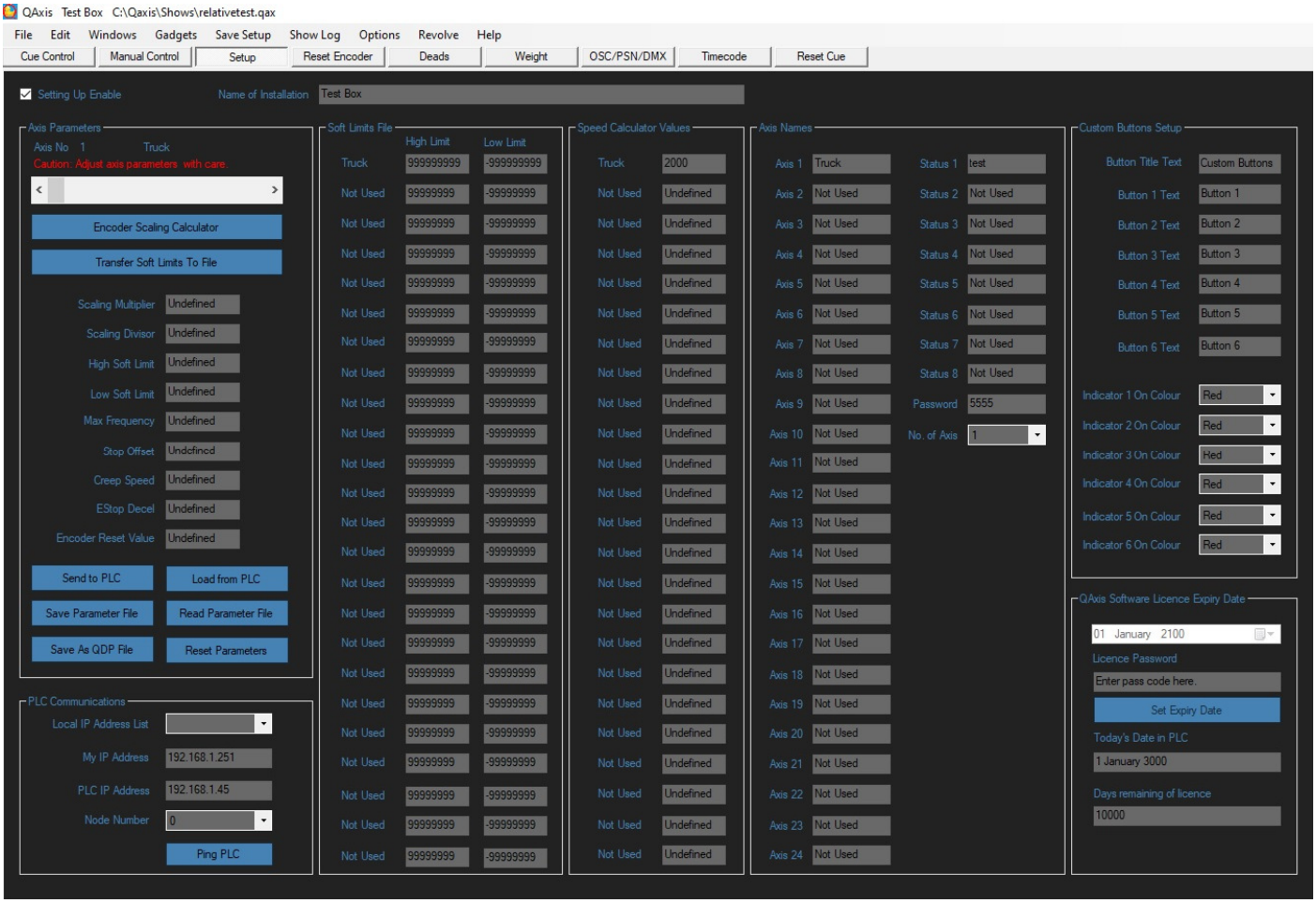
Setup Page

The Setup page allows configuration of system parameters.

Warning:
This page should only be used by trained personnel.

Configurable Parameters

- Axis names
- System status labels
- Custom button names
- Soft limits
- IP addresses
- Node numbers
- Speed references
- Software expiry date

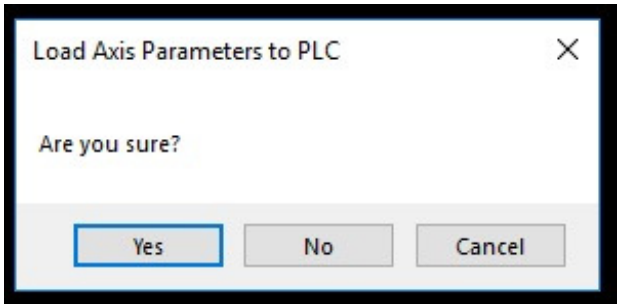


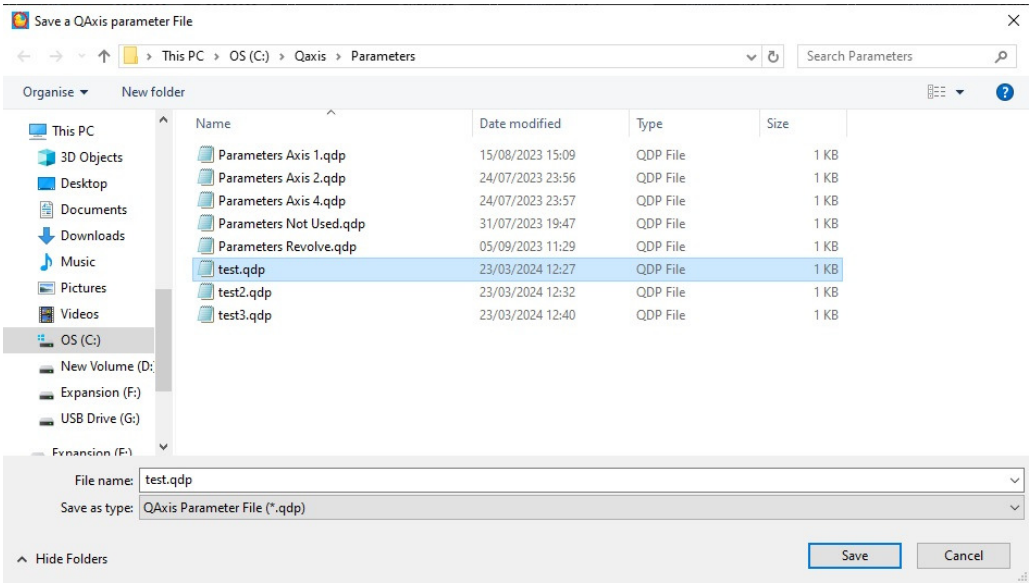
Functions

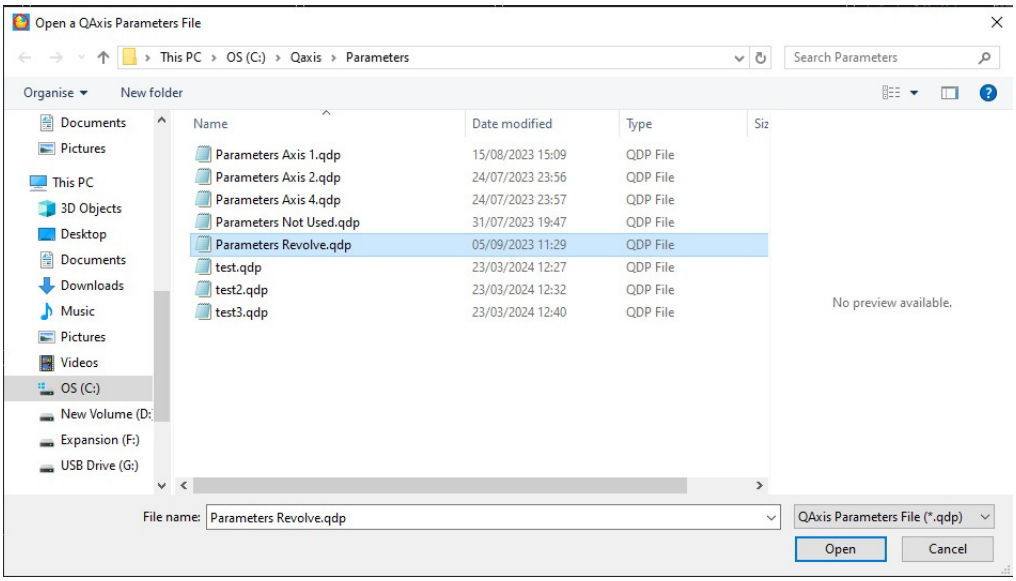
- **Send to PLC** → Sends displayed parameters to selected axis
- **Load from PLC** → Retrieves parameters from PLC
- **Save to File (.QDP)** → Stores parameters locally
- **Load from File** → Loads saved parameters into system

Default File Location

C:\QAxis\Parameters



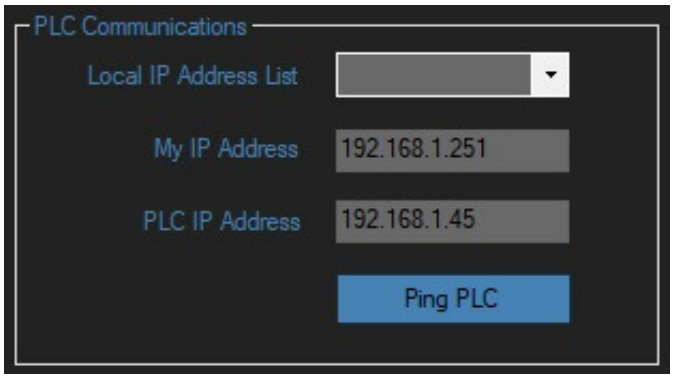




Communications

The Communications window displays:

- Available IP addresses
- The currently selected IP address



The IP address is normally loaded automatically at startup from the **qaxissettings.dat** file located in the QAxis folder.

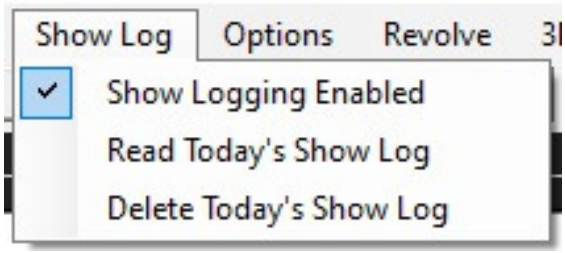
In most cases, this setting **does not need to be changed**.

Ping PLC
A **Ping PLC** button is provided to test communication between the PC and the PLC.

- Confirms whether the PLC is reachable over the network

Show Log

QAxis includes a **Daily Show Log** for tracking system activity.



The log records:

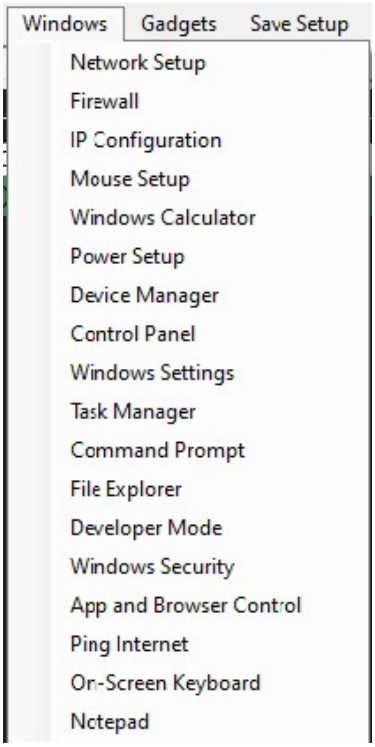
- All **Go** and **Stop** commands
- All **system errors** (e.g. Ultimate Limit)
- All **exception codes** (system faults)

Log Features
- All entries are **date and time stamped**
- Fault entries include:
- Affected cue
- Running time (if the Running Clock is active)

Troubleshooting Use
If a fault occurs:

- Export and send the show log to AVW
- Include any additional relevant information

This greatly assists with remote diagnostics and support



Windows Shortcuts

Shortcut buttons are provided to access useful Windows utilities directly from QAxis.

These tools can assist with:

- System configuration
- Diagnostics
- General troubleshooting

Reset Encoder page

The Reset Encoder page is accessed via the main tab control.

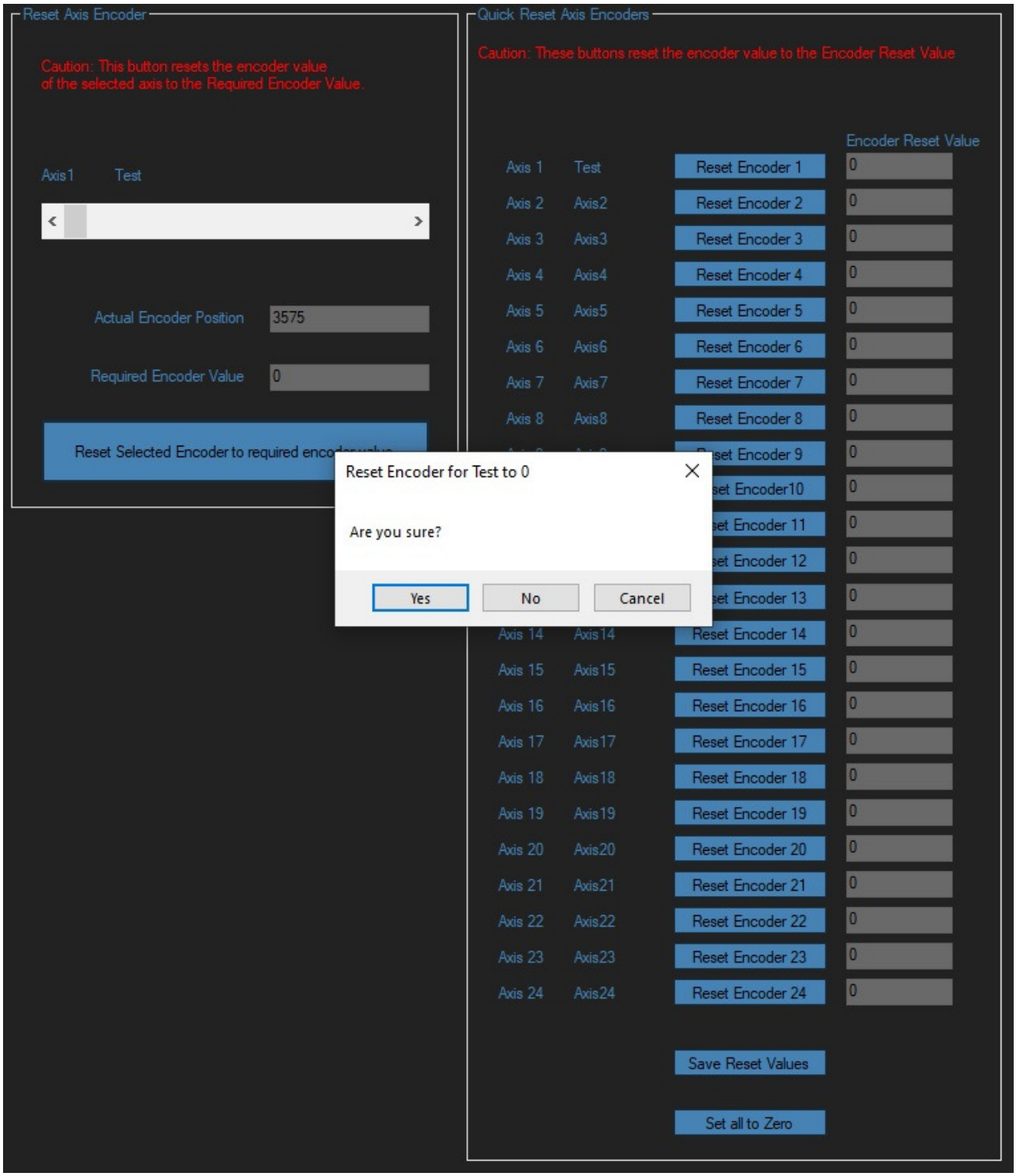
This page allows encoder values to be reset for each axis.

Reset Options

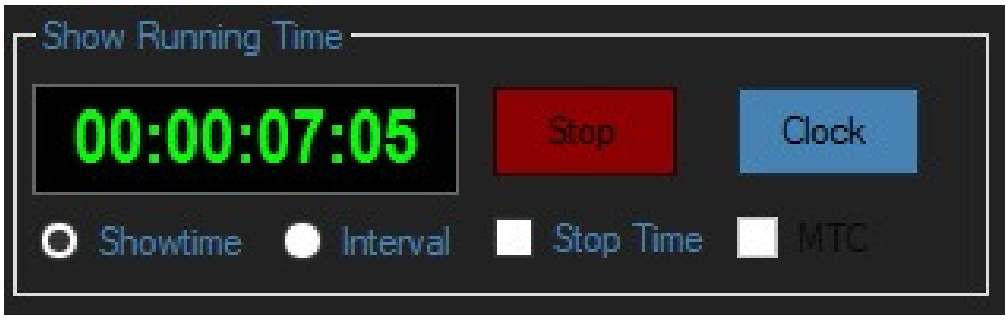
- Reset using predefined **Encoder Reset Value**
- Reset using a manually entered **Required Encoder Value**

Additional Functions

- Save encoder reset values
- Reset all encoder values to zero



Running Clock



QAxis includes a **Running Clock** to track show timing.

Functions

- Displays current show time
- Supports tracking of:
- Running time
- Interval time
- Stoppage time

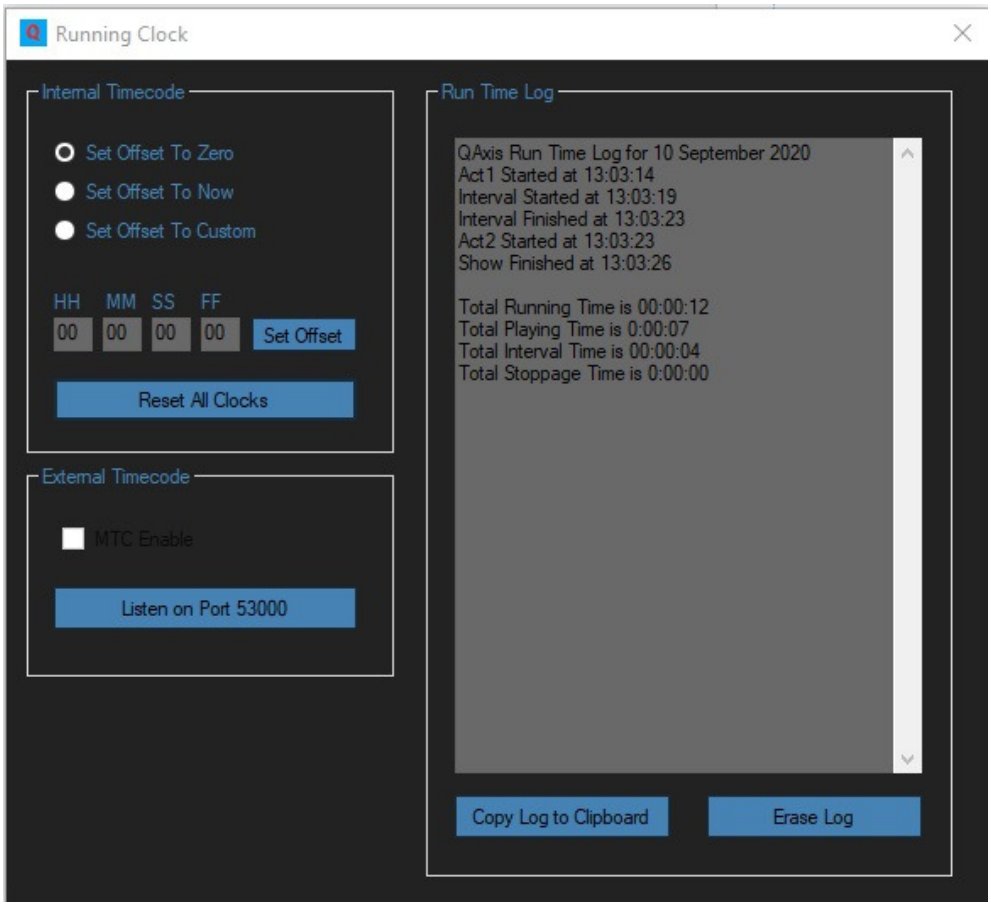
Configuration

- Can be set to:
- Current (“Now”) time
- Custom start time
- Default start value = **0**

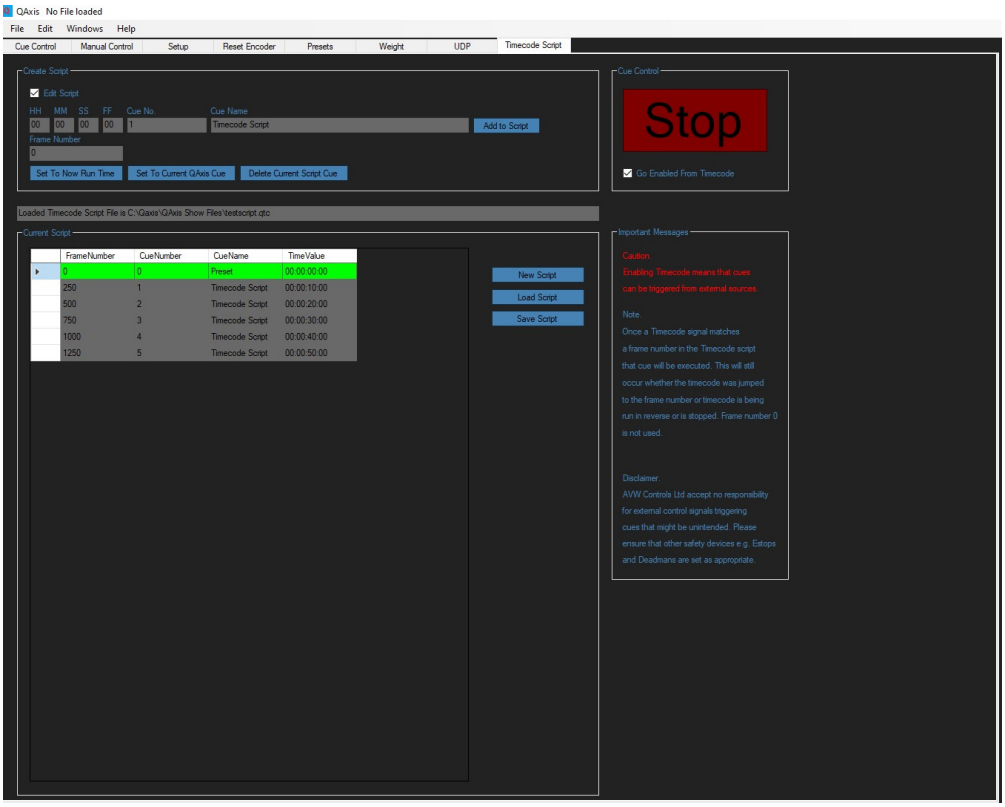
Integration with Show Log

- The running clock provides timestamps for the Show Log

Useful for identifying when faults occurred



Timecode script



QAxis can receive external MIDI Timecode via Ethernet.

- Listens on **Port 53000**
- Format: **HH:MM:SS:FF**

Behaviour

- Running Clock displays incoming MTC
- Overrides internal clock when active

Timecode Script

The Timecode Script allows cues to be triggered automatically based on time.

Functionality

- Cues are triggered when the clock reaches defined time points
- Works with:
- Internal clock
- External MTC
- Script entries are ordered by time (frame number)
- Cue execution order can differ from cue numbering

Important Warning

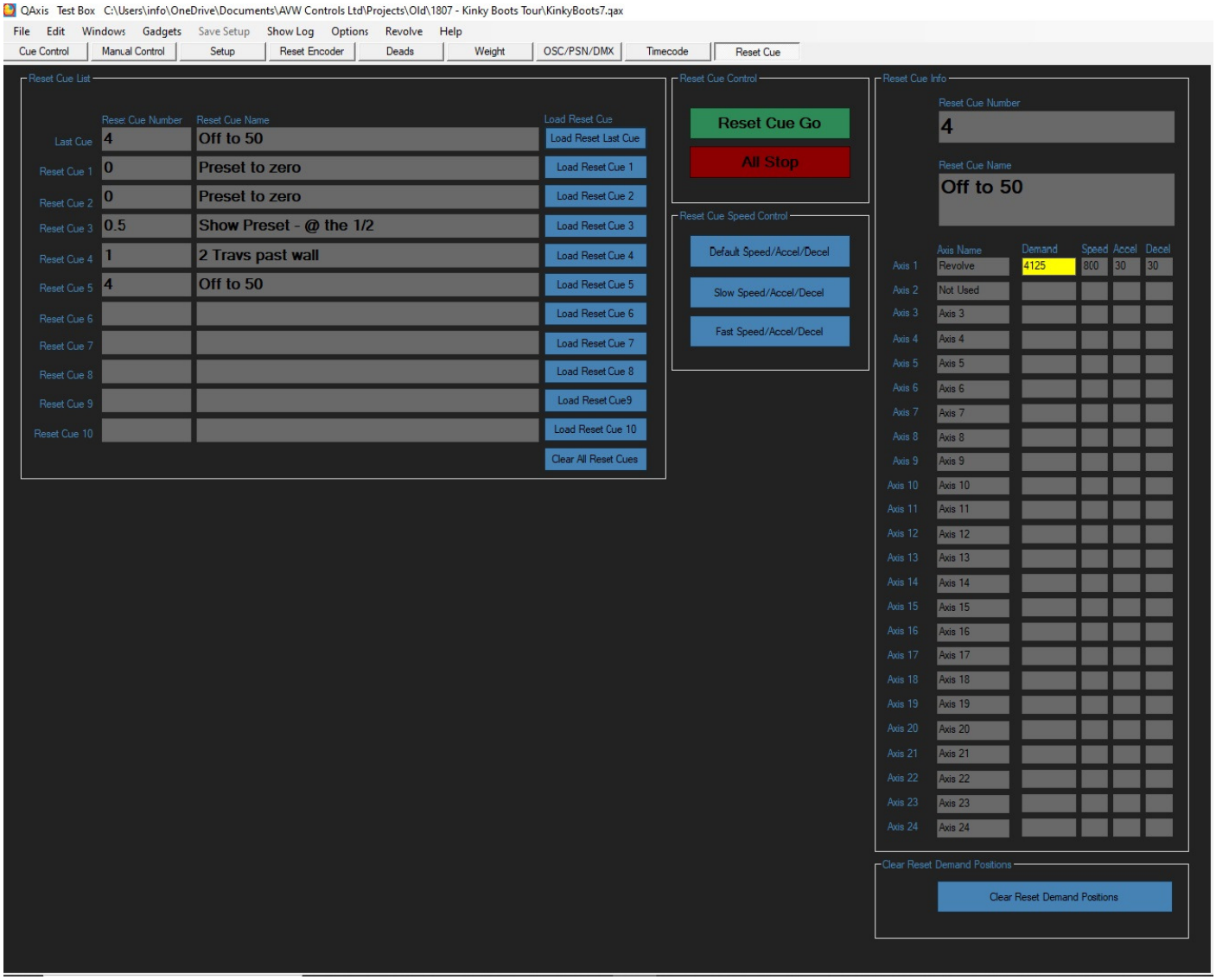
Enabling timecode allows cues to be triggered automatically or externally.

- Cues will trigger if:
- Time jumps to a programmed frame
- Time runs in reverse
- Time is stopped at a trigger point

Disclaimer

AVW Controls Ltd accepts **no responsibility** for unintended cue execution caused by external control signals.

Reset Cue



The Reset Cue page stores the **start positions of the last 10 executed cues**.

Purpose
Allows cues to be quickly reset to their original starting positions.

Operation
1. Select a cue from the **Load Reset Cue** dropdown
2. Choose reset speed:
   - Original cue speed
   - Fast
   - Slow
3. Execute reset

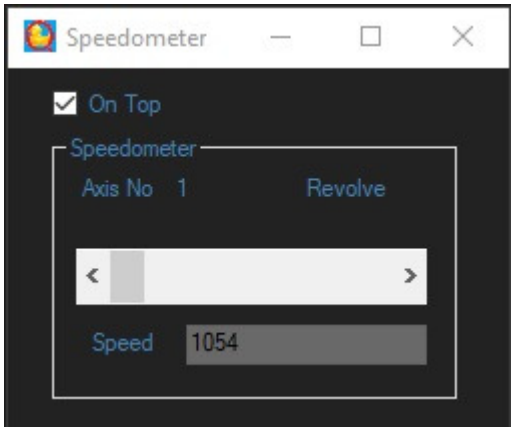
Additional Features
- Reset positions can be:
- Saved
- Loaded from file

Stopwatch

A stopwatch tool is available via the Gadgets menu.

Used for: Accurately timing individual movements

Speedometer



A speedometer tool is also available via the Gadgets menu.

Used for: Measuring and verifying movement speed

Custom Buttons

The Custom Buttons window is located on the main screen.

Purpose
Provides programmable buttons for additional system functions or macros.

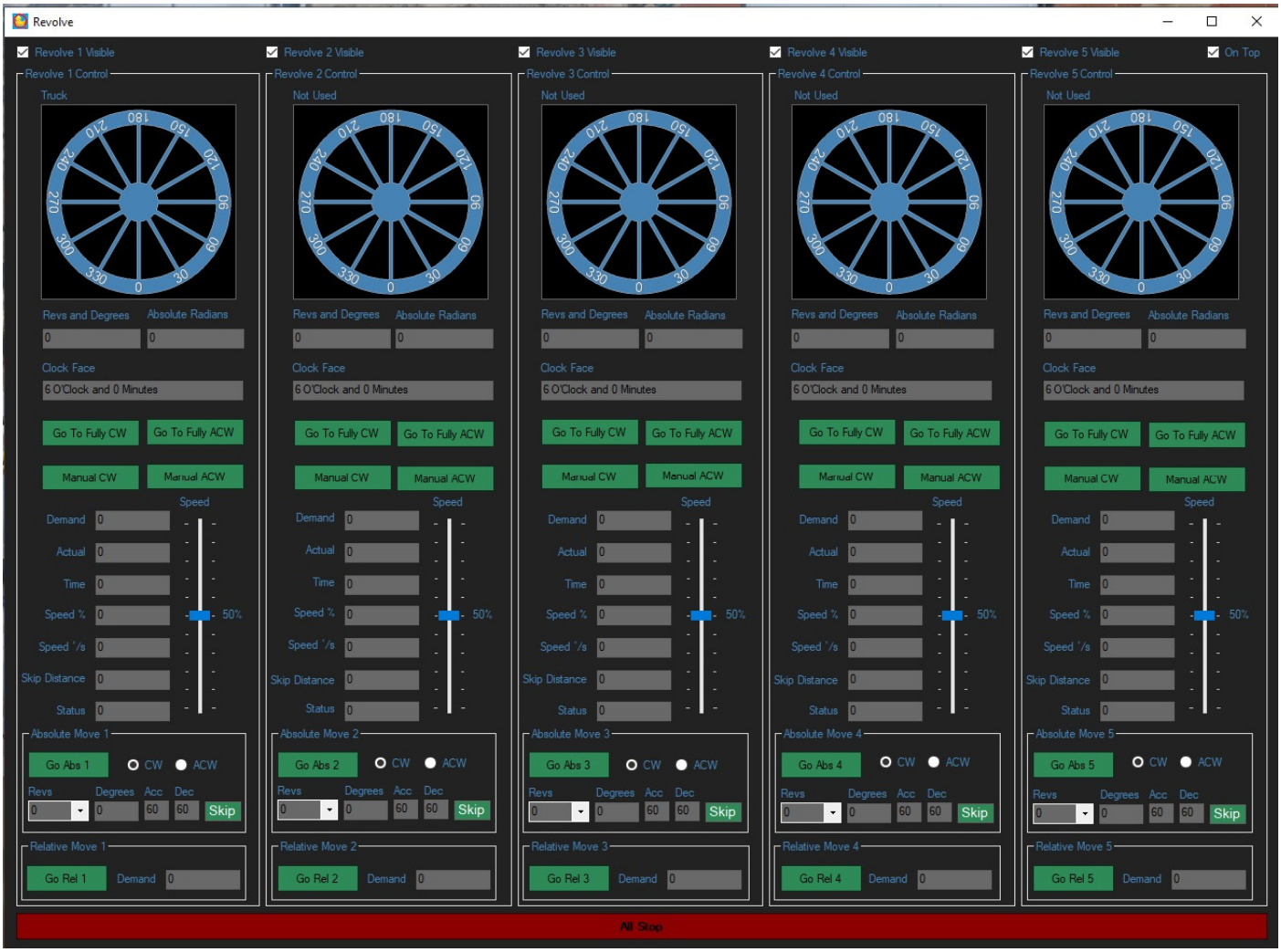
Typical Uses

- Switching hydraulic systems on/off
- Moving axes to predefined positions
- Controlling simple I/O operations

OSC Integration
Custom buttons 1–4 can be triggered via OSC:

- /1/push1 0.0
- /1/push2 0.0
- /1/push3 0.0
- /1/push4 0.0

Revolve Interface



The Revolve Interface is available for **Axis 1 to 5**.

Function
Provides visual and numerical control of rotational movements.

Calibration
- 1 revolution = **36,000 counts**

Messages

The Messages window logs:

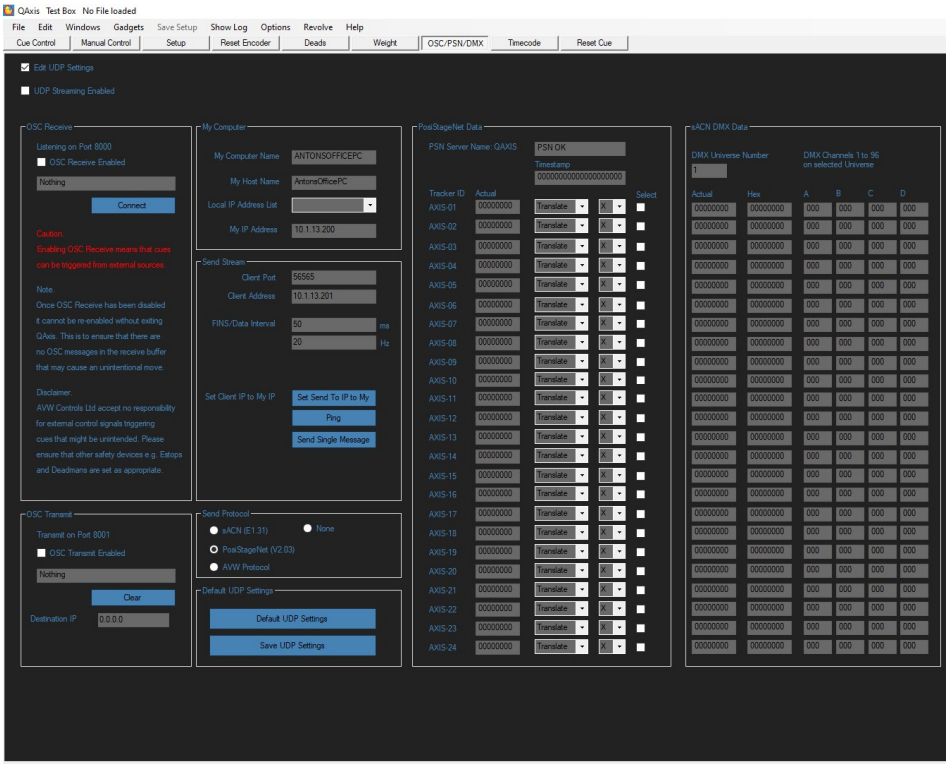
- Operator actions
- System events

Logging
- All messages are also stored in the Show Log
- Entries are time-stamped

Best Practice
- Report system exceptions to AVW

Include:
- Show log
- Relevant context

OSC/PSN/DMX



This page allows integration with external systems.

sACN DMX Output

- Sends axis position data as DMX
- 4 channels per axis
- Channels 1–96
- Universe range: 1–63,999

Default settings:

- IP: 2.0.0.1
- Port: 5568

PosiStageNet (PSN)

- Sends position data over network
- Port: **56565**
- Configurable IP

Data formats:

- X, Y, Z (metres)
- Rotation (radians)

Naming:

- Server: QAXIS
- Trackers: AXIS-01 to AXIS-24

AVW Protocol

- Sends ASCII messages
- Port: **5656**

Format example:

STX:01:11111111:02:22222222:...:ETX

OSC (Open Sound Control)

- Listens on Port 8000

Commands

Stop all axes:

- Stop, stop, STOP, Pause, etc.

Load and run cue:

- /qaxis/cue/go ,s "1.1111"

Trigger by name:

- /qaxis/cue/goName ,s "Cue Name"

Trigger custom buttons:

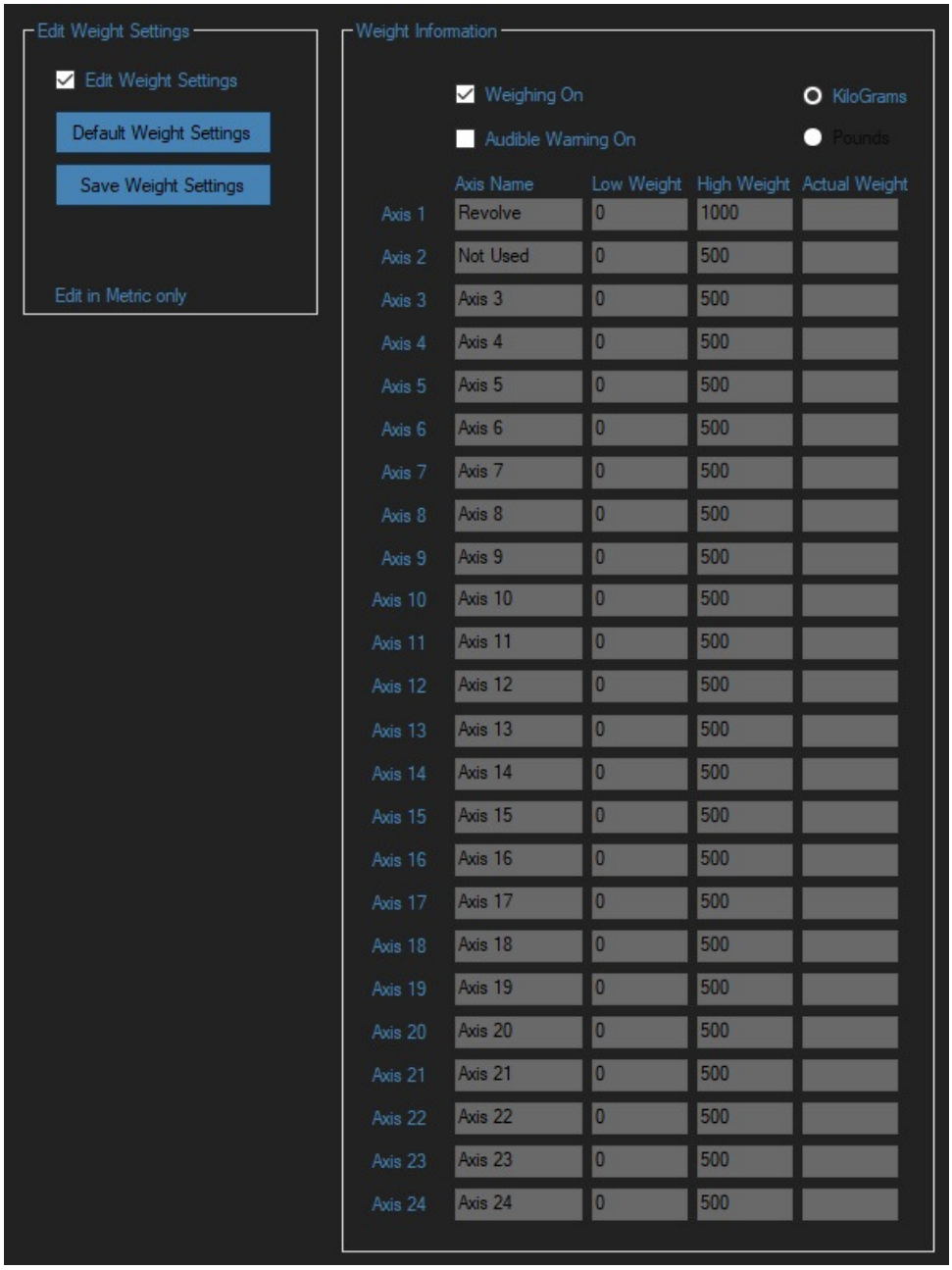
- /1/push1 ,f 1.0

Compatibility

- Works with tools such as QLab
- Compatible with LittleOSC (mobile devices)

Enabling OSC allows external systems to trigger cues.

Weight



A Weight page is available when weight monitoring hardware is installed.

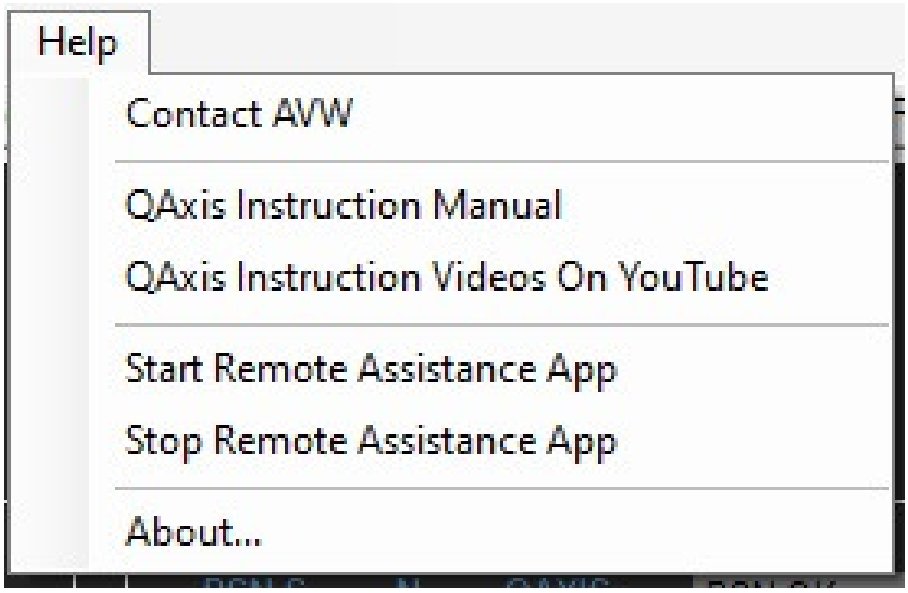
Functionality
- Displays measured weight

Provides warnings for:
- Overload
- Underload

Important Note
- Warnings do **not automatically stop movement**
- Movement control depends on PLC configuration
- Behaviour is determined by project-specific risk assessment

Units
- Setup is in metric
- Display can be switched to pounds

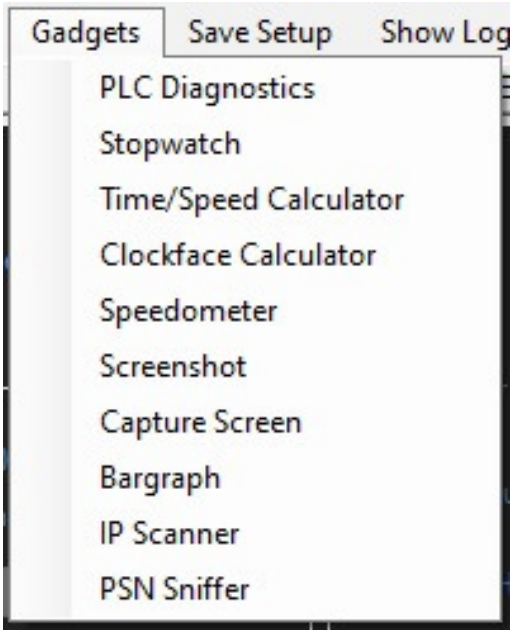
Help!

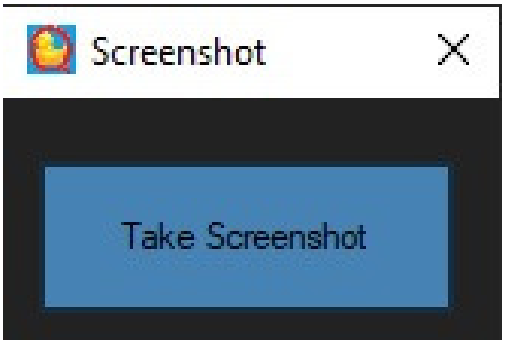


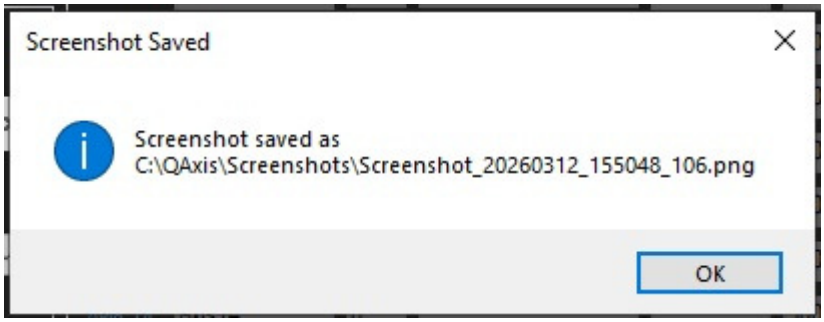
The Help section provides:

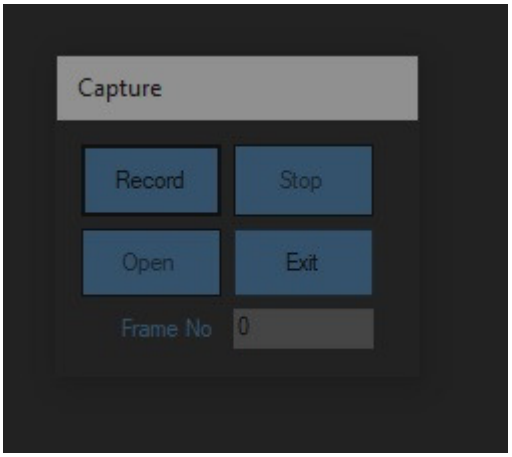
- Link to AVW website
- Access to instruction manual
- Instructional videos (YouTube)
- Remote Assistance launcher

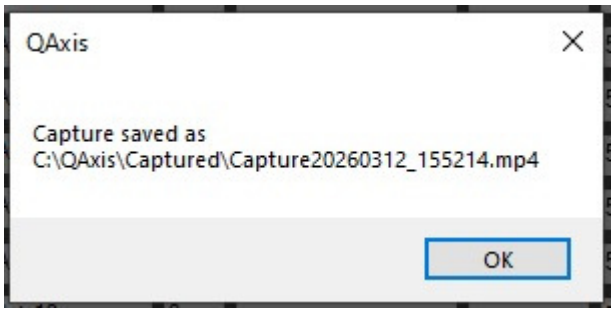
Gadgets







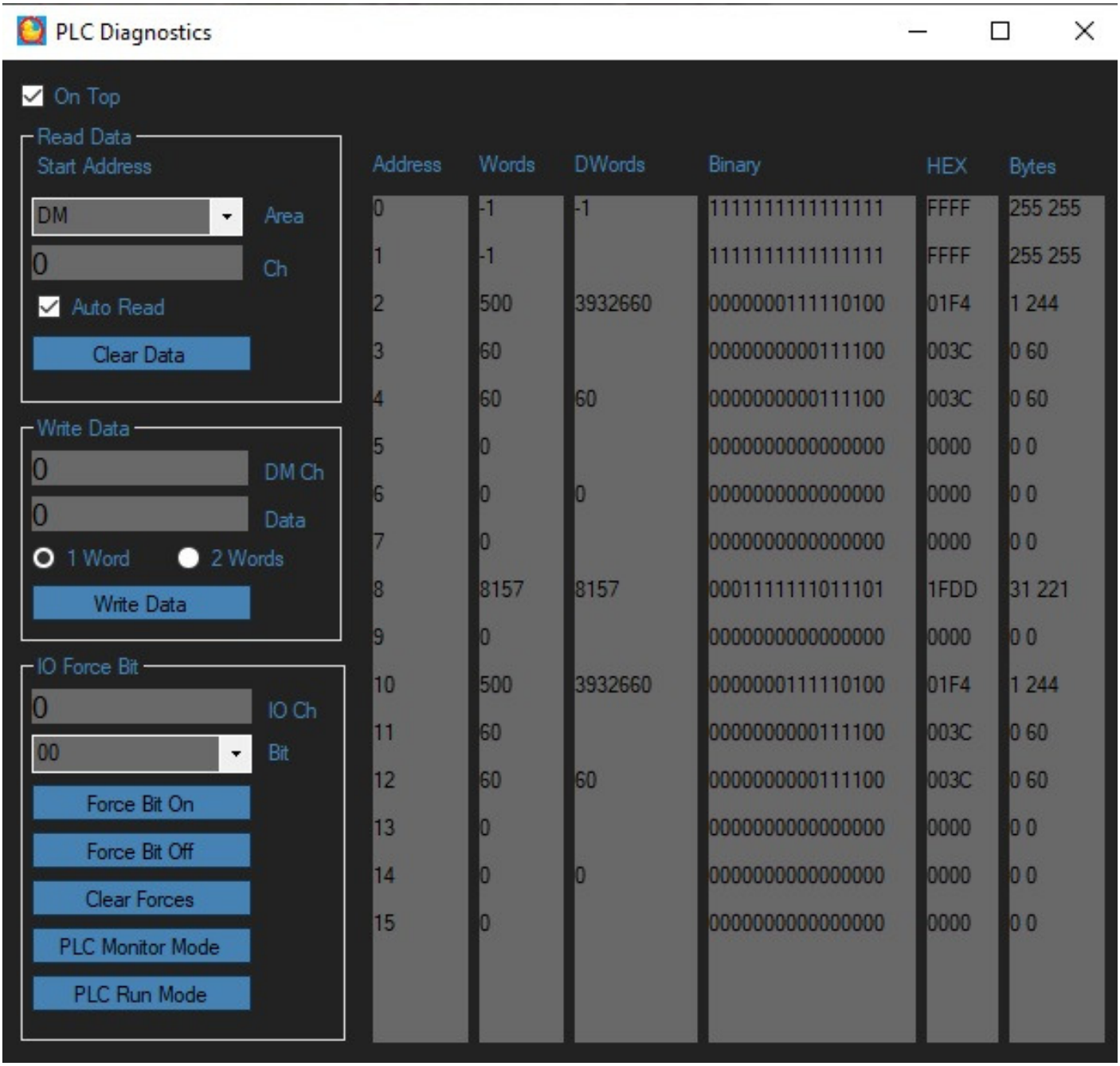




The Gadgets menu provides tools for:

- System setup
- Diagnostics
- Testing

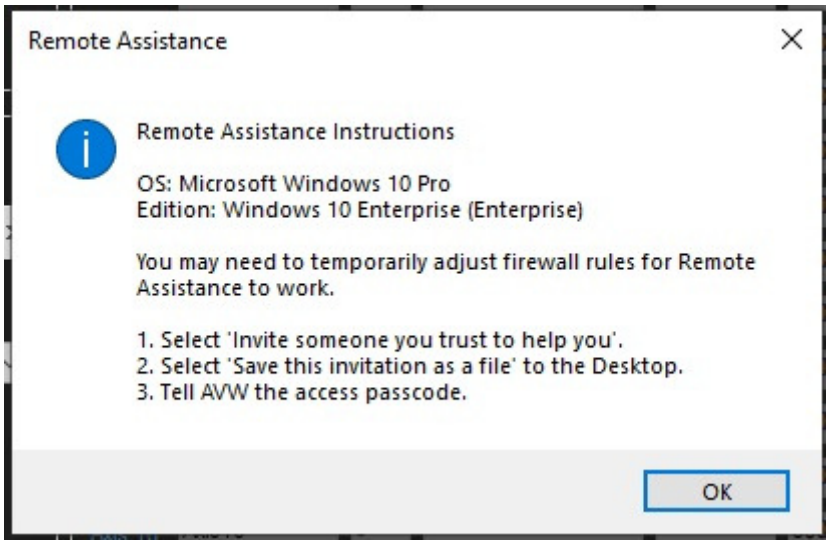
PLC Diagnostics



Allows viewing of PLC data memory areas.

- Primarily used for fault finding
- Typically accessed by AVW during remote support

Windows Remote Assistance



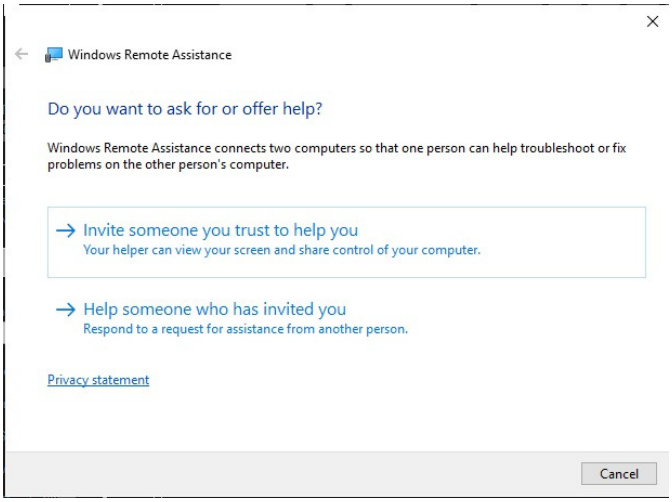
Provides access to Windows Remote Assistance.

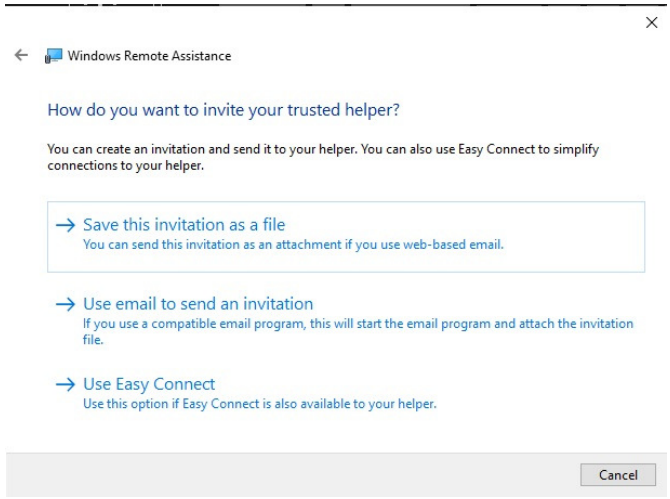
Requirements:

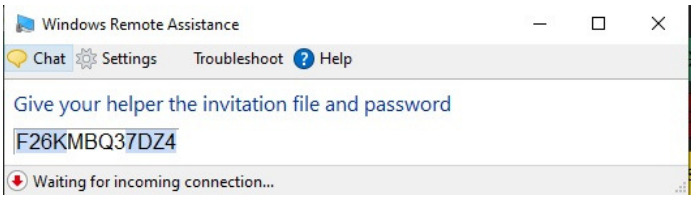
- Windows Pro (not Home edition)

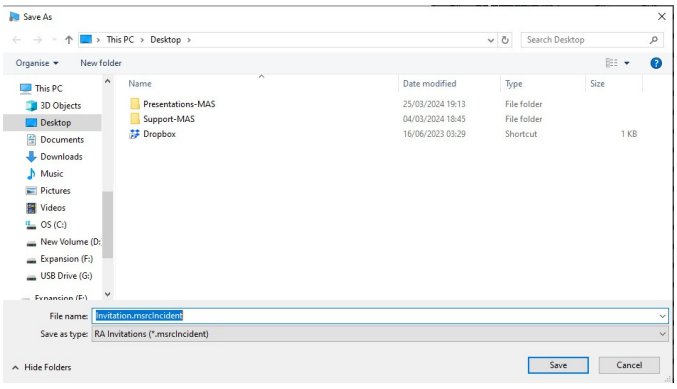
Used for:

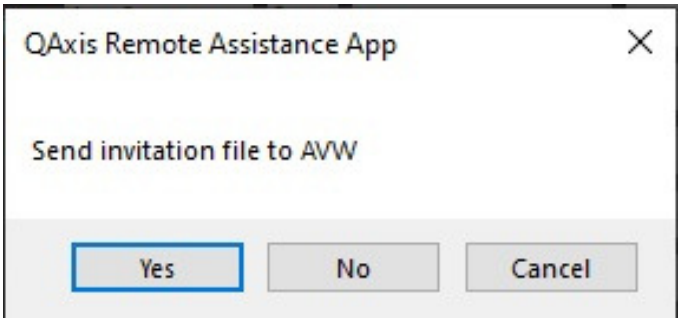
- Remote support
- Troubleshooting



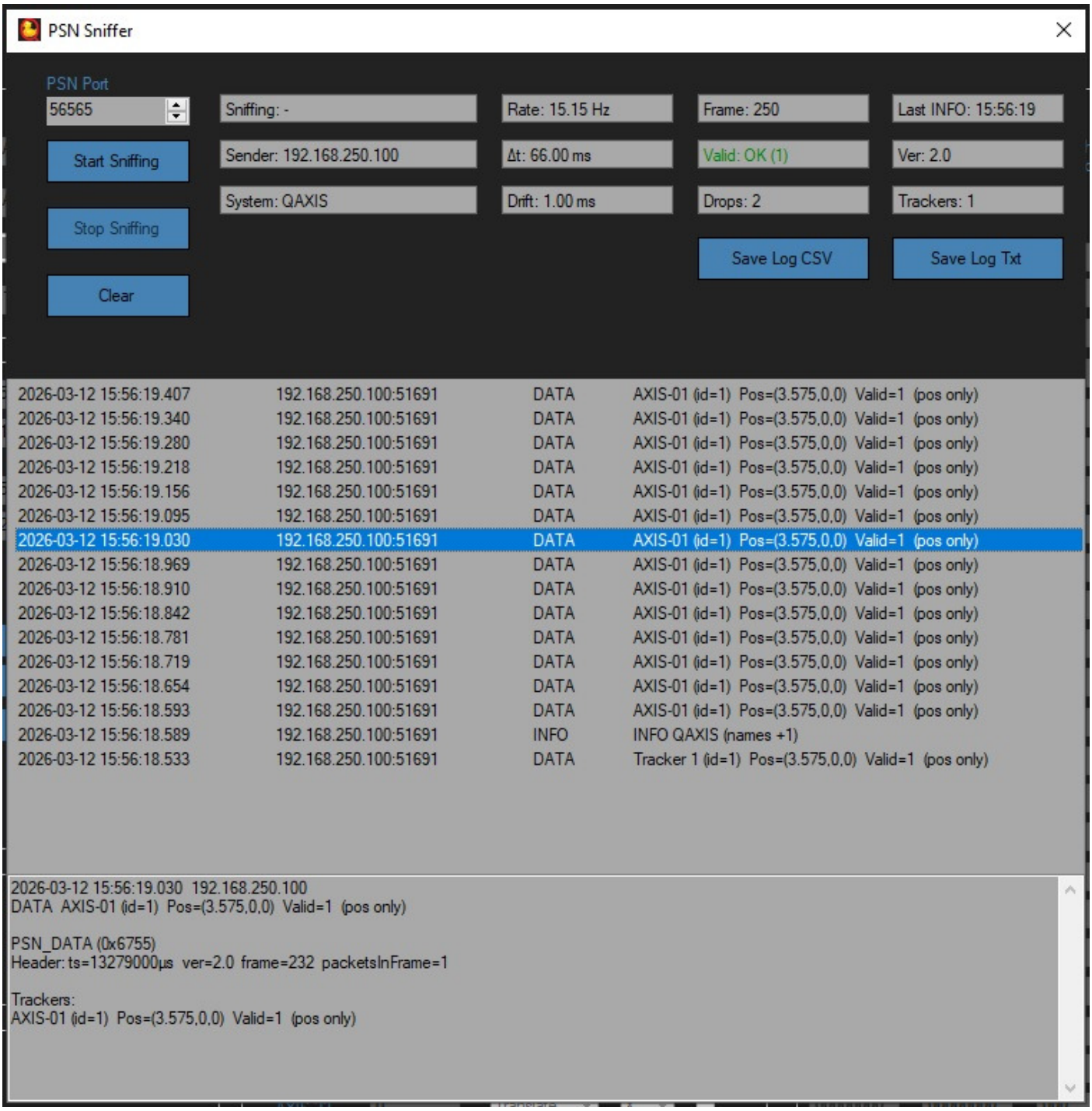








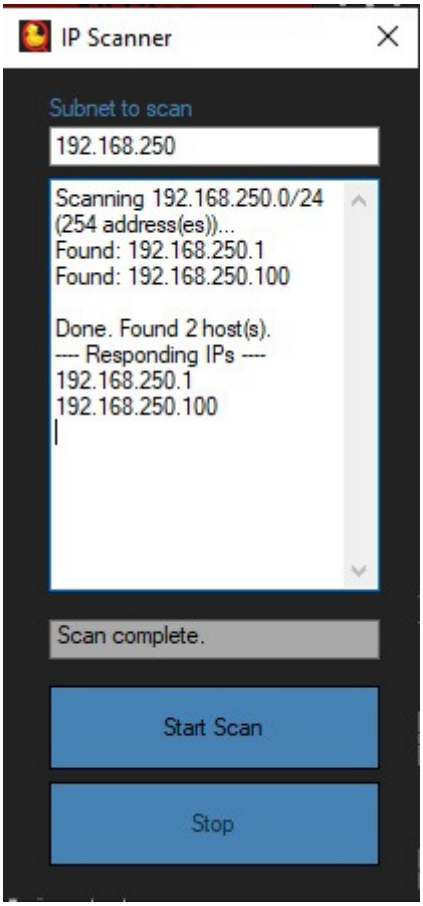
PSN Sniffer



Tool for debugging PosiStageNet systems.

- Displays incoming PSN messages
- Identifies message validity
- Typically used by AVW support engineers.

IP Scanner

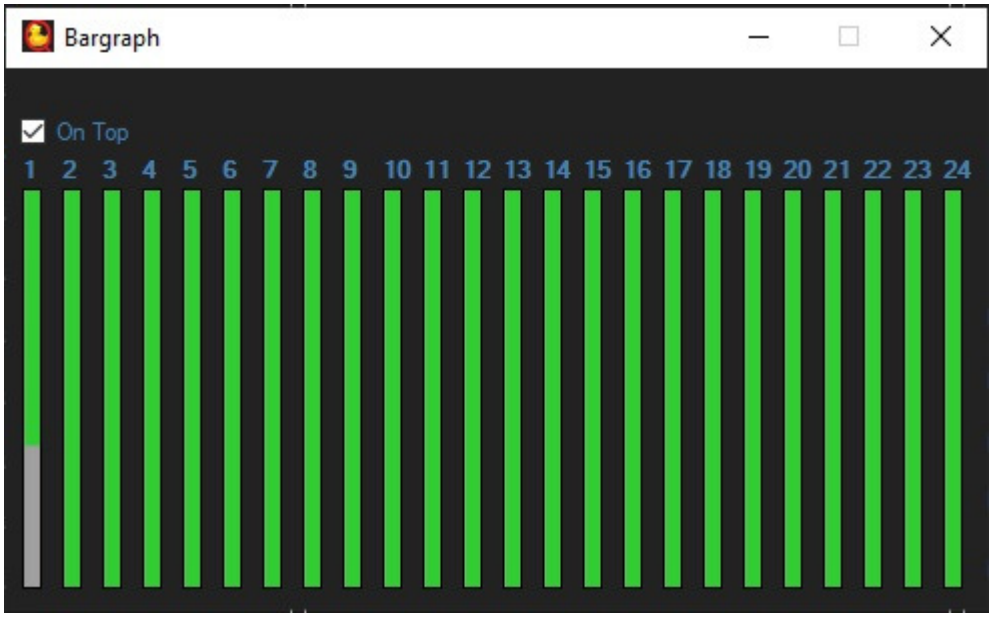


Scans network devices to identify IP addresses.

Useful when:

- PLC IP address is unknown or changed

Bargraph Display



Displays relative axis positions visually.

Useful for:

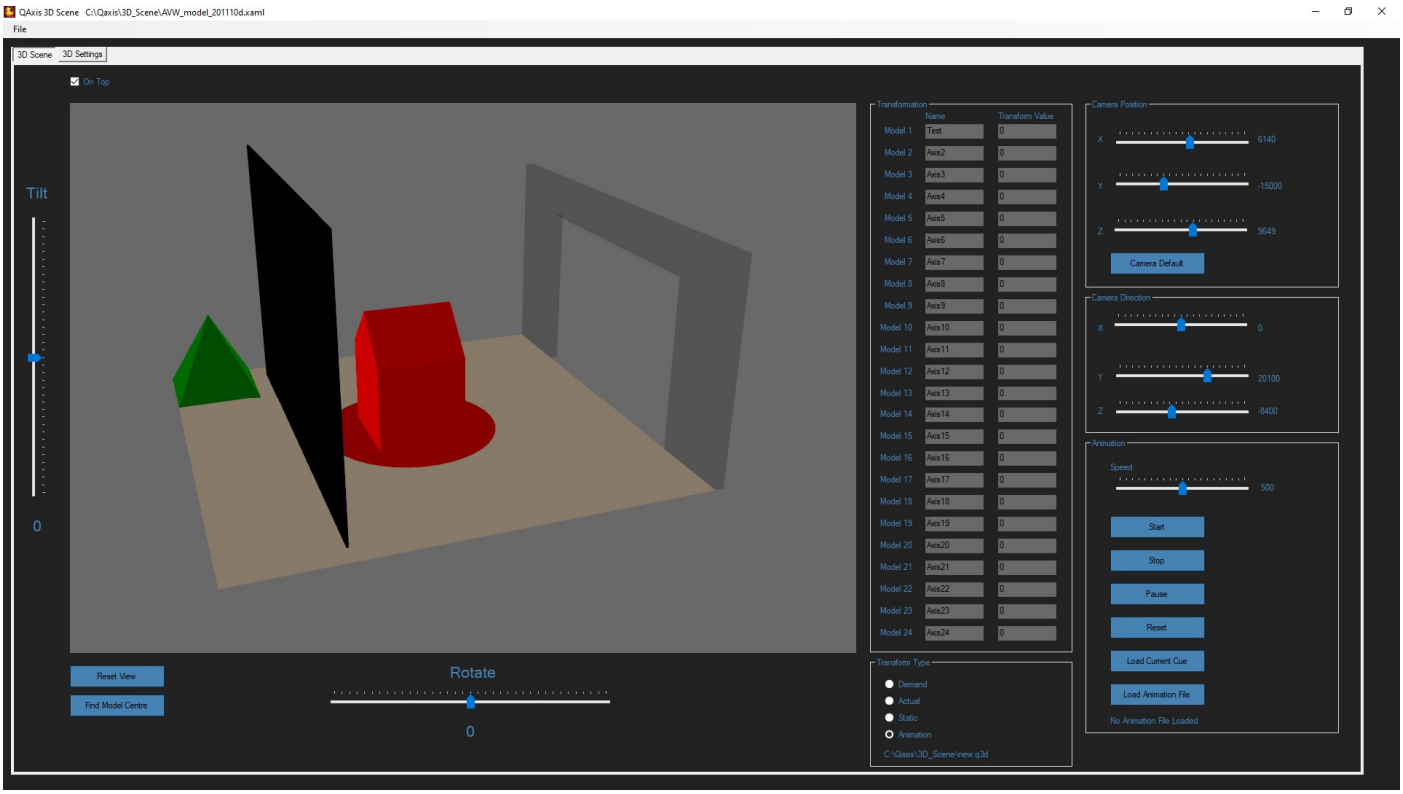
- Comparing hoist heights
- Visual diagnostics

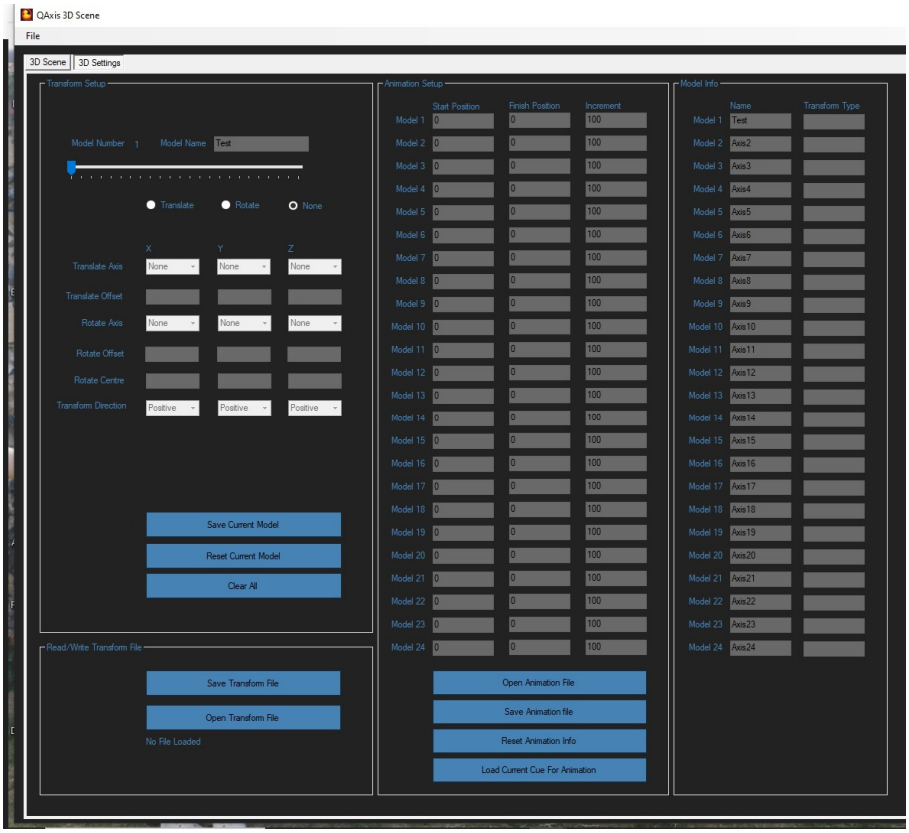
3D Scene

Provides a 3D visualisation of the stage setup.

Display:

- Demand positions
- Actual positions
- Static positions
- Animate cues





Note

- Setup of 3D models is complex
- Typically performed by AVW
- Training provided per project

AVW Controls Ltd

Unit 12 Willow Farm Business Centre

Allwood Green

Rickinghall

Diss

Norfolk

IP22 1LT

United Kingdom

E: info@avw.co.uk

W: www.avw.co.uk