

Dear ONE TOUCH<sup>®</sup> Ultra Meter User:

Thank you for requesting additional information regarding your ONE TOUCH<sup>®</sup> Ultra Blood Glucose Monitoring Meter. We hope the following **ONE TOUCH<sup>®</sup> Ultra Meter RS-232 Communication Specification** is helpful to you.

Please note that this specification is not intended to be a substitute for a complete data management software product. We are providing this specification to you with the understanding that you are very familiar with computers and computer programming and will be able to use the information appropriately.

For your information, most standard communications packages are helpful in establishing meter to computer communications and performing meter data downloading. Additionally, commercial spreadsheet programs can be used for data analysis.

If you are interested in obtaining the LifeScan Interface Cable, please contact us. Within the U.S. please call the Data Management Professional Line at 1 800 382-7226, M-F, 8AM to 5PM, PST, or send us an e-mail at [CustomerService@LifeScan.com](mailto:CustomerService@LifeScan.com). In Canada please call our Customer Care Line at 1 800 663-5521. Outside of the U.S. and Canada, please contact your local country office for product availability information. A list of countries is available via the [Around The World](#) section of the LifeScan Web site.

Thank you for your interest in LifeScan products.

## ONE TOUCH® Ultra Meter RS-232 Communication Specification

The following information may be used when attempting to **upload** the ONE TOUCH® Ultra Meter memory to a computer while using a communications package and the LifeScan Interface Cable. The information may also be used to **erase** the ONE TOUCH® Ultra Meter's data log. For additional technical information, see the following pages, call our Data Management Professional Line at 1 800 382-7226, M-F, 8AM-5PM, PST, or send us an e-mail at [CustomerService@LifeScan.com](mailto:CustomerService@LifeScan.com).

### **EQUIPMENT NEEDED**

- Meter:** ONE TOUCH® Ultra
- Cable:** LifeScan Interface Cable
- Computer:** IBM®, IBM compatible or Macintosh®
- Adapter:** IBM or compatible: A 25-pin to 9-pin adapter if serial/com port is a 9-pin  
Macintosh: Hayes Modem cable or equivalent
- Software:** A communications software package

### **PROCEDURE**

- Cable:** Connect LifeScan Interface cable to an available serial/com port on the computer. Insert the LifeScan Interface cable plug into the ONE TOUCH® Ultra data port that is located at the bottom of the meter.
- Software:** Select port settings in communications software:
- |                      |                            |
|----------------------|----------------------------|
| Baud Rate = 9600 bps | Data Bits = 8              |
| Stop Bits = 1        | Parity = none              |
| Flow Control = None  | Com Port = port # utilized |

Initiate the terminal screen of your communications software package. Leave the meter powered off. The computer screen will be blank until several seconds after you enter a command.

Set the Caps lock to "ON" on your keyboard and type a "DM?" command to wake up the Meter. The Meter should display "PC". The Meter is now ready to communicate with your computer. You may now issue the following commands to upload and erase the results stored in the Meter's memory.

- To **upload** data, type "**DMP**" - uploads results stored in the Meter's memory.
- To **erase** the data, type "**DMZ**" - erases results stored in the Meter's memory.

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## RS-232 COMMUNICATION

The ONE TOUCH® Ultra Meter supports asynchronous, RS-232 communications via the data port at 9600 baud only. Data are transferred as 8-bit characters with no parity and one stop bit. Communication is via three-wire (RS-232 designations of BA, BB, AB) cable.

## RS-232 COMMAND SUMMARY

- DM? - send the Meter's software version and date
- DM@ - send the Meter's serial number
- DMF - send date and time from the Meter's clock
- DMP - upload blood and control records from the Meter's memory
- DMSU'x' - Set or display the glucose Units
- DMST'x' - Set or display the Time format (AM/PM or 24hr)
- DMTmm/dd/yy hh:mm[:ss] - set the date and Time of the Meter's clock
- DMZ - Zero the Meter's data log

## RS-232 "DM" COMMANDS

Serial commands and responses are encoded as ASCII characters. A checksum is generated for all messages and the hexadecimal representation of the least significant 16 bits of the checksum (a blank followed by 4 characters) is placed at the end of each response message, just before the carriage return (<CR>), line feed (<LF>) pair.

Commands are handled in the order they are received. They must be sent to the meter in upper case only. Note that brackets (“ [ ]”) denote optional parameters and are NOT part of the actual command. The ‘DM’ prefix is not echoed by the meter. The meter will respond to only one ‘DM’ command at a time. If more than one command is sent, the meter will respond only to the first command sent.

**After typing a command in capitals, please wait a few moments as the computer sends the command to the meter. The meter will momentarily power itself on and transmit the data. Once the data download is complete, the meter will power itself off. It may take the meter several seconds to respond. Please wait at least 20 seconds before entering another command. If the meter does not respond to a command after 20 seconds, re-send the command.**

<i>Command</i>	<i>Action / Response</i>
DM?	Returns the software version number and creation date, where “x” is the calibration data block format code (“M” for example), “nn.nn.nn” is the software version number (“71.00.00” for example), and “mm/dd/yy” is the software creation date. The month, day, and year portion of the date will be blank.  ?xnn.nn.nn mm/dd/yy cksm<CR><LF>

<b>Command</b>	<b>Action / Response</b>
DM@	Returns the meter's unique serial number. This command is intended to be used to identify the meter connected to an external device's serial port.  @ "XXXXXXXXXT" cksm<CR><LF>
DMF	Returns the current date and time from the meter's clock.  F "dow", "mm/dd/yy", "hh:mm:ss" cksm<CR><LF>  "dow" ("day-of-week") = SUN, MON, TUE, WED, THU, FRI, or SAT.
DMP	Transfers the blood and control solution records from the meter's memory in ASCII text format. A header is sent first, which contains information about the format of the data and how many records will follow. Each datalog record is transmitted next. Leading zeros are not suppressed.  <u>HEADER</u> P nnn, " MeterSN ", "MG/DL " (1)           (2)           (3) (1) Number of datalog records to follow (0 – 150) (2) Meter serial number (9 characters) (3) Unit of measure for glucose values  <u>EACH DATALOG RECORD</u> P "dow", "mm/dd/yy", "hh:mm:30", "xxxxx", n cksm<CR><LF> (4)           (5)           (6)           (7) (4) Day of week (SUN, MON, TUE, WED, THU, FRI, SAT) (5) Date of reading (6) Time of reading (If two or more readings were taken within the same minute, they will be separated by 8 second intervals) (7) Result format: " nnn "                           - blood test result (mg/dL) " HIGH "                         - blood test result >600 mg/dL "C nnn "                         - control solution test result (mg/dL) "CHIGH "                         - control solution test result >600 mg/dL
DMSUx	Set and/or return the glucose Units setting on the meter display.  SU0, "MG/DL" 02BB<CR><LF>           - select mg/dL, return new setting SU1, "MMOL/L" 02F9<CR><LF>         - select mmol/L, return new setting SU+, "xxxxxx" cksm<CR><LF>         - toggle, return new setting SU?, "xxxxxx" cksm<CR><LF>         - return current setting
DMSTx	Set and/or return the time format setting on the meter display (does not affect serial communications).  ST0, "AM/PM" 02C1<CR><LF>           - select AM/PM format, return new setting ST1, "24:00" 0268<CR><LF>         - select 24-hour format, return new setting ST+, "xxxxxx" cksm<CR><LF>         - toggle, return new setting ST?, "xxxxxx" cksm<CR><LF>         - return current setting

Command	Action / Response
DMTmm/dd/yy hh:mm[:ss] <CR>	Sets the meter clock with the specified date (entered in M-D-Y format) and time (entered in 24 hour format). Seconds are always set to zero. Returns the new meter clock date and time after the clock has been successfully set, or returns "T 0054" if the date and/or time specified was invalid. The date must be specified as "month-day-year", and the separator as a slash ("/"). "dow" ("day-of-week") =SUN, MON, TUE, WED, THU, FRI, SAT.  T "dow", "mm/dd/yy", "hh:mm:ss" " cksm<CR><LF> for (M-D-Y, 24:00) T 0054<CR><LF> - specified date and/or time invalid
DMZ	Zeros the meter's datalog.  Z 005A<CR><LF>

## CABLING

We recommend using the Interface Cable from LifeScan. These cables can be used to connect a ONE TOUCH<sup>®</sup> Ultra Meter to the serial port (communication port) of an IBM<sup>®</sup>, or compatible, personal computer. The LifeScan Interface Cable may be adapted for use with a Macintosh<sup>®</sup> computer by using a Hayes Modem, or equivalent, cable which will interface the DB-25 connector to the Macintosh communication port.

For cable availability, please contact us. In the U.S., please call the LifeScan Data Management Line at 1 800 382-7226, M-F, 8AM-5PM, PST, or send us an e-mail at [CustomerService@LifeScan.com](mailto:CustomerService@LifeScan.com). In Canada, please call our Customer Care Line at 1 800 663-5521. For cable availability outside of the U.S. and Canada, please contact your local country office. A list of countries is available via the [Around The World](#) section of the LifeScan Web site.

LifeScan Interface Cable Pin-out:

<u>DB-25 pin</u>	<u>RS-232 Signal</u>	<u>Description</u>
2	TXD	transmitted data from computer to Meter
3	RXD	received data from Meter to computer
4	RTS	request to send from computer
6	DSR	data set ready to computer (connected to DTR)
7	GND	signal ground
20	DTR	data terminal ready from computer

The following conditions must be met to enable the LifeScan Interface Cable to work with the ONE TOUCH<sup>®</sup> Ultra Meter:

1. The computer must assert (apply a positive RS-232 voltage to) RTS and/or DTR. Either or both of these signals supply power to the cable circuitry.
2. The computer may leave RTS "open" but may not drive it to a negative RS-232 level.
3. The computer communications port must be set to 9600 baud, 8 data bits, no parity, and one stop bit.