



MPO Polarity Tester

Software Manual

Read this manual before use.

Keep this manual in a safe place for future reference after reading it.

Version: 20260812

License Agreement

The information in this manual is provided solely as a reference for the proper use of PolarTest and does not constitute authorization or a commitment to any third party. Every effort has been made to ensure accuracy; however, the compiler assumes no liability for any direct or indirect consequences arising from use of this manual or the software. Software functions, interface text, and this manual may be updated as the product improves without prior notice. If they differ from the delivered version, the delivered version shall prevail.

Important Statements

- (1) Before operation, read this manual and the accompanying hardware user manual in full. Do not operate the equipment until you understand all requirements concerning polarity, channels, and laser safety.
- (2) Do not disassemble or modify the instrument, or modify or replace unverified host-computer program files, drivers, or configurations.
- (3) This manual is intended for equipment operators. It may not be reproduced or used for other commercial purposes without permission.
- (4) If product improvements change the interface, paths, or record formats, refer to the software and documentation delivered with the equipment.

Safety Instructions

- (1) **WARNING:** The instrument contains a laser source. Never look directly into a laser output. Laser safety eyewear is recommended during operation. If an abnormal condition occurs, disconnect instrument power immediately.
- (2) **WARNING:** Switch the instrument to polarity mode before testing. If the software displays "Please switch the instrument to polarity mode.", change the mode on the instrument before testing again.
- (3) **Notice:** Keep MPO connector end faces clean. Dust or oil may cause false results or damage the end face.
- (4) **Notice:** When editing a polarity task, Channels must be an even number. Target channel numbers must be within the valid range and must not repeat. Before saving, verify that the "Target" row matches the process requirements.
- (5) **Notice:** Do not modify, move, or delete program dependencies, directories, configurations, or logs. Doing so may prevent the software from starting, cause task loss, or eliminate traceability.

Contents

1. Product Introduction	1
1.1. Product Overview	1
1.2. Main Functions	2
1.3. Key Concepts	2
2. Instrument Connection	3
2.1. Connection Procedure	3
2.2. Polarity Synchronization	5
3. Software Interface	6
3.1. Main Window	6
3.2. Polarity Tasks	7
3.3. Editing a Task	8
3.4. Channel Comparison	9
3.5. Order Information	10
3.6. Data Logging	11
3.7. Testing and Status Bar	12
4. Task Management	12
4.1. Task Files	12
4.2. Selecting a Task	13
4.3. Editing a Task	13
4.4. Saving a Task	15
4.5. Canceling Edits	16
4.6. Deleting a Task	16
5. Test Operation	18
5.1. Pre-test Checks	18
5.2. Starting a Test	18
5.3. Interpreting Results	19
5.4. Serial No. and Sub Serial Rules	22
6. Data Logging	23
6.1. Save Option	23
6.2. File Generation Rules	24

6.3. CSV Description 25

6.4. SQLite Description 26

6.5. Channel-level Result Field 27

7. Typical Workflows 27

7.1. Routine Testing 27

7.2. Creating or Modifying a Polarity Task 27

7.3. Viewing Without Saving 28

8. Messages and Status Descriptions 28

8.1. Status Bar and Result Area 28

8.2. Dialog Boxes and Alerts 29

8.3. Runtime Logs 29

9. Safety and Maintenance 30

9.1. Safety Essentials 30

9.2. Software Maintenance 30

9.3. Recommended Daily Checks 30

10. Frequently Asked Questions 31

11. Control and Function Quick Reference 33

1. Product Introduction

1.1. Product Overview

The MPO Polarity Tester is an intelligent product designed for polarity determination and continuity analysis during fiber-optic cable production. With one-touch automatic scanning, it quickly indicates cable continuity, polarity (fiber sequence), alarms, and fault analysis, providing a fast, accurate, and efficient solution for cable production and finished-product inspection.

PolarTest is the Windows host software for the MPO Polarity Tester. It automatically discovers and connects to the instrument through USB HID or RS-232, sends the target fiber sequence from the polarity task to the instrument, starts polarity tests, and displays the "Actual / Target / Laser" comparison and the overall OK/NG verdict. According to the selected criteria, it also writes results to .csv and .db files for production traceability and process analysis.

1.2. Main Functions

Function	Description
Automatic Connection	Automatically tries USB HID and RS-232, and displays "Communication Status" and "Total Channels".
Polarity Tasks	Select, edit, save, and delete polarity tasks; supports A/B/C templates and custom target fiber sequences.
Order Information	Enter the device ID, work order, cable information, and serial information; supports automatic sub serial incrementing or clearing values after a test.
Test Evaluation	Run a test with one click, display OK/NG, and highlight failed channels in red.
Data Logging	Generate matching .csv and .db files according to the "All", "Passed", or "Do Not Save" policy.

1.3. Key Concepts

Term	Meaning
Laser	Physical transmit-side channel numbers, fixed at 1 through N (where N is the number of channels used by the current task). They are shown with a gray background and cannot be edited.
Target	The channel-number sequence expected by the current polarity task. It is saved in the task .ini file and sent to the instrument.
Actual	The actual receive-channel number returned by the instrument during the current test. A value that differs from the Target is shown in red.
Total Channels	The maximum number of channels supported by the connected instrument, reported by the instrument and displayed on the status bar.
Channels	The number of channels included in the current polarity task. It must be even and must not exceed Total Channels.

Note: Custom polarity is often called Type D in the hardware manual. The corresponding option in this software is named "Custom"; follow the software interface terminology.

2. Instrument Connection

2.1. Connection Procedure

- (1) Power on the instrument using the supplied power adapter, and switch it to polarity mode.
- (2) Connect the computer to the instrument using a USB cable or an RS-232 cable.
- (3) Start PolarTest.
- (4) Check the status bar at the bottom of the window:
- (5) A blue "Communication Status" (Connected) indicates that the link is operating normally.
- (6) A red "Communication Status" (Disconnected) indicates no connection. Check the cable, port usage, and instrument power.
- (7) After a successful connection, "Total Channels" displays the maximum channel count reported by the instrument.

The disconnected status is shown below:

PolarTest - Version: 1.0.260810.1755

Task 12-B

Edit

Delete

English

Actual	12	11	10	9	8	7	6	5	4	3	2	1
Target	12	11	10	9	8	7	6	5	4	3	2	1
Laser	1	2	3	4	5	6	7	8	9	10	11	12

Order Information

Device ID

Work Order

Cable Code

Cable Type

Cable Spec.

Serial No.

☐ Clear Serial No. After Testing

Sub Serial

☐ Clear Sub Serial After Testing
 ☐ Auto-increment

Sub Serial

Operator

Data Logging

Save Option

☒ All
 ☐ Passed
 ☐ Do Not Save

Save Path

File Name 123

TEST

Total Channels: --

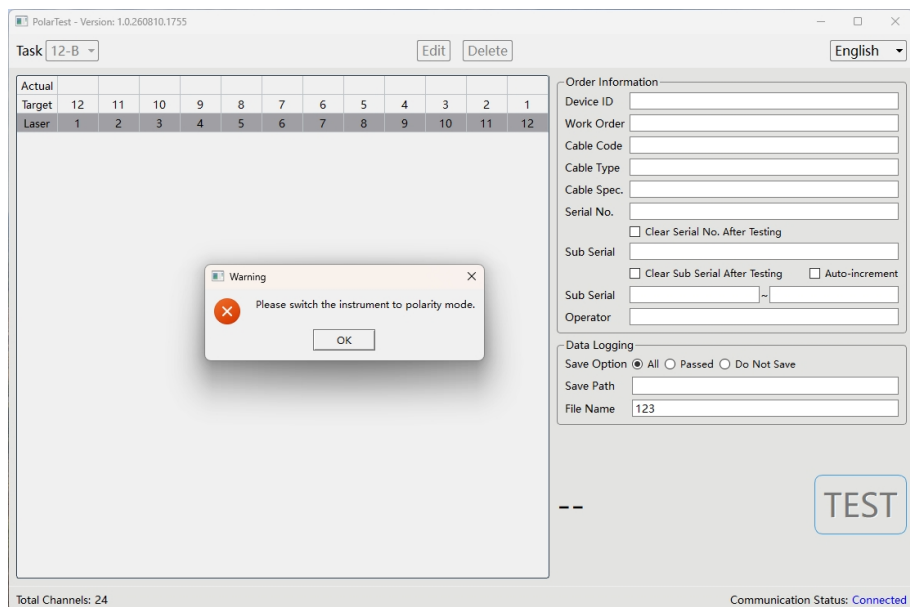
Communication Status: Disconnected

"Communication Status" on the right side of the status bar is red (Disconnected). A valid test cannot be performed in this state. Connect and power on the instrument first.

After connection, "Communication Status" turns blue (Connected), and "Total Channels" displays a specific value reported by the instrument.

2.2. Polarity Synchronization

When communication changes from Disconnected to Connected, the software reloads the current polarity task and sends the "Target" fiber sequence to the instrument. If the instrument is not in polarity mode, the warning "Please switch the instrument to polarity mode." may appear.

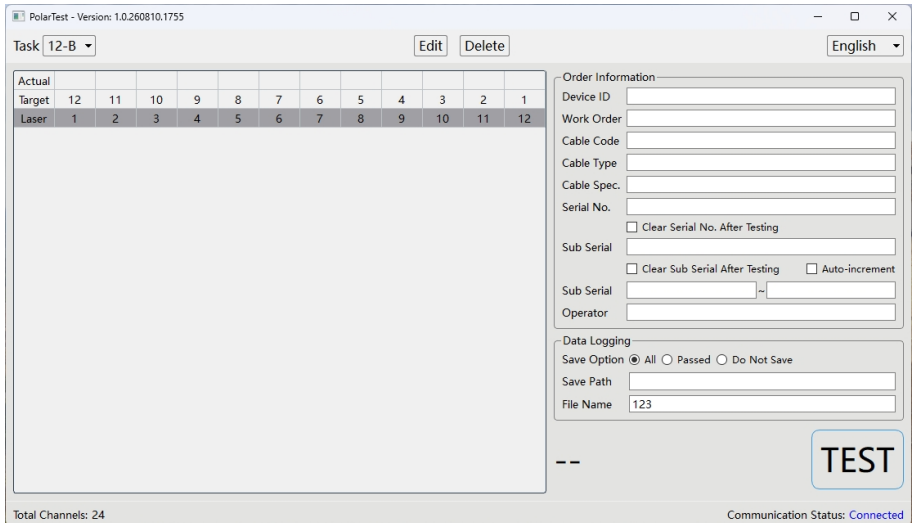


This warning appears when "Communication Status" is blue and shows "Connected", but the instrument is not in polarity mode. Switch the instrument itself to polarity mode, close the message, and then select a task or click "TEST".

3. Software Interface

3.1. Main Window

The main window with a normal connection and a selected polarity task is shown below.



PolarTest - Version: 1.0.260810.1755

Task: 12-B Edit Delete English

Actual	12	11	10	9	8	7	6	5	4	3	2	1
Target	12	11	10	9	8	7	6	5	4	3	2	1
Laser	1	2	3	4	5	6	7	8	9	10	11	12

Order Information

Device ID:

Work Order:

Cable Code:

Cable Type:

Cable Spec:

Serial No.:

☐ Clear Serial No. After Testing

Sub Serial:

☐ Clear Sub Serial After Testing ☐ Auto-increment

Sub Serial: ~

Operator:

Data Logging

Save Option: ☒ All ☐ Passed ☐ Do Not Save

Save Path:

File Name: 123

TEST

Total Channels: 24 Communication Status: Connected

The main window consists of the polarity task area at the top, the channel comparison table on the left, "Order Information" and "Data Logging" on the right, the "TEST" button and result area at the lower right, and the status bar at the bottom.

3.2. Polarity Tasks

Control	Description
Task	Select a saved task from the drop-down list.
Edit	Enter task editing mode.
Delete	Delete the currently selected task file.

PolarTest - Version: 1.0.260810.1755

Task: **12-B** Edit Delete English

Actual	12-C	16-A	16-B	24-A	24-B	24-C					
Target	11	10	9	8	7	6	5	4	3	2	1
Loss	2	3	4	5	6	7	8	9	10	11	12

Order Information

Device ID:

Work Order:

Cable Code:

Cable Type:

Cable Spec:

Serial No.:

☐ Clear Serial No. After Testing

Sub Serial:

☐ Clear Sub Serial After Testing ☐ Auto-increment

Sub Serial: ~

Operator:

Data Logging

Save Option: ☒ All ☐ Passed ☐ Do Not Save

Save Path:

File Name:

--

TEST

Total Channels: 24

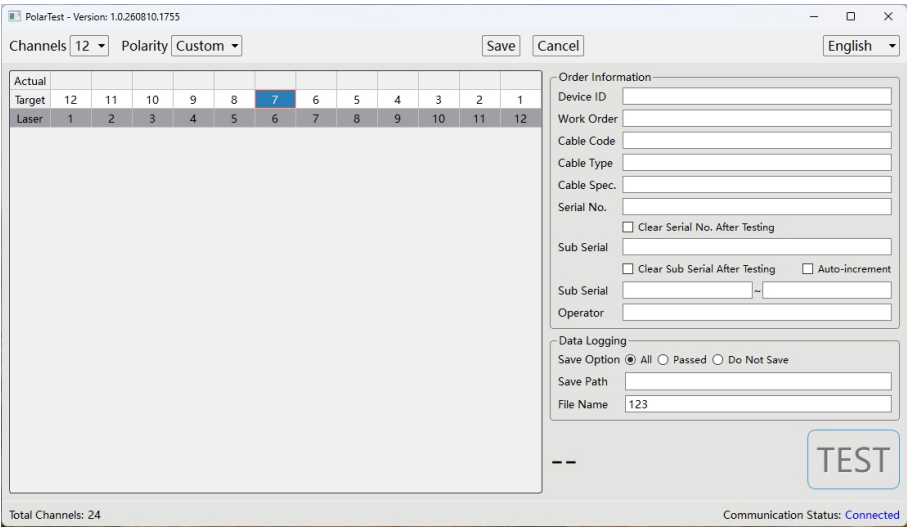
Communication Status: Connected

After you switch tasks under "Task", the "Target" and "Laser" rows in the table are updated from the task file, and the target fiber sequence is sent to the instrument automatically.

3.3. Editing a Task

Click "Edit" to display the editing controls.

Control	Description
Channels	Select the channel count for this task. The number must be even and must not exceed "Total Channels".
Polarity	Select A / B / C / Custom.
Save	Save the current target fiber sequence as a task.
Cancel	Cancel the current changes and exit editing mode.



The screenshot shows the PolarTest software interface. At the top, there are dropdown menus for "Channels" (set to 12) and "Polarity" (set to Custom). To the right are "Save" and "Cancel" buttons, and a language dropdown set to "English".

The main area contains a table with two rows: "Actual" and "Target". The "Actual" row has columns numbered 12 down to 1. The "Target" row has columns numbered 1 down to 12. Below this is a "Laser" row with columns numbered 1 down to 12. The cell for "Target" column 7 is highlighted in blue.

On the right side, there is a "Order Information" section with fields for Device ID, Work Order, Cable Code, Cable Type, Cable Spec., Serial No., Sub Serial, and Operator. There are checkboxes for "Clear Serial No. After Testing" and "Clear Sub Serial After Testing", and a checkbox for "Auto-increment".

Below that is a "Data Logging" section with a "Save Option" radio button set to "All", and fields for "Save Path" and "File Name" (set to 123).

At the bottom right, there is a large "TEST" button. At the bottom left, it says "Total Channels: 24". At the bottom right, it says "Communication Status: Connected".

You can adjust "Channels" and "Polarity". When "Custom" is selected, the corresponding "Target" cells can be edited.

3.4. Channel Comparison

The three table rows always have the following meanings, from top to bottom:

Row	Meaning	Editing Rule
Actual	Actual receive channels from the most recent test.	Updated only by a test; cannot be edited manually.
Target	Receive channels expected by the task.	Editable only in editing mode when "Polarity" is set to "Custom".
Laser	Physical transmit-side channels 1 through N.	Always gray; cannot be edited.

Channel count ≤ 12 : the three rows (Actual / Target / Laser) are arranged in channel columns.

Channel count > 12 : channels are displayed vertically in groups of 12. The exact limit depends on the instrument's "Total Channels" value and software support.

3.5. Order Information

The "Order Information" area on the right is used for production-line identification and material traceability:

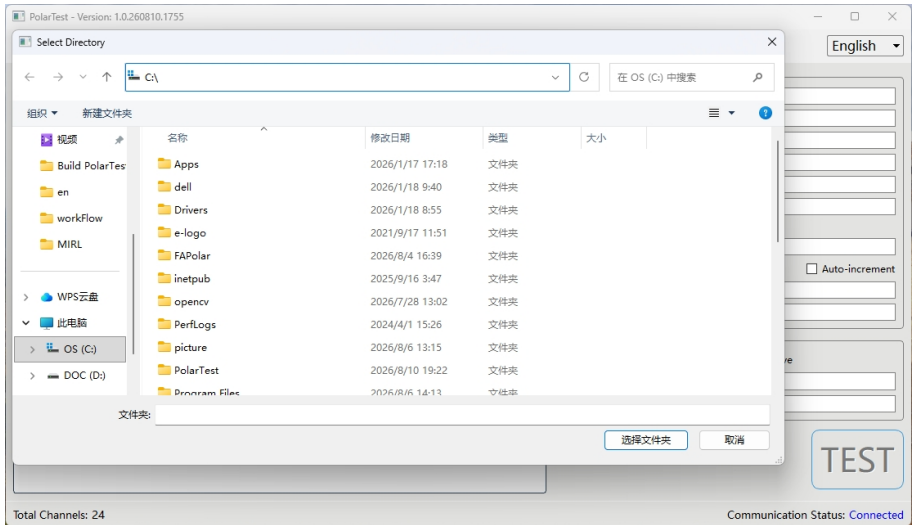
Field	Description
Device ID	Test station or equipment identifier.
Work Order	Production work order number.
Cable Code	Cable code.
Cable Type	Cable type.
Cable Spec.	Cable specification.
Serial No.	Primary serial number. If "Clear Serial No. After Testing" is selected, the serial number is cleared when the applicable clearing condition is met.
Sub Serial	Sub Serial; it can be concatenated with the primary serial number for data logging.
Sub Serial	Start and end values separated by ~.
Operator	Operator ID.
Clear Serial No. After Testing	When selected, clears the serial number according to the applicable rule.
Clear Sub Serial After Testing	When selected, clears the sub serial after each test.
Auto-increment	When selected, automatically increments the sub serial within the specified range. This option is mutually exclusive with "Clear Sub Serial After Testing".

Note: Pressing Enter in the "Serial No." field is equivalent to clicking "TEST", which facilitates barcode-scanner operation.

3.6. Data Logging

Control	Description
Save Option	All / Passed / Do Not Save
Save Path	Click to select the result-file directory.
File Name	Base name of the result files (without an extension); the software generates both .csv and .db files.

Click "Save Path" to open the "Select Directory" dialog box and specify the result-file location:



After you click "Save Path", the "Select Directory" window opens. Select a folder, then enter a "File Name". Unless "Do Not Save" is selected, test results are written to matching .csv and .db files under that path.

3.7. Testing and Status Bar

Area	Description
Result Area	Displays -- before testing, blue OK for a pass, red NG for a failure, and may display null after a communication failure.
TEST	Start one polarity test.
Total Channels:	Maximum channel count of the instrument.
Communication Status:	Connected (blue) or Disconnected (red).

4. Task Management

4.1. Task Files

Storage directory: UserSet\ under the application working directory.

File format: task_name.ini

Key file contents:

```
[UserSet]
Count=12
1=1
2=2
...
12=12
```

Count is the number of channels used. The value of each key from 1 through Count is the target channel number at the corresponding laser position.

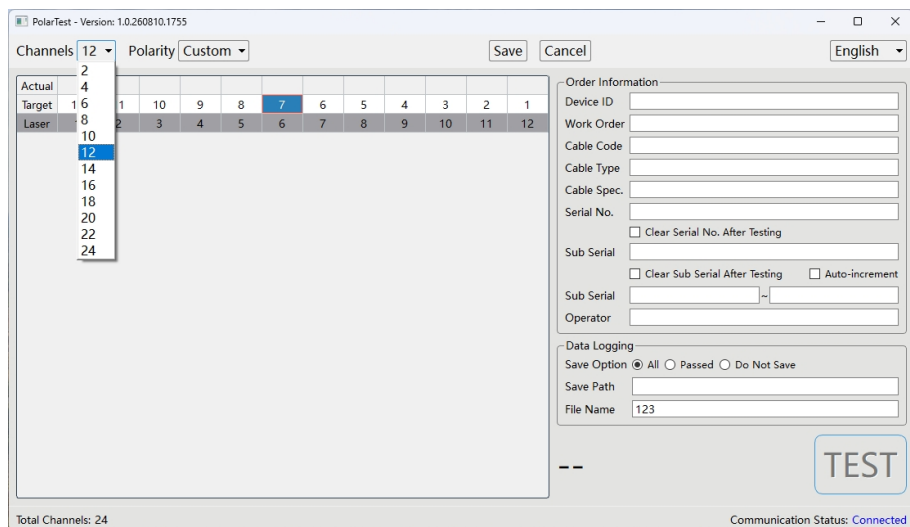
Notice: A/B/C are used only to quickly generate the "Target" row during editing. After the task is saved, loading and evaluation use the target fiber sequence in the task file and no longer depend on the Polarity option that was selected when the task was created.

4.2. Selecting a Task

- (1) Confirm that "Communication Status" is Connected.
- (2) Select a task name under "Task".
- (3) Verify that the "Target" and "Laser" rows meet the process requirements.
- (4) The software automatically sends the target fiber sequence to the instrument.

4.3. Editing a Task

- (1) Click "Edit" in viewing mode.
- (2) Under "Channels", select a channel count. The available range is determined by "Total Channels"; Channels must be even and will normally be 2, 4, and so on through Total Channels.



PolarTest - Version: 1.0.260810.1755

Channels: 12 ▼ Polarity: Custom ▼ Save Cancel English ▼

Actual	Target	Laser	1	2	3	4	5	6	7	8	9	10	11	12
2	1	8												
4	6	10												
6	10	12												
8	14	16												
10	18	20												
12	22	24												

Order Information

Device ID:

Work Order:

Cable Code:

Cable Type:

Cable Spec.:

Serial No.:

☐ Clear Serial No. After Testing

Sub Serial:

☐ Clear Sub Serial After Testing ☐ Auto-increment

Sub Serial: ~

Operator:

Data Logging

Save Option: ☒ All ☐ Passed ☐ Do Not Save

Save Path:

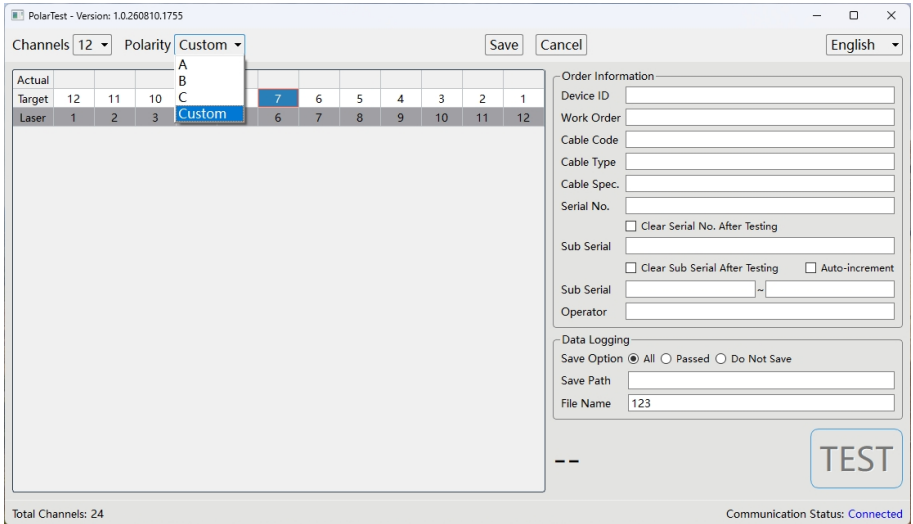
File Name:

TEST

Total Channels: 24 Communication Status: Connected

The "Channels" list offers only even values that do not exceed Total Channels.

(3) Under "Polarity", select a template or Custom:



The screenshot shows the PolarTest software interface. The 'Polarity' dropdown menu is open, showing options A, B, C, and Custom. The 'Target' row in the table is highlighted. The 'TEST' button is disabled.

Actual	12	11	10	9	8	7	6	5	4	3	2	1
Target	12	11	10	9	8	7	6	5	4	3	2	1
Laser	1	2	3	4	5	6	7	8	9	10	11	12

Order Information:

Device ID:

Work Order:

Cable Code:

Cable Type:

Cable Spec.:

Serial No.:

☐ Clear Serial No. After Testing

Sub Serial:

☐ Clear Sub Serial After Testing ☐ Auto-increment

Sub Serial: ~

Operator:

Data Logging:

Save Option: ☒ All ☐ Passed ☐ Do Not Save

Save Path:

File Name:

TEST

Total Channels: 24

Communication Status: Connected

- (4) If A, B, or C is selected, the software immediately refreshes the "Target" row according to the corresponding rule.
- (5) If Custom is selected, values in the "Target" cells can be edited directly.
- (6) The "TEST" button is disabled during editing.

A / B / C / Custom Generation Rules

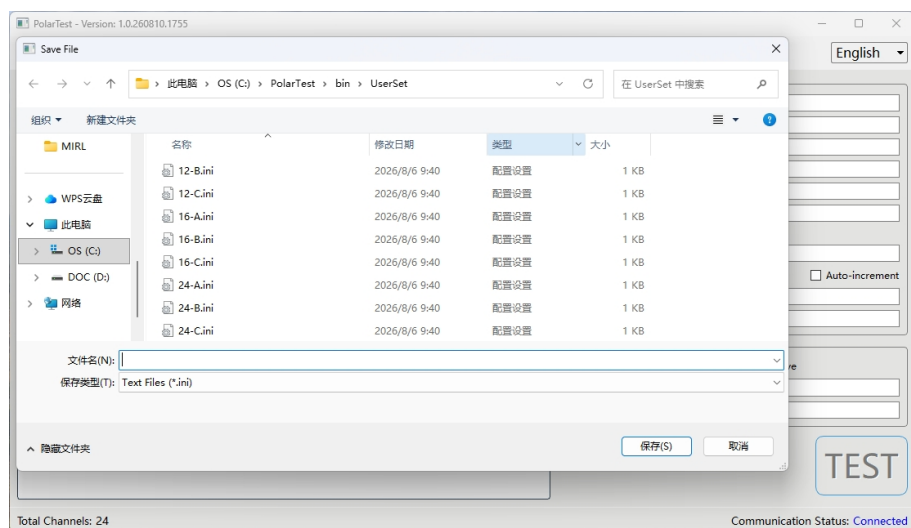
Let N be the number of channels used. The Laser is always 1, 2, ..., N. Target sequences are generated as follows:

Polarity	Target Sequence Rule	12-fiber Example (Target)
A	Sequential: 1, 2, 3, ..., N	1 2 3 4 5 6 7 8 9 10 11 12
B	Reverse: N, ..., 3, 2, 1	12 11 10 9 8 7 6 5 4 3 2 1
C	Pair swap: each odd position is swapped with the following position.	2 1 4 3 6 5 8 7 10 9 12 11
Custom	Retains the current Target and allows manual editing.	Uses the actual table contents.

Notice: When editing a custom task, make sure every target value is a valid channel number from 1 through N and that no values repeat. Otherwise, the instrument may evaluate the test incorrectly or produce meaningless records. The software does not replace the process engineer's full validity review.

4.4. Saving a Task

- (1) Click "Save" in editing mode.
- (2) In the "Save File" dialog box, enter a file name and select Text Files (*.ini) as the file type.



The dialog box can browse existing tasks in the UserSet directory. The actual output path is fixed as UserSet\<file name>.ini under the application directory.

- (3) After a successful save, editing mode closes, the task name appears under "Task", and the polarity is sent to the instrument again.
- (4) If the dialog box is canceled, no file is written and the software remains in editing mode.

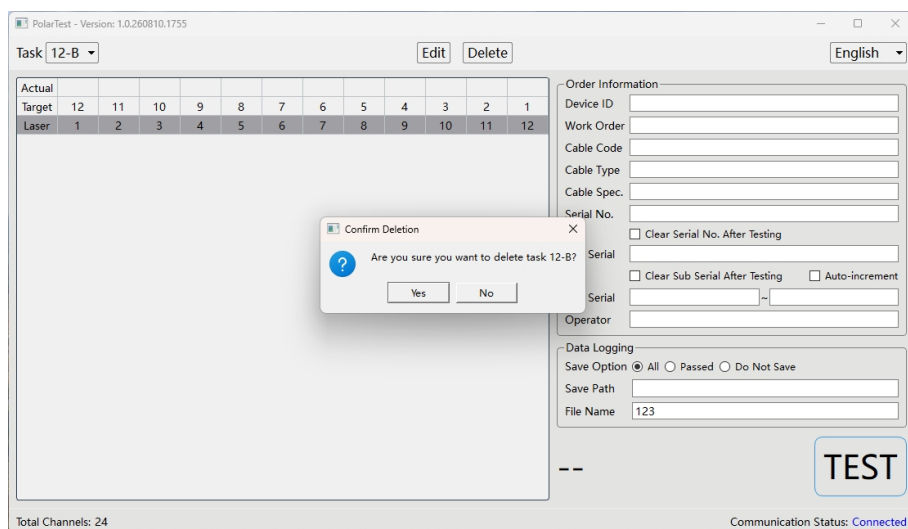
Notice: Enter a new file name to create a task. Selecting an existing file name overwrites that task. Confirm that overwriting is permitted by the process requirements.

4.5. Canceling Edits

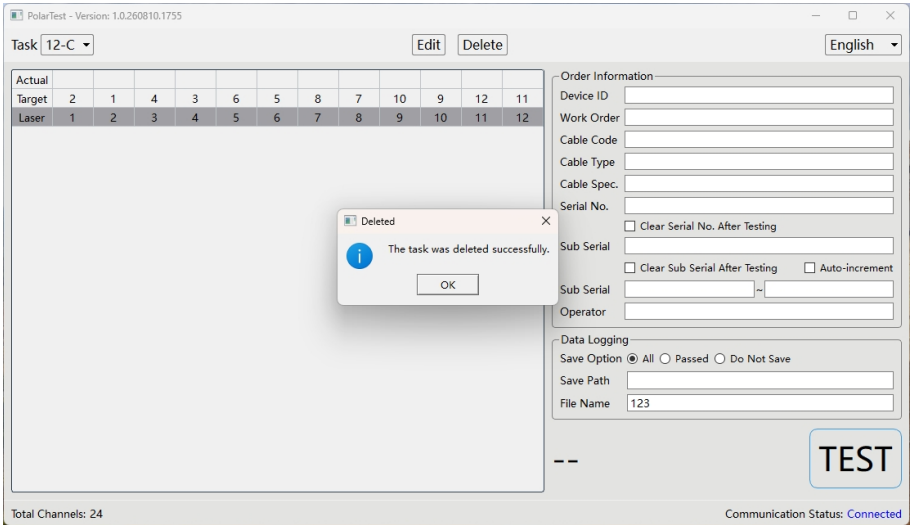
Click "Cancel" to restore the channel count and Target backup from before editing, return to viewing mode, and write nothing to disk.

4.6. Deleting a Task

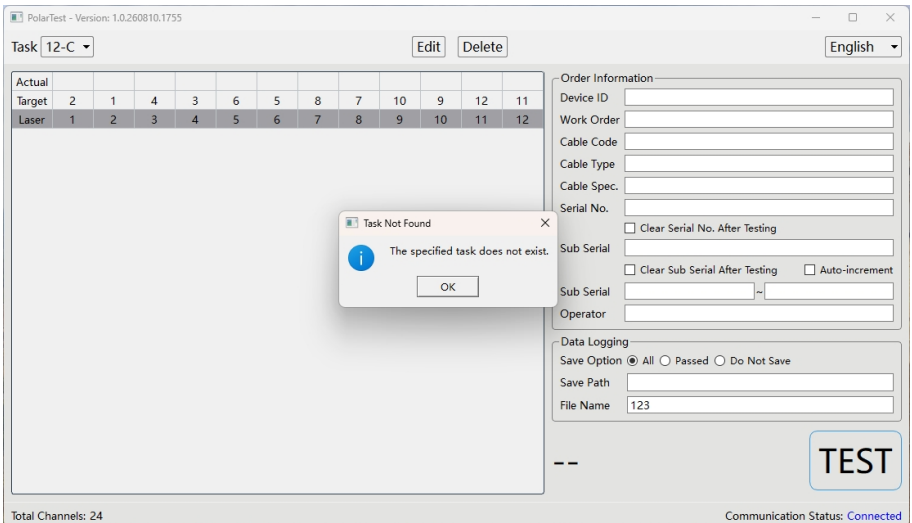
- (1) Under "Task", select the task to delete.
- (2) Click "Delete".
- (3) In the confirmation box, verify the message: Are you sure you want to delete task %1?



After confirmation, UserSet\<task name>.ini is removed and the task is deleted from the drop-down list. Select Yes to delete it or No to cancel. A successful operation displays "The task was deleted successfully."; a failed operation displays "Unable to delete the task."; and a missing file displays "The specified task does not exist.".



After successful deletion, "The task was deleted successfully." is displayed.



If the corresponding task file is no longer present in UserSet, "The specified task does not exist." is displayed.

5. Test Operation

5.1. Pre-test Checks

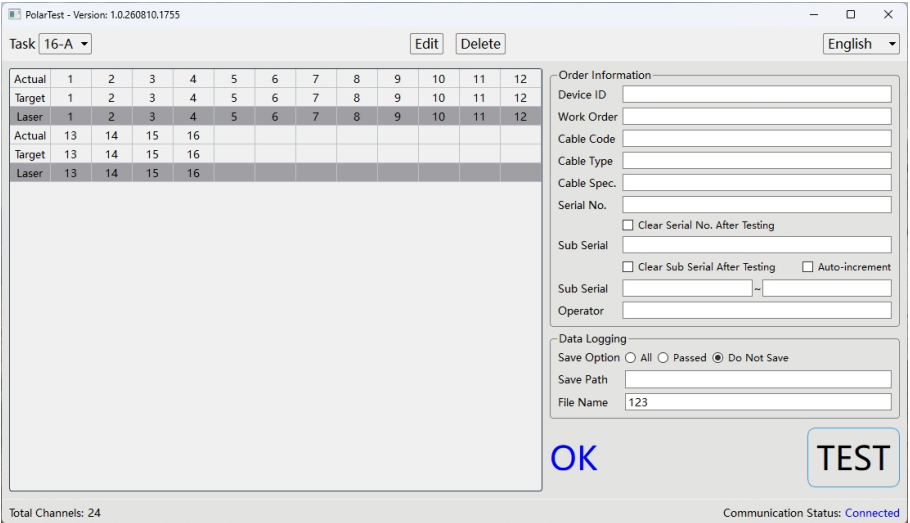
- (1) "Communication Status" is Connected.
- (2) The instrument is in polarity mode.
- (3) The correct polarity task is selected, and the "Target" matches the process requirements.
- (4) The MPO device under test has clean end faces and is correctly connected to the instrument's transmit and receive ports.
- (5) If data must be logged, Save Option is not set to "Do Not Save", and both "Save Path" and "File Name" have been entered.
- (6) If "Auto-increment" is enabled, the Sub Serial settings comply with the rules in Section 5.4.

5.2. Starting a Test

- (1) Enter the required "Order Information".
- (2) Click "TEST", or press Enter in the "Serial No." field.
- (3) During testing, controls such as "TEST", "Edit", "Task", and "Delete" are temporarily disabled to prevent simultaneous operations.
- (4) Wait for the result area and the "Actual" row to refresh.

5.3. Interpreting Results

Pass



PolarTest - Version: 1.0.260810.1755

Task: 16-A Edit Delete English

Actual	1	2	3	4	5	6	7	8	9	10	11	12
Target	1	2	3	4	5	6	7	8	9	10	11	12
Laser	1	2	3	4	5	6	7	8	9	10	11	12
Actual	13	14	15	16								
Target	13	14	15	16								
Laser	13	14	15	16								

Order Information:

Device ID:

Work Order:

Cable Code:

Cable Type:

Cable Spec:

Serial No.:

☐ Clear Serial No. After Testing

Sub Serial:

☐ Clear Sub Serial After Testing ☐ Auto-increment

Sub Serial: ~

Operator:

Data Logging

Save Option: ☐ All ☐ Passed ☒ Do Not Save

Save Path:

File Name: 123

OK TEST

Total Channels: 24 Communication Status: Connected

The result area displays blue OK, and "Actual" matches "Target". The software may play the pass sound.

Fail


PolarTest - Version: 1.0.260810.1755

Task16-A

EditDelete

English

Actual	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Target	1	2	3	4	5	6	7	8	9	10	11	12			
Laser	1	2	3	4	5	6	7	8	9	10	11	12			
Actual	0	0	0	0											
Target	13	14	15	16											
Laser	13	14	15	16											

Order Information

Device ID
Work Order
Cable Code
Cable Type
Cable Spec.
Serial No.
Sub Serial
Operator

☐ Clear Serial No. After Testing
☐ Clear Sub Serial After Testing
☐ Auto-increment

Data Logging

Save Option
☐ All
☐ Passed
☒ Do Not Save

Save Path
File Name
123

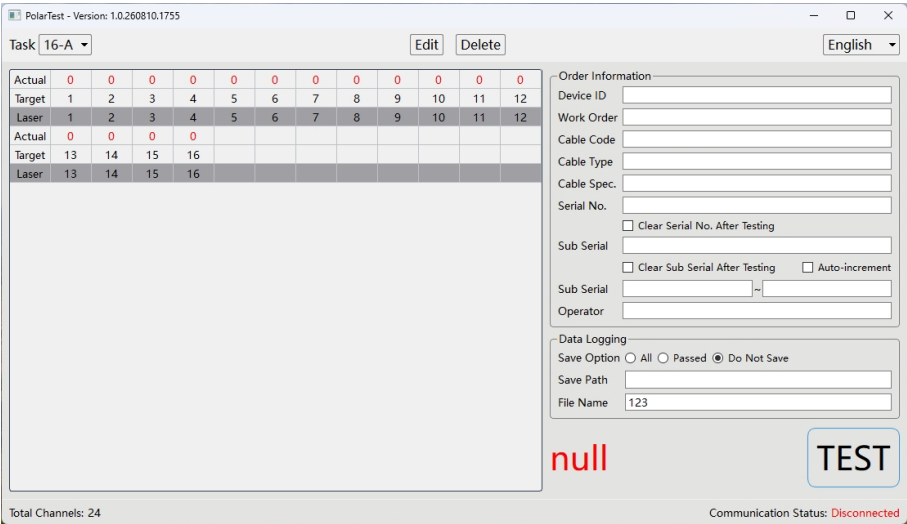
NG

TEST

Total Channels: 24
Communication Status: Connected

The result area displays red NG. Actual values that differ from the Target are shown in red to help locate miswired fiber channels. The software may play the fail sound.

Communication Failure



PolarTest - Version: 1.0.260810.1755

Task: 16-A [Edit] [Delete] [English]

Actual	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Target	1	2	3	4	5	6	7	8	9	10	11	12			
Laser	1	2	3	4	5	6	7	8	9	10	11	12			
Actual	0	0	0	0	0	0	0	0	0	0	0	0			
Target	13	14	15	16											
Laser	13	14	15	16											

Order Information

Device ID: []

Work Order: []

Cable Code: []

Cable Type: []

Cable Spec: []

Serial No.: []

☐ Clear Serial No. After Testing

Sub Serial: []

☐ Clear Sub Serial After Testing ☐ Auto-increment

Sub Serial: [] ~ []

Operator: []

Data Logging

Save Option: ☐ All ☐ Passed ☒ Do Not Save

Save Path: []

File Name: 123

Communication Status: **Disconnected**

TEST

The result area displays null, indicating that this test failed to communicate with the instrument. Check "Communication Status", the cable, and instrument power, then try again.

Other Results

Symptom	Meaning and Action
"Please switch the instrument to polarity mode." appears.	The instrument is in the wrong mode. Change the mode and test again.
The result area remains --.	No valid test has completed, or no result frame has been received.

Note: The large OK/NG indicator in the interface follows the overall verdict returned by the instrument. When data is written to CSV/DB, each channel is also marked OK or NG according to whether its Target equals its Actual value, enabling channel-level traceability.

5.4. Serial No. and Sub Serial Rules

The serial number used for records is formed by concatenating "Serial No." and "Sub Serial". If the sub serial is blank, only the primary serial number is used. When "Auto-increment" is enabled, the following rules apply.

Mutual Exclusivity

"Auto-increment" and "Clear Sub Serial After Testing" cannot both be selected. Selecting either option automatically clears the other.

Both options may remain cleared, in which case the sub serial is neither incremented nor cleared automatically.

Sub Serial Validity

Rule	Description
Matching Types	The start and end values must both contain digits only or letters only. Letters and digits cannot be mixed.
Letter Range	Both values must use the same case, each must be a single letter, and the start letter must not come after the end letter.
Numeric Range	The start value must not be greater than the end value.
Current Sub Serial	If entered, it must fall within the start/end range and have the same type as the range. It may be blank; in that case, the start value is used first and then incremented.
Leading Zeros	Leading zeros are not guaranteed after a numeric sub serial is incremented. For example, 001 may become 2 after incrementing.

If the settings are invalid, the following message appears: The sub serial settings are invalid. Please check them and try again.

Auto-increment Behavior Summary

- (1) The current sub serial is used for this record. If it is blank, the range start value is used.
- (2) After the test, the sub serial advances by one letter or one numeric value.
- (3) After the end value is exceeded, the sub serial returns to the start value and the condition that permits clearing the Serial No. is set.
- (4) If "Clear Serial No. After Testing" is also selected, the primary serial number is cleared only when the clearing condition is met.

Clearing Behavior

Option	Behavior
Clear Sub Serial After Testing	Clears the sub serial field after every test.
Clear Serial No. After Testing	Clears the primary serial number when clearing is permitted. Without Auto-increment, clearing is normally permitted after every test. With Auto-increment, it is generally permitted when the sub serial wraps to the start value.

6. Data Logging

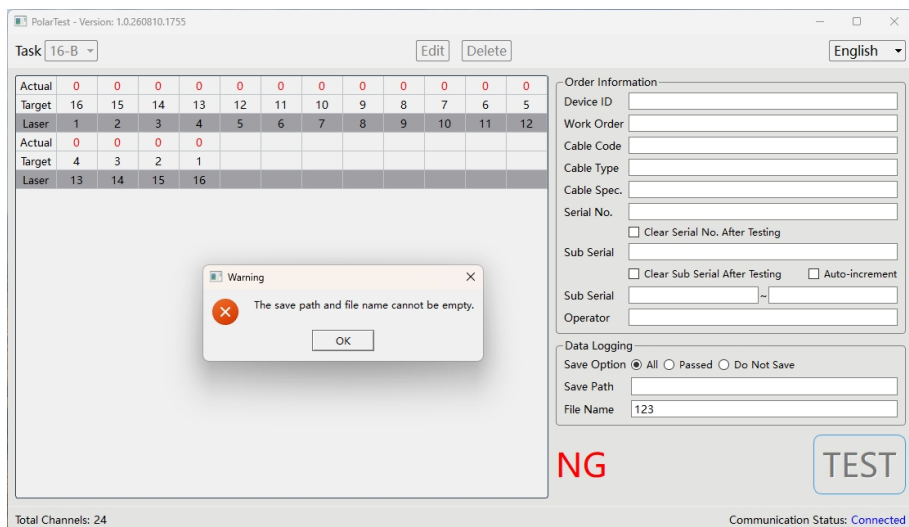
6.1. Save Option

Option	Behavior
All	Writes every valid test to .csv and .db.
Passed	Writes data only when the overall result is OK.
Do Not Save	Writes no result files.

Save Option, Save Path, and File Name are written to Config\config.ini and restored automatically the next time the software starts.

6.2. File Generation Rules

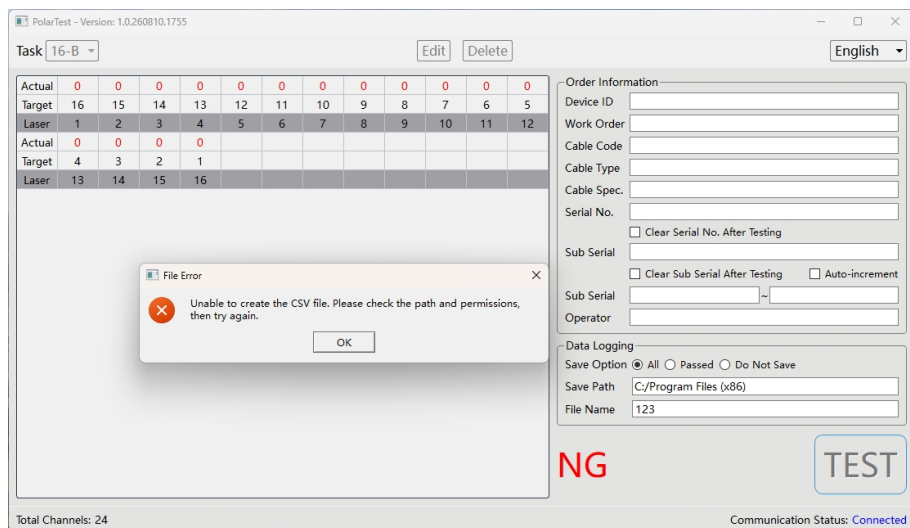
- (1) Full paths: <Save Path>/<File Name>.csv and <Save Path>/<File Name>.db
- (2) The same "Save Path" and "File Name" are used for both formats.
- (3) If the directory does not exist, the software attempts to create it.
- (4) If a save is required but "Save Path" or "File Name" is blank, the following message appears: The save path and file name cannot be empty.



A warning appears if results must be saved but "Save Path" or "File Name" has not been entered. Complete both fields before testing again.

Notice: Do not use invalid characters such as \ / : * ? " < > | in "File Name". The software removes some invalid characters when writing the configuration.

If the save path is invalid or not writable, for example if it points to a protected system directory, a file error may appear:

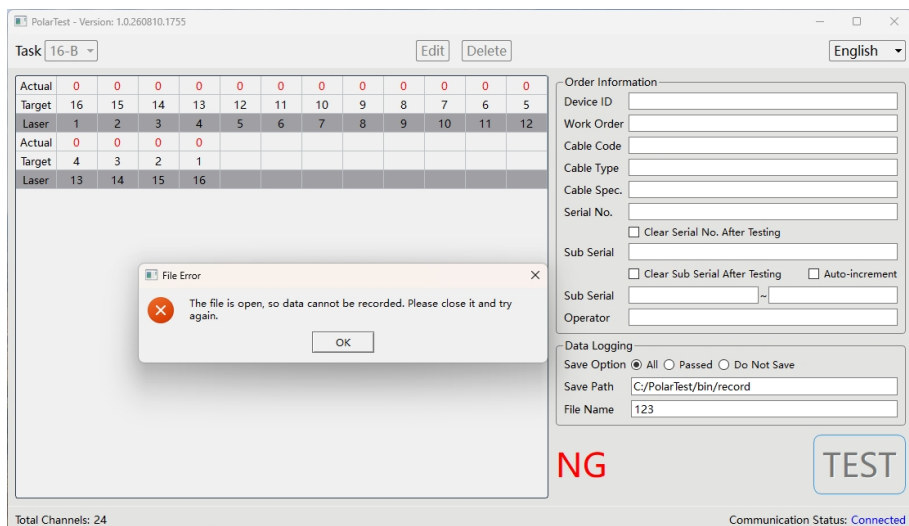


The message "Unable to create the CSV file. Please check the path and permissions, then try again." appears. Select a writable directory and run the test again.

6.3. CSV Description

- (1) When the file is created, a UTF-8 BOM and the header row are written.
- (2) The headers are: Serial No., Laser, Target, Actual, Result, Test Time, Operator, Device ID, Work Order, Cable Code, Cable Type, and Cable Spec.
- (3) One N-channel test produces N channel records.
- (4) The first channel row contains all work-order fields. In later channel rows, repeated fields such as Serial No. and work-order information are blank, while Laser, Target, Actual, and Result are retained.

- (5) Records are appended. If Excel or another program has the file open, appending may fail and the following message appears: The file is open, so data cannot be recorded. Please close it and try again.



Records cannot be appended while the CSV file is open in another program. Close the program using the file, such as Excel, and test again.

6.4. SQLite Description

- (1) The database file has the same path and base name as the CSV file.
- (2) Table name: TestInfo
- (3) One complete record is inserted for each channel. Later channels still contain all work-order fields, unlike the omission policy used by CSV.
- (4) The main fields correspond to the CSV columns, with an additional auto-increment primary key named Id.
- (5) Test time format: YYYY-MM-DDTHH:MM:SS

Query example (usable with any SQLite tool):

```
SELECT * FROM TestInfo ORDER BY Id DESC LIMIT 50;
```

6.5. Channel-level Result Field

When a record is written, the channel-level "Result" is set to OK or NG according to whether that channel's "Target" equals its "Actual" value. Use it together with the large overall result in the interface: the overall result shows the instrument's complete-test verdict, while the details show the channel comparison.

7. Typical Workflows

7.1. Routine Testing

- (1) Power on the instrument -> switch to polarity mode -> connect it to the computer.
- (2) Start PolarTest and confirm "Communication Status: Connected".
- (3) Select a task under "Task" and verify the Target sequence.
- (4) Enter the order and serial information, and complete the Sub Serial fields and set Save Option as required.
- (5) Connect the MPO device under test, then click "TEST" or press Enter after scanning.
- (6) Check the OK/NG result and any channels highlighted in red.
- (7) Segregate failed products according to the process requirements; release passed products to the next operation.
- (8) For traceability, open the corresponding .csv or .db file and search the records.

7.2. Creating or Modifying a Polarity Task

- (1) Connect the instrument and switch it to polarity mode.
- (2) Click "Edit".
- (3) Select "Channels" and "Polarity". For a Custom task, edit the "Target" values manually.
- (4) Click "Save", enter a task name, and save it to UserSet.

- (5) Run one test with a sample cable of known polarity. Start production only after confirming an OK result.

7.3. Viewing Without Saving

- (1) Set "Save Option" to "Do Not Save".
- (2) Test normally. Results are displayed only in the interface and are not written to .csv or .db.

8. Messages and Status Descriptions

8.1. Status Bar and Result Area

Display	Meaning
Communication Status: Connected	Communication with the instrument is normal (blue).
Communication Status: Disconnected	No connection or the link has been interrupted (red).
Total Channels: <n>	Maximum channel count of the instrument.
--	No valid test result is available.
OK	Overall pass (blue).
NG	Overall failure (red).
null	Test communication failure.

8.2. Dialog Boxes and Alerts

Title	Message	Common Cause
Warning	Please switch the instrument to polarity mode.	The instrument is not in polarity mode.
Error	The sub serial settings are invalid. Please check them and try again.	The sub serial or range is invalid.
Warning	The save path and file name cannot be empty.	Saving is required, but the path or file name is blank.
File Error	Unable to create the CSV file. Please check the path and permissions, then try again.	The path is invalid or not writable.
File Error	The file is open, so data cannot be recorded. Please close it and try again.	The CSV file is in use.
Confirm Deletion	Are you sure you want to delete task %1?	Confirmation before deletion.
Deleted	The task was deleted successfully.	Deletion completed.
Deletion Failed	Unable to delete the task.	The file is in use or permission is denied.
Task Not Found	The specified task does not exist.	No corresponding file exists in UserSet.

8.3. Runtime Logs

The software creates record-YYYY-MM-DDTHHMMSS.log runtime logs in the log\ directory for service personnel to troubleshoot connection, testing, and saving issues. Do not delete a log file while it is in use.

9. Safety and Maintenance

9.1. Safety Essentials

- (1) Never look directly into a laser output. Follow the laser and electrical safety requirements in the hardware manual.
- (2) Confirm that the instrument is in polarity mode before testing.
- (3) Keep connector end faces clean. Hold the connector body during insertion and removal to avoid bending the fiber.
- (4) When editing a task, ensure that the channel count is even and that all Target values are valid and unique.
- (5) If the instrument becomes unusually hot, produces an odor, or repeatedly loses communication, stop testing, disconnect power, and contact service personnel.

9.2. Software Maintenance

- (1) Back up UserSet*.ini and Config\config.ini regularly.
- (2) Archive the .csv and .db files in the result directory regularly.
- (3) Do not manually modify DLL files, the platforms directory, or sound files required by the running application.

9.3. Recommended Daily Checks

Item	Method
Communication	After startup, "Communication Status" should be Connected.
Task	Test a standard sample cable; the result should be consistently OK.
Records	Spot-check the latest CSV/DB fields against the work order.
End Faces	Check the cleanliness of patch cords and adapters.

10. Frequently Asked Questions

Q1: "Communication Status" always shows "Disconnected".

Check instrument power, the USB or serial cable, and whether another program is using the port. Reconnect the cable and restart the software.

Q2: The message "Please switch the instrument to polarity mode." appears.

Set the mode switch on the instrument to polarity mode as described in the hardware manual, then select the task again or click "TEST".

Q3: Nothing happens after clicking "TEST", or the result is null.

Confirm that the instrument is connected, exit editing mode, check for an open dialog box, and review the latest log in the log directory.

Q4: The interface shows NG, but the process specification indicates that the fiber sequence is correct.

Check whether the wrong task is selected under "Task"; compare the "Target" with the drawing; confirm the orientation of the device under test and the adapter type; and verify the task file using a known sample cable.

Q5: Data cannot be appended to the CSV file, or a message says the file is open.

Close Excel or any other program that has the CSV file open, then test again.

Q6: Leading zeros disappear after the sub serial is auto-incremented.

This is a characteristic of the software's numeric increment implementation; retention of leading zeros is not guaranteed. If the process depends on fixed-length numeric strings, use an external coding system or enter a fixed sub serial manually.

Q7: A task cannot be recovered after deletion.

Deletion directly removes the file from UserSet. Back up important .ini task files in advance.

Q8: No new task appears in the list after saving the polarity.

Confirm that the save dialog box was not canceled, check write permission for the UserSet directory, and restart the software before checking "Task" again.

Q9: The test passed, but no file was generated.

Check whether "Save Option" is set to "Do Not Save" or "Passed". "Passed" writes data only for an OK result. Confirm that Save Path and File Name are not blank.

Q10: No sound is played.

Confirm that OK.wav and NG.wav exist in the application directory and that the system is not muted. Sound playback does not affect the test verdict.

11. Control and Function Quick Reference

Control / Status	Location	Function Summary
Task	Top Bar	Select a saved task.
Edit	Top Bar	Enter editing mode.
Delete	Top Bar	Delete the current task.
Channels	Top Bar (editing mode)	Set an even channel count for the task.
Polarity	Top Bar (editing mode)	A / B / C / Custom
Save	Top Bar (editing mode)	Save as UserSet*.ini.
Cancel	Top Bar (editing mode)	Cancel the current edits.
Actual / Target / Laser	Main Table	Actual result / expected fiber sequence / physical transmit channel
Order Information Fields	Right Side	Production-line and material traceability information.
Clear Serial No. After Testing	Right Side	Clear the primary serial number according to the applicable rule.
Clear Sub Serial After Testing	Right Side	Clear the sub serial after a test.
Auto-increment	Right Side	Increment the sub serial within the specified range.
Sub Serial	Right Side	Start and end boundaries for Auto-increment.
Save Option	Right Side	All / Passed / Do Not Save
Save Path	Right Side	Result directory.
File Name	Right Side	Base name of the result files.

Control / Status	Location	Function Summary
TEST	Lower Right	Start a test.
OK / NG / -- / null	Result Area	Verdict and status.
Total Channels	Status Bar	Maximum instrument channel count.
Communication Status	Status Bar	Connected / Disconnected