

FT3424/FT3425

LUX METER

Remote Operation Manual

HIOKI E. E. CORPORATION

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Edition 2

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# 1. Remote Interface Overview

Step1. Connect the USB cable to the USB port on the computer.

Step2. Once the USB cable is connected and the USB driver is installed, a virtual COM port is created on the computer.

[CAUTION] One FT3424/FT3425 unit can be connected at any one time. Do not connect and disconnect the other USB device during operations.

## 2. Interface Parameters

In order to operate the meter via a host computer or terminal, the parameters in interface within the FT3424/FT3425 have to match the parameters the serial interface provided by the host or terminal.

The following procedures will guide the user to set up interface parameters within the FT3424/FT3425 to comply interface with the host.

Table.1

| Item | Parameter    | Setting   |
|------|--------------|-----------|
| 1    | Baud Rate    | 38400 bps |
| 2    | Data Length  | 8 bit     |
| 3    | Parity Check | None      |
| 4    | Stop Bit     | 1 bit     |

## 3. About Command

### 3.1. Terminator

A terminator is a character sent by a host, which identified the end of a command string.  
A valid terminator consists of two-byte data.

|      |                               |
|------|-------------------------------|
| <CR> | (Carriage Return, ASC(&H0D) ) |
| <LF> | (Line Feed, ASC(&H0A) )       |

### 3.2. Return result

After the meter executes a query command the return of the result will be in the following format.

|                      |
|----------------------|
| <Result> + <CR> <LF> |
|----------------------|

### 3.3. Data Types

Returned message is the ASCII string from the meter responding to a query.

Table.2

| Data Type | Explanation  | Example                   |
|-----------|--|---------------------------|
| <NR1>     | An integer   | +10000, -10000, 123, -100 |
| <NR2>     | This numeric representation has an explicit radix point.         | +13.234, -.00002, 3.4567  |
| <NR3>     | This representation has an explicit radix point and an exponent. | -1.000000E+02             |
| <Boolean> | String ASCII-encoded byte, is return for the setting query.      | 0 or 1                    |
| <Literal> | ASCII string   | AUTO                      |

## 4. Summary of Commands

Table.3

| Command      | Parameter | Description  |
|--------------|-----------|--|
| QPID         |           | Query the Meter model.                             |
| *IDN         |           | Query the Meter identification.                    |
| :SYST:LLO    |           | Put the meter into the local lockout state.        |
| :SYST:LLO2   |           | Put the meter into the local lockout state. (Full) |
| :SYST:GTL    |           | Put the meter into the local state.                |
| :SYST:APS    | <Boolean> | Set the APS.                                       |
| :SYST:BEEP   | <Boolean> | Set the action of the beeper.                      |
| :SYST:RANGE  | <Literal> | Configure the range.                               |
| :SYST:RANGE? |           | Query the range.                                   |
| :0ADJUST     |           | Perform a zero-adjustment.                         |
| :MEASCNT?    |           | Query main measured count value.                   |
| :MEAS?       |           | Query main measured value.                         |
| :SYST:INIT   |           | Put the meter to power-on-reset state.             |
| :STAT?       |           | Query the status of the meter.                     |

## 5. Detail of Commands

### 5.1. Description of Commands

Table.4

| Command    | Explanation  |
|------------|--|
| QPID       | Query the Meter model.<br>Syntax QPID<br>Response “FT3424”   |
| *IDN       | Query the Meter identification.<br>Syntax *IDN?<br>Response <data×3><br><data> maker name, model number, serial, version<br>Example; “HIOKI,FT3424,140601234,Ver 1.00” |
| :SYST:LLO  | Put the meter into the local lockout state. (Except POWER key)<br>Disconnect USB then return to the local state.<br>Syntax :SYST:LLO<br>Response “OK”                  |
| :SYST:LLO2 | Put the meter into the full local lockout state. (Except POWER key)<br>Syntax :SYST:LLO2<br>Response “OK”  |
| :SYST:GTL  | Put the meter into the local state.<br>Syntax :SYST:GTL<br>Response “OK”   |
| :SYST:APS  | Set the APS.<br>Syntax :SYST:APS <Boolean×1><br><Boolean> “0” (off) or “1” (on)<br>Example; “:SYST:APS 1”<br>Response “OK” or “CMD ERR”                                |
| :SYST:BEEP | Set the action of the beeper.<br>Syntax :SYST:BEEP <Boolean×1><br><Boolean> “0” (off) or “1” (on)<br>Example; “:SYST:BEEP 1”<br>Response “OK” or “CMD ERR”             |

| Command      | Explanation  |
|--------------|--|
| :SYST:RANGE  | <p>Configure the range.</p> <p>Syntax :SYST:RANGE &lt;Literal&gt;</p> <p>&lt;Literal&gt; &lt; AUTO   20   200   2k   20k   200k&gt;</p> <p>Example; “:SYST:RANGE 2k”</p> <p>Example; “OK” or “CMD ERR”</p> |
| :SYST:RANGE? | <p>Query the range.</p> <p>Syntax :SYST:RANGE?</p> <p>Response &lt;Literal×2&gt;</p> <p>&lt;Literal&gt; &lt; 20   200   2k   20k   200k&gt;</p> <p>Example; “200”</p>                                      |
| :0ADJUST     | <p>Perform a zero-adjustment.</p> <p>Syntax :0ADJUST</p> <p>Response “OK” or “CAP ERR” or “NG”</p> <p>Respond “CAP ERR” without the included sensor cap attached to the illuminance sensor.</p>            |
| :MEASCNT?    | <p>Query measured count value.</p> <p>Syntax :MEASCNT?</p> <p>Response &lt;data×1&gt;</p> <p>&lt;data&gt; count value</p> <p>Example; “1000”</p>   |
| :MEAS?       | <p>Query measured value.</p> <p>Syntax :MEAS?</p> <p>Response &lt;data×1&gt;</p> <p>&lt;data&gt; measured value</p> <p>Example; “15.00”</p>  |
| :SYST:INIT   | <p>Put the meter to power-on-reset state.</p> <p>Syntax :SYST: INIT</p> <p>Response “OK”</p>   |
|              |  |

| Command               | Explanation   |         |                     |            |                     |               |                     |          |                     |                |                     |           |                   |                     |                     |                       |                      |            |                     |               |            |              |     |              |     |
|-----------------------|---|---------|---------------------|------------|---------------------|---------------|---------------------|----------|---------------------|----------------|---------------------|-----------|-------------------|---------------------|---------------------|-----------------------|----------------------|------------|---------------------|---------------|------------|--------------|-----|--------------|-----|
| :STAT?                | <p>Query the status of the meter.</p> <p>Syntax :STAT?</p> <p>Response "&lt;ABCDEFGHJKLM&gt;" (12char)</p> <table> <tr> <td>A---APS</td><td>"0"(OFF) or "1"(ON)</td></tr> <tr> <td>B---Buzzer</td><td>"0"(OFF) or "1"(ON)</td></tr> <tr> <td>C---Backlight</td><td>"0"(OFF) or "1"(ON)</td></tr> <tr> <td>D---HOLD</td><td>"0"(OFF) or "1"(ON)</td></tr> <tr> <td>E---Auto Range</td><td>"0"(OFF) or "1"(ON)</td></tr> <tr> <td>F---Range</td><td>"0"~"4" (20~200k)</td></tr> <tr> <td>G---Zero-adjustment</td><td>"0"(No) or "1"(Yes)</td></tr> <tr> <td>H---Sensor connection</td><td>"0" (No) or "1"(Yes)</td></tr> <tr> <td>I---OUTPUT</td><td>"0"(OFF) or "1"(ON)</td></tr> <tr> <td>J--- reserved</td><td>"0" or "1"</td></tr> <tr> <td>K---reserved</td><td>"0"</td></tr> <tr> <td>L---reserved</td><td>"0"</td></tr> </table> | A---APS | "0"(OFF) or "1"(ON) | B---Buzzer | "0"(OFF) or "1"(ON) | C---Backlight | "0"(OFF) or "1"(ON) | D---HOLD | "0"(OFF) or "1"(ON) | E---Auto Range | "0"(OFF) or "1"(ON) | F---Range | "0"~"4" (20~200k) | G---Zero-adjustment | "0"(No) or "1"(Yes) | H---Sensor connection | "0" (No) or "1"(Yes) | I---OUTPUT | "0"(OFF) or "1"(ON) | J--- reserved | "0" or "1" | K---reserved | "0" | L---reserved | "0" |
| A---APS               | "0"(OFF) or "1"(ON)   |         |                     |            |                     |               |                     |          |                     |                |                     |           |                   |                     |                     |                       |                      |            |                     |               |            |              |     |              |     |
| B---Buzzer            | "0"(OFF) or "1"(ON)   |         |                     |            |                     |               |                     |          |                     |                |                     |           |                   |                     |                     |                       |                      |            |                     |               |            |              |     |              |     |
| C---Backlight         | "0"(OFF) or "1"(ON)   |         |                     |            |                     |               |                     |          |                     |                |                     |           |                   |                     |                     |                       |                      |            |                     |               |            |              |     |              |     |
| D---HOLD              | "0"(OFF) or "1"(ON)   |         |                     |            |                     |               |                     |          |                     |                |                     |           |                   |                     |                     |                       |                      |            |                     |               |            |              |     |              |     |
| E---Auto Range        | "0"(OFF) or "1"(ON)   |         |                     |            |                     |               |                     |          |                     |                |                     |           |                   |                     |                     |                       |                      |            |                     |               |            |              |     |              |     |
| F---Range             | "0"~"4" (20~200k)   |         |                     |            |                     |               |                     |          |                     |                |                     |           |                   |                     |                     |                       |                      |            |                     |               |            |              |     |              |     |
| G---Zero-adjustment   | "0"(No) or "1"(Yes)   |         |                     |            |                     |               |                     |          |                     |                |                     |           |                   |                     |                     |                       |                      |            |                     |               |            |              |     |              |     |
| H---Sensor connection | "0" (No) or "1"(Yes)  |         |                     |            |                     |               |                     |          |                     |                |                     |           |                   |                     |                     |                       |                      |            |                     |               |            |              |     |              |     |
| I---OUTPUT            | "0"(OFF) or "1"(ON)   |         |                     |            |                     |               |                     |          |                     |                |                     |           |                   |                     |                     |                       |                      |            |                     |               |            |              |     |              |     |
| J--- reserved         | "0" or "1"  |         |                     |            |                     |               |                     |          |                     |                |                     |           |                   |                     |                     |                       |                      |            |                     |               |            |              |     |              |     |
| K---reserved          | "0"   |         |                     |            |                     |               |                     |          |                     |                |                     |           |                   |                     |                     |                       |                      |            |                     |               |            |              |     |              |     |
| L---reserved          | "0"   |         |                     |            |                     |               |                     |          |                     |                |                     |           |                   |                     |                     |                       |                      |            |                     |               |            |              |     |              |     |

## 5.2. Count value of abnormal data

Response of measured value query return the values shown in Table.5 in the case of abnormal data.

Table.5

| Type of abnormal value | Count value |
|------------------------|-------------|
| Over Range value       | 1000000     |
| Invalid data           | 2000000     |