Test & Inspection

FlowScout™ SE100

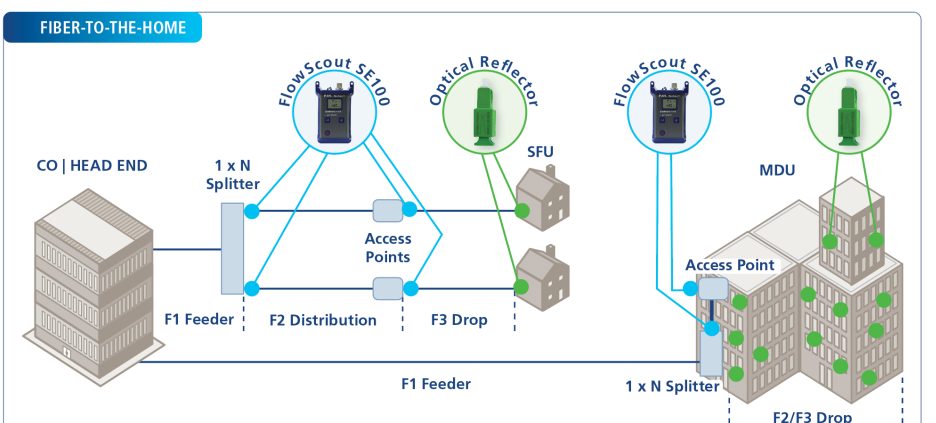
Single-ended Loss Test Set

Quick Reference Guide

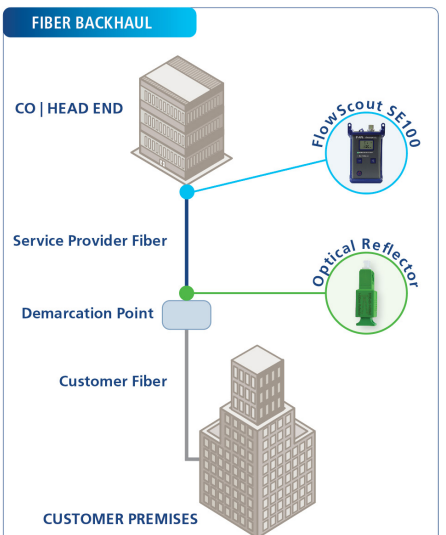
www.AFLglobal.com | +1 (800) 235-3423

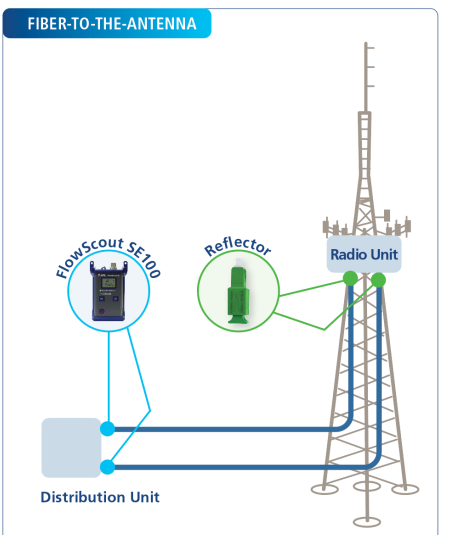
FlowScout™ SE100 is designed to verify fiber connectivity and measure insertion loss to the end of fibers terminated with AFL's 1430 nm Wavelength Optical Reflectors. FlowScout SE100 identifies and indicates whether an optical reflector is detected at the end of the fiber under test. Detection of the reflector means there is continuity to the end of the fiber. When an optical reflector is detected, the FlowScout SE100 measures insertion loss to the reflector at 1430 nm wavelength. AFL's optical reflectors are reflective over a narrow 1430 ±10 nm wavelength region and are near-transparent to PON and point-to-point operational wavelengths. Reflectors may remain installed during normal network operation, to enable future single-ended continuity and insertion loss testing without requiring access to the far end.

FlowScout SE100 Example Applications



FlowScout™ SE100 Example Applications





General

WARNING!

Use of procedures or adjustments other than those specified herein may result in hazardous radiation exposure.

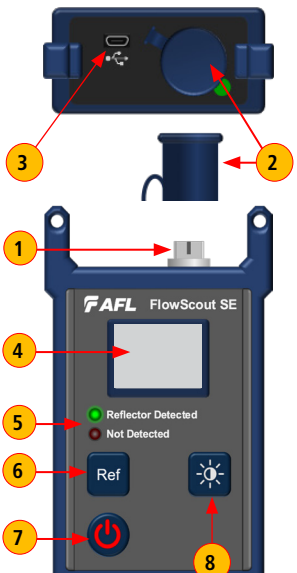
1430/1550 nm optical port	**This is a CLASS I LASER output.** FDA 21 CFR 1040.10 and 1040.11; IEC 60825-1:2014

CAUTION! To avoid serious eye injury, never look directly into the optical outputs of fiber optic network equipment, test equipment, patch cords, or test jumpers . Refer to your company's safety procedures when working with optical systems .

NOTICE: Except for the user replaceable batteries, the FlowScout™ SE100 contains no user-serviceable parts. It must be returned to AFL or an authorized service center for repair and calibration.

IMPORTANT: 85% of network outages are due to dirty connectors. Use the ICIC (Inspect-Clean-Inspect-Connect) method to eliminate these issues. Always inspect each connector, clean if necessary, inspect again to verify it is clean, and then connect. Always inspect and clean test ports and any mating connectors before mating the connectors.

Controls, Display, Interfaces



1. **SC-APC connector**
2. **Protective dust cap**
3. **Micro-USB port**: used for Software update, external 5VDC operation
4. **LCD display:** Shows measurements and prompts
5. **Status indicators:**
   - **Reflector Detected:** Fiber connected and 1430 nm Wavelength Optical Reflector detected
   - **Not Detected:** Fiber not connected, or fiber connected but 1430 nm Wavelength Optical Reflector not detected
6. **Ref Button:**
   - Press to display the currently stored reference power level
   - Press and hold to store the currently displayed measurement as a new 0.0 dB reference
7. **Power Button:** Press and hold to power the tester on/off
8. **Backlight Button:** Press to enable/disable backlight

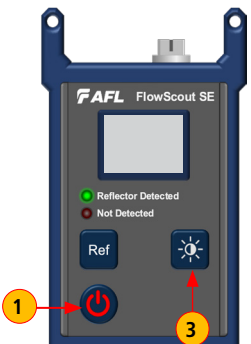
Basic Operation

1. Press and hold the power button to turn the FlowScout™ SE100 on.

   Notes:

   - The FlowScout SE100 will auto-off after a period of inactivity.
   - To manually turn off the FlowScout SE100, press and hold the power button.

2. On power-up, FlowScout SE100 will perform the following
   - Perform LED and LCD test.
   - Next, it will enter its normal mode of operation and display "Conn Fibr", prompting the user to connect a fiber.
   - When not connected to a network segment or to a jumper connected to a reflector, FlowScout SE100 will indicate 'Not Detected' and display "Conn Fibr", prompting the user to connect a fiber.
3. If needed, press the Backlight button to enable/disable display backlight.
4. Clean FlowScout SE100 connector, patch cord, and network connectors, then connect FlowScout SE100 to the network to be tested.
5. FlowScout SE100 will detect connection and perform measurements depending on detected connection condition as outlined below:



Status LED	Detected Connection Condition	FlowScout SE100 Indicates
Not Detected	Not connected to a network segment, or connected to a short network segment with low reflections and no reflector.	FlowScout™ SE100 will indicate 'Not Detected' and display 'Conn Fibr', prompting the user to connect a fiber.
Reflector Detected	Network segment is terminated in a 1430 nm reflector	FlowScout SE100 will indicate 'Reflector Detected' and measure and display 1430 nm insertion loss unless excess reflections (not from the reflector) are detected. If measured loss is >10 dB, high loss will be indicated.
Not Detected	Network segment is terminated in a 1430 nm reflector, but excessive non-1430 nm reflector reflections are detected.	FlowScout SE100 display will alternate between 'HI REFL' and the Optical Return Loss (ORL) at 1550 nm. If ORL is <20 dB, the network contains dirty or damaged connectors, poor splices, or is terminated in an open non-angled connector.

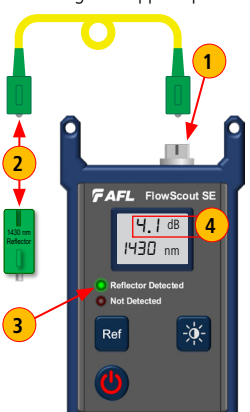
Interpreting Indicators and Displays

Display	Status LED	Interpretation
Conn Fibr	Not Detected	Fiber with reflector not detected; Connect fiber
LIVE Fibr	Not Detected	Live fiber detected; Unable to test
Alternating OrL and 88.8 dB / 1550 nm	Not Detected	Fiber connected; reflector not detected; 1550 nm ORL measured
Alternating HI LOSS and 88.8 dB / 1430 nm	Reflector Detected	Reflector detected; 1430 nm insertion loss measured, but connected fiber has high loss
88.8 dB / 1430 nm	Reflector Detected	Fiber with reflector detected; 1430 nm insertion loss measured
Alternating HI rEFL and 88.8 dB / 1550 nm	Neither LED lit	Excess reflection detected; 1550 nm ORL measured; Excess reflection detected (indicates dirty/damaged connectors, poor splices and/or open physical contact connection)

Checking 0.0 dB Reference and Re-Referencing

To accurately measure insertion loss at 1430 nm, the FlowScout™ SE100 must be connected through a short patch cord to a 1430 nm Wavelength Optical Reflector and the reflected light stored as the 0.0 dB reference. All FlowScout SE100 testers have a 0.0 dB reference stored when shipped from the factory. However, if tester or patch cord connectors are dirty or damaged, FlowScout SE100 may report higher than expected insertion loss. If negative loss measurements are reported along with 'Poor Ref', this is an indication FlowScout SE100 was re-referenced using a dirty or damaged patch cord or reflector.

In either case, all connectors should be inspected and cleaned, then the reference checked using the supplied patch cord and reference reflector.



To check the current reference:

1. Clean and connect short SC-APC to SC-APC patch cord to FlowScout SE100
2. Clean and connect the reference reflector to the end of the patch cord
3. Verify FlowScout SE100 indicates 'Reflector Detected' and measured insertion loss at 1430 nm is between 0.0 dB and 3.0 dB.
4. If measured loss with just patch cord and reflector connected is either negative or >3.0 dB, inspect and reclean all connections, then re-reference as follows.

Important! When checking reference or re-referencing, always connect reference 1430 nm Wavelength Optical Reflector to FlowScout SE100 through a short SC-APC to SC-APC patch cord. Do not plug reflector directly into FlowScout SE100.

Checking 0.0 dB Reference and Re-Referencing

Re-referencing

- Press and hold the Ref button. If patch cord with the reflector connected is not detected:
  - FlowScout™ SE100 will indicate 'Not Detected' by illuminating the Not Detected LED
  - Then it will display 'Conn Fbg', prompting the user to connect a patch cord jumper and a reflector
- If patch cord with the reflector is connected and measured loss relative to factory-stored reference is ≤3.0 dB:
  - FlowScout SE100 will store the reflected power as new 0.0 dB reference
  - Then it will resume measuring loss at 1430 nm
- If patch cord with the reflector is connected but measured loss is >3.0 dB or excess reflection at 1550 nm is detected,
  - FlowScout SE100 will flash 'High Loss. Inspect and Clean Connectors.'

Battery Replacement

If the FlowScout™ SE100 fails to turn on or indicates low battery warning, replace two alkaline AA batteries as follows:

- Remove the rubber boot
- Open the battery compartment on the back
- Remove the discharged 2 x AA batteries and replace with fully-charged batteries

Thank you for choosing AFL Test & Inspection!

www.AFLglobal.com | +1 (800) 235-3423

 SE100-00-1ENG Revision AA 2023-12-21