



QUICK REFERENCE GUIDE

23400/27400 Series 2-Way Loss Test Meter

Tempo series number with prefix “T”

Kingfisher series numbers with prefix “KI”

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General Operation:

- To remove interchangeable connector adaptor, press button on front of case and pull off adaptor. This may be easier with a test lead attached.
- To turn instrument on / off, press **On/Off**.
- Low battery is indicated with a battery symbol.
- To turn back light on / off, press Backlight button.
- To disable auto-off *at turn-on*, hold **On/Off** for 3 seconds until 'Perm' is displayed.
- To disable or activate beeping *at turn-on*, hold **F2** then press **On/Off**, "beep" displays.
- To enter Slow Mode *at turn-on*, hold down **F3** then press **On/Off**, "tone" displays.
- To view firmware version and instrument serial number *at turn-on*, hold **F4** then press **On/Off**.
- To view all display segments *at turn-on*, press and hold **On/Off**, **F1** at the same time until it stops beeping.
- To set time & date, when instrument is off, hold down **Toggle Centre** then press **On/Off**. Press - or + to modify the selected (flashing) item. Press **Toggle Centre** to change selected item. Press **F2** to save new time and date settings. Press **F1** to exit without saving new settings.
- To enter Meter menu, press **F3**.
- To enter Memory menu, press button above [MEMORY].

- To return to Home menu, press **F1**.

Meter Menu:

- To enter Meter menu at Home menu, press **F3**.
- To select operational λ in Meter mode, press - or +.
- To toggle log / linear display mode, press **F3**.
- To display max and min values for absolute power and loss, press - and + simultaneously. To return to standard display, press - and + simultaneously again.
- To set reference, toggle to dB mode, then hold down **F2** for 3 seconds until the instrument beeps finish
- To stop / start display update, press **F4**.
- If a test tone is detected, meter will display 'Hz'.
- To store to memory press triangular button above [STORE].
- To return to Home menu, press **F1**.

Source Menu:

- To enter Source menu at Home menu, press **F1**.
- To select operating λ , press - or +.
- To turn source on and off, press **Toggle Centre**.
- [Laser source only] To change power level, press and hold **F2** then use - or + (not applicable to LED sources). To toggle between max and min power levels, hold **F2** then press **Toggle Centre**.

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- To select modulation while source is on, press and release **F3**. Repeatedly press this button to scroll & select a tone frequency or ID-tone. Alternatively, press and hold **F3** then use - or + to cycle through all options.
- To end modulation, press and hold **F3** then press **Toggle Centre**. Alternatively, press and hold **F3** for 3 sec.
- To return to Home menu, press **F1**.

Return Loss Menu:

- At Home menu, press **F2** to enter ORL menu.
- To select operating λ , press - or +.
- To enter UCAL offset setting mode, press **F3** [see quick reference guide section for User Calibration (UCAL)].
- To enter Zero Function setting mode, press **F3** again [see quick reference guide section for Zero Function].
- To exit ORL menu, press **F1** to return to Home menu.

Autotest Operation:

- [1-way Autotest only] To start Autotest, press **F4** of the instrument connected at the source end of a fiber.
- [2-way Autotest] To start Autotest, press **F4** on either one of the connected instruments.
- [1-way Autotest only]: To toggle display to show *absolute-power(dBm)/loss(dB)/reference-power(dBm)* or *absolute-power in both dBm & watt*, press **F3** repeatedly.

To show sources' nominal power levels, hold down **Toggle Centre**.

- [2-way Autotest only]: When Autotest starts, a *Test Summary* showing losses (dB) of each direction, their averages and, optional cable length measured is displayed. To change to display *Detail Test* showing absolute-power (dBm), loss (dB), reference-power (dBm) of each direction, press **F3**. Press - or + to show data for other active wavelengths. At this display, hold down **Toggle Centre** to show sources' nominal power levels.

To change from showing *Test Detail* to optional *ORL test*, press **F3**. Press - or + to show ORL data for other active wavelengths.

Press **F3** again now will return display to show *Test Summary*.

- To set reference (for loss and optional length tests only), press and hold **F2** for 3 seconds until beeps stop. The reference will then update over the next few seconds.
- To stop / restart display update, press **F4**.
- [1-way Autotest only]: To end Autotest, press **F1** of the instrument connected at source end or, disconnect patch lead for more than 8 seconds.
- [2-way Autotest only]: To end Autotest, press **F1** on either one of the connected instruments or, disconnect patch lead for more than 8 seconds.

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- To record data to internal memory in Meter or Autotest mode, press triangular button above [STORE]. Data will be stored in the next empty location.

Autotest User-to-User Communication (2-way mode only):

- Connect an instrument at each end of a fiber link.
- Start 2-way Autotest on any of the connected instruments.
- For near-end unit to 'flag' far-end unit: Press **F4** on near-end unit. Far-end instrument will beep once and, "HOLD" will flash (display update stops) on both units.
- For far-end unit to respond to near-end unit: Press **F4** on far-end unit. Near-end instrument will beep once and, "HOLD" will stop flashing (display update resumes) on both units.

Autotest Wavelength Restriction:

- To start Autotest with restricted wavelengths,
Method 1 (for instrument with 2 light source ports only),
 - To start Autotest for single mode λ (left source port), hold down - and press **F4**.
 - To start Autotest for multimode mode λ (right source port), hold down + and press **F4**.

Method 2,

- To activate (include) / deactivate (exclude) wavelength/s for Autotest, press **F1** in Home menu, then press - or + to select the wavelength/s. Hold **F4**

then press **Toggle Centre** to change between 'in' (activated) or 'out' (deactivated).

- To start Autotest for the activated wavelength/s only, hold **Toggle Centre** then press **F4**.

Memory Operation:

Recording Data to Memory

- In METER or AUTO mode, press triangular button above "STORE".
- To change the next location pointer for storage, press button above "MEMORY" at Home menu, select desired location using the + or -, hold button above "MEMORY" then press **F2** for three seconds, or until it stops beeping.

Recalling Stored Data from Memory

- To enter Memory mode, press button above "MEMORY" at Home menu.
- To select a memory location to display data, press + or -.
- [For data saved in 2-way Autotest mode only]: To toggle display to show summary or detail data of test results, press **F3** repeatedly.

To show nominal source power, hold down **left** rectangular button above LCD (only when display shows detail data).

To view detail data for other wavelengths, press **F4**.

To view saved time and date, press and hold **Toggle Centre**.

To exit memory mode, press **F1**.

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- [For data saved in 1-way Autotest mode only]: To toggle display to show absolute power in dBm or in both dBm and watt, press **F3** repeatedly.
To show nominal source power, hold down **left** rectangular button above LCD.
To view saved time and date, press and hold **Toggle Centre**.
To exit memory mode, press button below [HOME].
- [For data saved in Meter mode only]: To toggle display to show absolute power in dBm or in both dBm & watt, press **F3** repeatedly.
To view saved time and date, press and hold **Toggle Centre**.
To exit memory mode, press **F1**.

To retest or overwrite results

- Note currently displayed memory location: At Home menu, press button above “MEMORY”. Note current memory location e.g. “MEM 123”.
- Go to the memory location for retest/overwrite, select desired location using + or -, then hold down button above “MEMORY” and press **F2** for three seconds or until it stops beeping.
- Press **F1** to exit Memory mode.

- To retest: Press **F3** (Meter mode) or **F4** (Autotest mode) to return to data acquiring mode. Press button above [STORE] now will save new results in the memory location selected above.
- Return memory location pointer for next storage to where it was before the retest: Press button below [HOME] then that above “MEMORY”, select the desired location (“MEM 124” in this example) using + or -, then hold down button above “MEMORY” and press **F2** for three seconds or until it stops beeping.
- Continue testing.

Clearing Memory

- To clear *all stored data*, in Memory mode, hold down button above “MEMORY”, then press and hold **F2** followed by **F4** until it stops beeping.

Transfer Instrument Memory Data to USB Stick:

- At Home menu, insert USB stick into USB port (“MEM”) on the right side of the instrument, press button above “MEMORY” to power up USB stick.
- Press triangular button above “USB”. Wait till instrument stop beeping.
- Press **F1** to power down USB stick before removing from instrument.

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Pass/Fail Operation:

- Loss test status for each wavelength will be shown with a '✓' (pass) or 'X'(fail) or blinking 'X' (marginal) on LCD. ORL (2-way Autotest only) test status for each wavelength will be shown with a '✓' (pass) or 'X'(fail). A failed length test value (2-way Autotest only) will flash.
- Overall test result, "PASS" will be shown at the top right corner of the if LCD:
 - pass/fail check function is disabled.
 - loss test statuses of all wavelengths are pass or marginal and, both the optional length and ORL tests pass.
 - An overall test result, "FAIL" will be shown at the top right corner of LCD if, loss test status of any wavelength is a fail or, any of the optional Length or optional ORL test fails.
- Pass/fail method selection:
For 2-way Autotest: If 'WC' is selected, the worst-case loss value will be used to determine the test status. If 'AV' is selected, the average loss value will be used to determine the test status.
For 1-way Autotest: Worst case loss value will always be used to determine the test status regardless of the selected pass/fail method.

Pass/Fail Threshold Set Up:

To downloaded from KITS reporting software

- Refer to instruction in the software manual.

To set up directly on the instrument

- Turn on instrument with "-" button (for SM), or "+" (for MM) key depressed.
- "Imported Setup" will show if a setup has been imported from KITS and will vanish if any changes are made locally.
- Press **F3** to toggle between loss / ORL setup screens. For instruments without Length and/or ORL options, set the corresponding threshold values to "0".
- Press **Toggle Centre** repeatedly to select a value to adjust threshold for PASS and/or MARGINAL.
- Use - or + to adjust value. Set values (magnitude) of MARGINAL must always be greater than PASS.
- Use **F4** to toggle WC (worst case) / AV (average) pass/fail method.
- Press **F2** to save or **F1** to cancel new settings.

Tone Detection Operation:

- Connect 2 instruments with a fiber i.e. at the source-port on one unit and the meter-port on the other.
- On source unit, enter Source menu, press **F3** to scroll modulation options.
- On meter unit, it detects the standard optical test tone (e.g. 270 Hz, 1 KHz, 2 KHz), a buzzer sounds and the display

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changes to show the actual measured modulation frequency in Hz.

- To end the operation (on source unit), press and hold **F3**, then press **Toggle Centre**. Alternatively, press and hold **F3** for 3 sec.

Slow Mode Operation:

- To enter Slow Mode during turn on, hold down **F3** & press **On/Off**. The flashing symbol '∞' indicates that slow mode has been activated.
- Alternatively, to turn slow mode on/off while in Meter mode, press and hold key **F3** then press **F4**.
- To turn Slow Mode on while in Tone detection mode, press **F4**. This will disable tone detection.
To turn Slow Mode off (i.e. to resume Tone detection), press **F3** to go to Meter menu, hold **F3** then press **F4**.

Text ID Tag Operation:

To create a new Text ID Tag

- Enter Meter or AUTO menu.
- Press button above "FIBER ID", then press **F4**.
- Press - or + to select new alphanumeric character, then press **Toggle Centre** to move to the next character.
- Press **F2** to save or **F1** to cancel.

To use a stored Text ID Tag

- Enter Meter or AUTO menu.
- Press button above "FIBER ID".
- Press - or + to find required Tag,
- Press **F2** to confirm or **F1** to cancel selection.

To modify a stored Text ID Tag

- Enter Meter or AUTO menu.
- Press button above "FIBER ID", then - or + to select a stored ID Tag.
- Press **F3** to enter edit mode.
- Press - or + to select new alphanumeric character, then press **Toggle Centre** to move to the next character.
- Press **F2** to confirm or **F1** to cancel modification.

To delete a Text ID Tag

- Enter Meter or AUTO menu.
- Press button above "FIBER ID", then - or + to select a stored ID Tag.
- Press **F3** to enter edit mode, then press **F4** to delete.
- Press **F2** to confirm or **F1** to cancel deletion.

ORL Zero Function:

- Set up the stray optical condition.
- At Home menu, press **F2** then press **F3** twice to enter Noise Floor (NF) setting mode.

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- Press **F2** and, NF offsets for all active wavelengths will be set and saved automatically. The new NF values will be displayed next to the selected wavelength.

User Calibration (UCAL):

- At Home menu, press **F2** to enter ORL mode.
- Press - or + to select wavelength.
- Press **F3** to enter UCAL offset setting mode.
- Press - or + to enter the required value.
- Press **F2** to save or **F1** to cancel the new settings.

Reset User Calibration (UCAL) offset & Zero Function (Noise Floor) to factory defaults:

- At Home menu, press **F2** to enter ORL mode.
- Press **F3** twice to enter Noise Floor setting mode.
- [For instrument with only 1x Two-way port]: hold down **F2** then **Toggle Centre** until it stops beeping.
- [For instrument with 2x Two-way ports]:
 - For *SM port*: hold down **F2** then “-” until it stops beeping.
 - For *MM port*: hold down **F2** then “+” until it stops beeping.

Visible Laser Operation:

- At Home menu, press **F1** to enter Source menu.
- Press - or + to select 650 nm to turn on visible red light.

- Press **Toggle Centre** to turn off visible red light.
- Press **F1** to return to Home menu.

Instrument Data Sanitization:

To erase all parts of the non-volatile user memory, including user data, and restore default instrument settings:

- Turn on instrument.
- Enter Memory mode by pressing button above “MEMORY”.
- Press and hold these buttons: “MEMORY”, **F2**, **F4**, **Toggle Centre** simultaneously for 3 seconds until beeping stops. “dFLt” will be displayed during operation.