

Power On or Boot-Up Sequence

The MFT-B performs power on test(s) to verify that the configuration, sensor, and wiring are valid. The MFT B-Series can boot up and start responding to Modbus communications or updating the 4-20 mA output and LCD display within one second of restarting/powering up. The data is not guaranteed until Boot-up is complete. Boot-up times vary depending on whether the sensor is cold or hot when the power is applied, see Table Q-1 below. The longest delay on a re-start occurs following a power cycle when the flow rate is near zero flow. The maximum boot-up delay is 2 minutes. This delay allows the velocity sensor time to cool off so its resistance value can be checked to ensure there are no sensor faults. A high process velocity during bootup will reduce the delay, because the hot sensor can cool down faster.

When the meter is turned on from a power off state, the NE-43 alarm low (3.6 mA or less) is set until the sensor boot process is started. The flow and temperature will then increase to their proper values depending on the process velocity meter filter settings. Firmware version 1.10 and later hold the NE-43 alarm until boot-up and sensor stabilization are complete.

Once boot-up is complete an additional delay of 20 seconds is required before a Drift Check command via Modbus or Digital Input is guaranteed.

Table Q-1: Nominal Boot-up Times for the MFT B-Series

Settling Time (1% reading): Modbus, 4-20 mA or LCD	Cold Sensor (power has been off)	Hot Sensor (power cycled)
1600 SFPM, Velocity, filter TC = 0.5 s	15 s	17 s
1600 SFPM, Temperature, Filter TC = 0.5 s	10 s	13 s
Zero Flow, Velocity, Filter TC = 0.5 s	15 s	60 s
Zero Flow, Temperature, Filter TC = 0.5 s	10 s	55 s

Normal Startup Display Screens

```
KURZ INSTRUMENTS  
DISPLAY DRIVER 4.1
```

The display version information is only visible on the LCD display and not on a terminal emulator.

```
CHECKING TYPE OF  
CONNECTED SENSOR
```

The display above indicates that the sensor testing is in progress.

When boot-up mode has exited and normal operations have begun, the following series of screens will be displayed

```
WAIT PERFORMING  
SENSOR LEAK TEST
```

The final sensor test is in progress

```
KURZ INSTRUMENTS  
SERIES MFT-B
```

The MFT B Firmware version will be momentarily displayed

```
FIRMWARE VERSION  
MFT-B VER 2.00
```

<Run Mode starts>

If an error message is displayed instead of the previous screens then the unit has failed the boot-up testing and will remain in boot-up until the issue(s) are resolved or the user forces a boot-up exit by pressing the 'C' key on the local keypad or the 'c' (lowercase 'C') key on the remote keyboard. Note that downloading of the Min/Max, Error and Trend logs is not available until boot-up is complete.