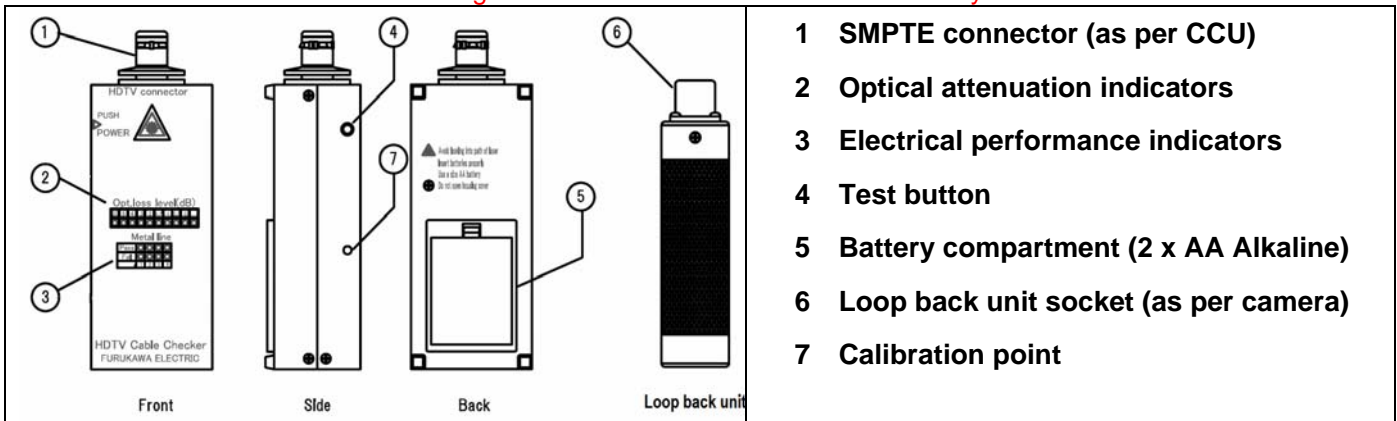


Operation manual – Furukawa cable tester

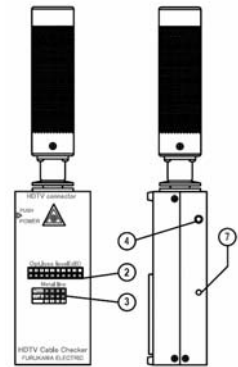
Warning – Class 1 laser device. Do not shine in eyes



- 1 SMPTE connector (as per CCU)
- 2 Optical attenuation indicators
- 3 Electrical performance indicators
- 4 Test button
- 5 Battery compartment (2 x AA Alkaline)
- 6 Loop back unit socket (as per camera)
- 7 Calibration point

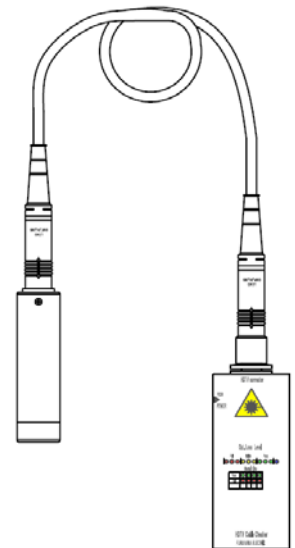
1. Check (calibrate) the unit prior to use.

- 1.1 Check first that fibre contacts are clean & then connect the cable tester main body directly to the loop back unit.
- 1.2 Press the test button (4) until both the LED ranges (2) & (3) are lit. If all green “metal line” LED’s are lit & the 0dB optical LED is lit then unit is ready to use.
 - 1.2.1 If any LED’s in (2) are flashing red or off then check electrical connections – see section 3.
 - 1.2.2 If you have an optical reading higher than 0dB, clean fibre contacts on both sides. If problem persists adjust power of the light source 7 on the checker main body side to get 0dB reading. Very carefully turn the screw clockwise until you just get a blue LED reading (tester is not continuous, so re-test with each adjustment) then turn anti-clockwise until you just reach the 0dB reading
 - 1.2.3 If you cannot get a reading, then the unit will require maintenance.



2. Test the cable or cable system.

- 2.1 Check the cable connectors to ensure no damage to the tester – e.g. from bent contacts, missing alignment sleeves, etc – and that fibre contacts are clean.
- 2.2 Connect both ends of the cable assembly/cable system to the cable checker and return loop as shown in the diagram on the right.
- 2.3 Press the test button (4) until LED’s in both the ranges (2) & (3) are lit. If all green “metal line” LED’s are lit & an acceptable optical LED reading is given then the cable assembly/cable system has passed the test.
 - 2.3.1 If any LED’s in (3) are flashing red or off then firstly check that the tester and the cable assemblies are connected correctly. If the problem persists, then use the analysis table on the next page to determine the nature of the fault.
 - 2.3.2 The LED’s for the optical test – range (2) – are graduated giving an individual reading of up to 20dB+. The 0dB LED covers a range from 0dB to 0.49dB, the 0.5dB LED from 0.5dB to 0.99dB and so on.
If a single cable has a reading of 1.0dB or above, then it probably needs attention, but if it is a complete system there might not be a problem for results below the 8.0dB reading – typically allow 0.5dB per connection and 0.5dB/km for the cable. If you suspect any optical problem always visually check the contacts first with a viewer and clean end faces if necessary. See the LEMO fibre optic cleaning guide for details.
If only the red LED is showing then it indicates that either the contacts need thorough cleaning or to be repaired, or there is a fibre break somewhere.



Safety caution:

1. If the unit overheats, then immediately release the power button and remove the batteries.
2. Since Class 1 laser light source is used, avoid shining directly into eyes.
3. Use the specified batteries and ensure correct installation.
4. Avoid placing the unit in wet or damp environments
5. Do not disassemble the unit without permission or warranty will be no longer valid.

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3.0 Electrical failure analysis.

3.1 Conductor identification

The lower LED range (Item (3) in the diagram in section 1), indicates the condition of the electrical conductors with the corresponding lines as per the table below:

Pass				
Fail				
	1	2	3	4

- 1 = Power conductor (neutral)
- 2 = Power conductor (live)
- 3 = Control wire (live)
- 4 = Control wire (neutral)

If there is a failure then one or more of the red LED's will flash.

3.2 Flash pattern coding for analysis.

Different flash patterns are used to indicate the nature of the failure and the following code is used to assist with reading the corresponding analysis table as follows:

Code	Flash pattern	Description
		For any one LED: LED is seen to intermittently switch off ("blinks off").
		LED is seen to switch on and off in an even pattern.
		LED switches on intermittently ("blinks on")

3.3 Failure analysis table

Failure mode/Conductor	1	2	3	4
Power (-) open circuit				
Power (+) open circuit				
Control (+) open circuit				
Control (-) open circuit				
Power (-) & Power (+) open				
Power (+) & Control (+) open circuit				
Control (+) & Control (-) open circuit				
Shield & Power (-) open circuit				
Shield & Power (+) open circuit				
Shield, Power (-) & Power (+) open circuit				
All lines open circuit				
Power (- & +) shorted to each other, or crossed (in other connector)				
Power (-,+) & Control (+) shorted, or crossed				
Power (+) and Control (+) shorted or crossed				
Power (+) and Control (+,-) shorted or crossed				
Shield open, or Power (- & +) and Control (+ & -) shorted or crossed				
Power (+) shorted to shield				
Power (-) shorted to shield				
Power (-) & Power (+) shorted to shield				
Control (+) shorted to shield				
Control (-) shorted to shield				
All lines shorted to shield				

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