

INSTRUCTIONS

NTDataOne
Version 3.4.0

NTDataOne

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PROBEWELL

Introduction

NTDataOne software allows the uploading of the stored test results from the remote to a PC as a text file CSV (comma separated value). Then the test results can be viewed with data management software such as Microsoft® Excel, Microsoft® Access or others. The file can also be viewed through a simple text editor file such as Microsoft® Wordpad. See Appendix A for a description of all the fields contained in the CSV file.

NTDataOne software contains a Remote Manager used to configure all the fields, test parameters and data logging questions to be used and stored in the remote.

NTDataOne requires Probewell's USB device to connect the remote to a PC. The USB device also offers the following features: Auto-launch of software when the remote is connected, no AC adapter required and sending/receiving LED indicators.

NTDataOne Software Installation

The NTDataOne software must be installed in **two steps** as described below. The first step consists in installing the USB driver and the second step, the NTDataOne software. Before starting installation, all running applications on your PC should be closed. **Note:** The USB driver must be installed first.

Please follow the instructions below according to the USB and/or version of Windows in your PC. NTDataOne software is compatible for both 32-bit or 64-bit.

First Step: USB Driver Installation

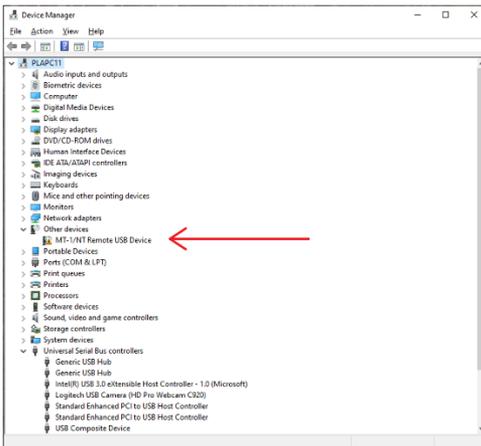
This driver is supported by Windows 7, Windows 8, Windows 8.1, Windows 10 and Windows 11.

This procedure is to be used with USB Device PW-9110.

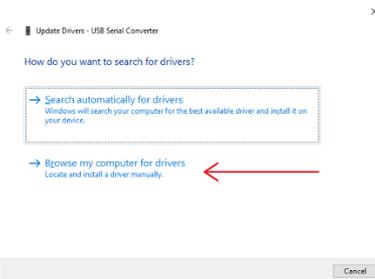
1. An **internet connection is required** for the installation of this driver.
2. Connect the USB device PW-9110 to a USB port on your computer.
3. Once the driver installation completed, install the software. (see "Second step: NTData One Software installation" section, page 4)

USB Driver installation when Windows is unable to do it automatically.

1. Download the USB driver from this website
<https://ftdichip.com/drivers/d2xx-drivers/>.
2. In your downloads folder extract the file by right clicking it and selecting Extract all. If you are using a third-party zip extractor, use it accordingly.
3. Click on the magnifier in your task bar and type Device Manager.
4. Popup screen will show and in other devices you will see MT-1/NT Remote USB device



5. Right click on it and select Update driver
6. Then another popup will be displayed, select Browse my computer for drivers



7. It will pop an Explorer window and select the folder CDM v2.xx.xx.x WHQL Certified. (the xx are for the version being used at the moment).
8. Click OK and then Next.
9. Once finished it will indicate that driver is installed, just click Closed.
10. The computer may require you to reboot at this point. Do so and the driver installation will be complete.

Second Step: NTDataOne Software Installation

1. Locate and open the directory containing the Setup.exe file (USB drive or download folder if downloaded from our website).
2. Double click on Setup.exe and this will open the installer.
3. Follow the instructions to the end to complete the NTDataOne software installation.
4. Once finished close the installer.
5. Click on the start button and select NTDataOne to open the program.

Note: The NTDataOne software will be added to your START folder, it will remain on standby and will automatically launch whenever a handheld remote is connected to the computer. A popup for NTDataOne will be displayed for download (See the NT icon in the system tray).

Connecting the Remote Control to a PC

The Probewell MT-1/NT Data Logging kit uses USB serial communication to transfer information from the remote to the PC.

To enable communication, simply connect the USB device to a USB port on your PC and the RJ-12 connector from the remote to the RJ-12 port on USB Device. The NTDataOne software will detect the communication link and start the Remote Download window automatically. To confirm successful communication has been established between the remote and the PC, blinking LEDs have been installed on the USB Device. For diagnostics purposes, 2 colors are being used:

Red: PC is sending information *to* the remote.

Green: PC is receiving information *from* the remote.

NTDataOne Remote Download

This window pops up automatically when the USB connection is successful or double-click on the *NT* icon on the system tray.

The "NTDataOne Remote Download" window allows the transfer of the information stored in the remote to a PC as a .CSV (Comma Separated Value) file.

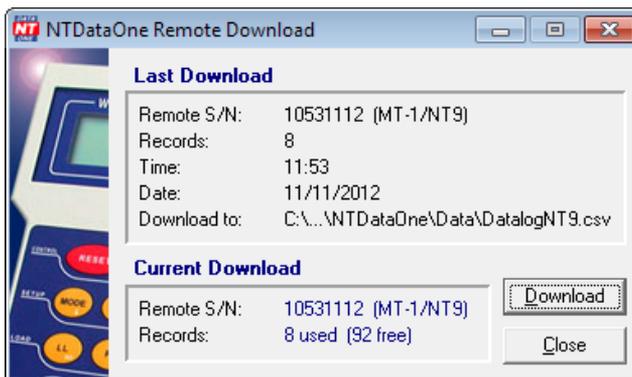


Fig. 1

To start downloading test results from the remote to the PC, simply click on the Download button. The operator must confirm or change the pathname and file name of the destination file.

A progression window will appear to confirm the download process. Once the download is complete, a window will appear asking the operator if he would like to delete the test results stored in the remote:

YES: All records in the remote will be deleted.

NO: Test results in remote will remain intact and all subsequent tests will be added to the end of the existing file.

The Remote Download window is separated into 2 distinct sections:

Last Download

Shows details of the last successful test results downloaded:

- Remote serial # from which test results was downloaded.
- Number of records downloaded.
- Time and date of download (as stored in remote).
- Location and name of destination file.

Current Download

Shows the status of the memory in the remote (number of files used and free memory space).

This section also indicates the status of the communication link. Two status messages can be displayed:

- Auto Detect: Indicates that the USB Device is connected to the PC, and recognized, but that the remote's RJ-12 connector has not been inserted or recognized.
- USB Device Error: Indicates that the USB Device is either not connected to the PC or not recognized.

NTDataOne Download Properties (Password Protected)

This window is manually started by right-clicking on the *NT* icon in the system tray, and selecting Download Properties. Password by default is "admin" without the quotation marks.

It is used to configure all the fields that pertain to the transfer of information between the remote and the PC. All configurations are stored on the PC under the file name: "NtConfig.ini" which can then be copied on any other PC needing to use these configurations. Modifications are automatically updated using the Save button.

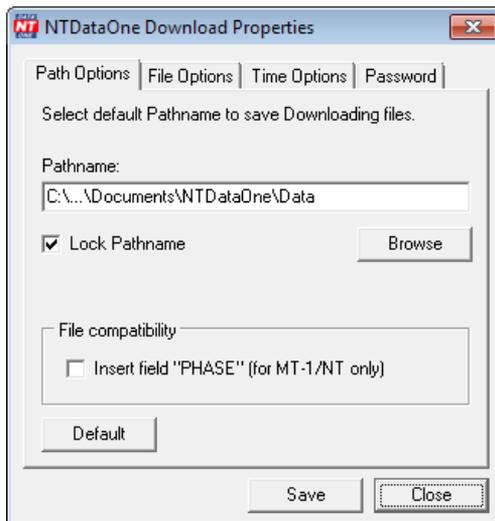


Fig. 2

Path Options Default pathname is: C:\...\Documents\NTDataOne\Data. The administrator can select the Lock Pathname option to prevent the operator in the field from changing the pathname of the destination file. The Default button will restore factory pathname.

Insert Field "PHASE" Inserting an extra field called "PHASE" when downloading the results from MT-1/NT so that the format remains the same.

File Options There are 6 distinct filenames by default: For the MT-1/NT we use "Datalog", for the MT-1/NT3 "DatalogNT3", for the MT-1/NT4 "DatalogNT4", for the MT-1/NT7 "DatalogNT7", for the MT-1/NT9 "DatalogNT9" and for the universal handheld controller "DatalogNTU" with .CSV extension. The default file name can be renamed.

In this section, the user can also define the action to take when saving in an **existing file** from the handheld controller with the NTDataOne Remote Download window. There are 3 choices available:

Cancel only: The operator will need to enter a new file name. There will be no possibility to overwrite or append.

Overwrite: The operator can overwrite an existing file or cancel to enter a new file name.

Append: The operator can append the new data to an existing file or cancel to enter a new name.

NOTE: In the case of the **Append** function, both the new and existing data will be compared. The append function will only be allowed if both headers are identical. The new data will be added to the end of the existing file **without** duplicating a second header for the newer data. If they are different, the operator will have to choose a new file name.

The Default button will restore the factory default file name and file exist settings.

Time Options The remote's internal clock can synchronize itself to the PC's internal clock. When this function is enabled, the operator will be asked if he would like to set the remote's clock, if a difference of more than 5 minutes is detected between the Remote and the PC. Clock deviation can be set from 1 to 60 minutes.

Password This section is used to change the current password. Passwords are not case sensitive and must be made up of at least 4 characters. Password by default is "admin" without the quotation marks.

NTDataOne Remote Manager (Password Protected)

Right-click on the *NT* icon in the system tray and select **Remote Manager**.

Then select the proper session. The window shown below will appear. This is used to configure all the fields, tests and data logging questions to be used and stored in the Remote.

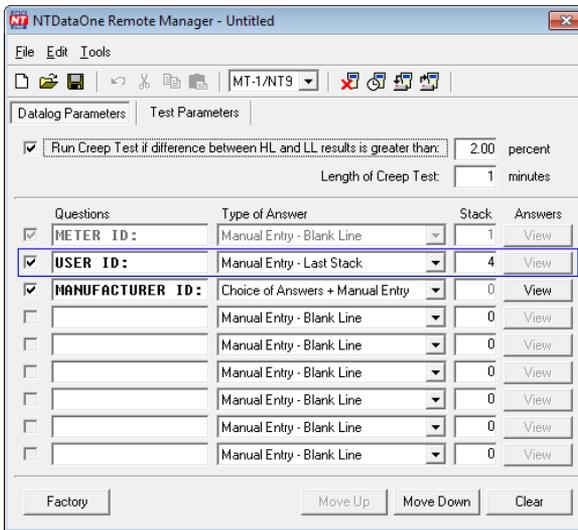


Fig. 3

Datalog Parameters

This section is used to configure all the different parameters and questions to be used by the MT-1/NT, MT-1/NT3, MT-1/NT4, MT-1/NT7, MT-1/NT9 or MT-1/NTU in the Data Logging section.

Run Creep Test

When enabled, a creep test will be suggested to the operator when the difference between the HL and LL test results is greater than the determined value. The time of the creep test can be also set.

Data Logging Questions

This section is used to configure the different questions the operator will have to answer in the field. Questions or answers cannot contain commas, quotation marks or backslashes. PC's keyboard will be locked for these characters.

The first question is the METER ID: This question cannot be deleted or modified. The answer format will always be a manual entry with a blank line as first screen and a stack (see below) of only 1 answer.

A question line will automatically be activated once typing has started within the line. A line can be deactivated by either unchecking the corresponding box or by selecting the line and hitting the clear button to delete the entire line.

A blank line or an unselected line between 2 active questions will not affect the active question sequence in the remote. Only the lines with checked boxes are considered active.

QUESTIONS:

Type questions as they are to appear on the remote. (Maximum 15 characters). To modify the sequence of questions, simply select a line and use the **Move Up** or **Move Down** buttons to replace it in its desired location.

TYPE OF ANSWER:

Select the answer format to be offered to the operator in the remote. There are 4 formats available:

1. **Manual Entry–Blank Line:** In this format, the operator will be shown a blank line to manually enter his answer. A stack of previous answers may or may not be available.
2. **Manual Entry–Last Stack:** Unlike the previous format, the operator will be shown the last previously entered answer first instead of a blank line. If the displayed answer is still correct, the operator has only to hit enter to confirm his choice. On the other hand, if the answer is incorrect, the operator can browse up or down to view more previous answers (maximum of 8) or select a blank line to enter a new answer.

3. Choice of Answers: In this format, the operator must choose one of the pre-programmed set of answers (maximum of 8).
4. Choice of Answers + Manual Entry: This format is exactly like the previous one plus a blank line is available to enter an answer not found in the list.

STACK:

The Stack option will allow the operator to view the last entered answers in memory. Stack length can vary from 0 (blank line only – no stack) to 8 (blank line and 8 previous answers).

ANSWERS:

Selecting a Type of Answer that contains a choice of answers will enable the View button at the end of the corresponding line. Click on the View button to access the answer window. Each line corresponds to an answer for the operator to choose from (maximum 8 answers of 15 characters). *In the case where Choice of Answer + Manual Entry is selected in the Answer Format, do not leave a blank line to account for the manual entry.* To modify the sequence of answers, simply select a line and use the Move up or Move down buttons to place it in its desired location.

The Factory button will clear all questions and reset the Creep Test to be enabled with values of 2% and 1 minute.

Test Parameters

This section covers all the test parameters and configurations used with Probewell testers.

Kh

Kh Table For MT-1/NT you can enter up to 12 different Kh values and 18 for MT-1/NT3, MT-1/NT4, MT-1/NT7, MT-1/NT9 and MT-1/NTU. These values will be used to manually change the Kh setting in the remote before a test is executed, or to set default values for each meter form.

The Kh value of 7.20000 can never be deleted or modified.

Kh by default Assigns a default Kh value for each different form of electro-mechanical meters for the MT-1/NT. To make your selection, simply click on the field you would like to modify and select the desired Kh in the scroll down window (values found are those set in the previous Kh Table).

For the MT-1/NT3, MT-1/NT4, MT-1/NT7, MT-1/NT9 and MT-1/NTU, this function is used only in Manual Mode since the value of the Kh is auto-detected when used with either sensors.

The Factory button will restore all factory default settings for the Kh section only.

Rev

Rev Table 10 different revolution values can be entered. These values will be used to manually change the Rev setting in the remote before a test is executed, or to set default values for both Manual and Preset modes (see below).

The 10 Rev value can never be deleted or modified.

Rev by Default Defines the default number of revolutions to be run during a test in either Manual, Tracking or User-Defined modes. This applies to the MT-1/NT for both electro-mechanical and electronic meters and to the MT-1/NT3 MT-1/NT4 MT-1/NT7, MT-1/NT9 or MT-1/NTU for electro-mechanical meters only.

Rev by Default for Preset Mode Defines the default number of revolutions to be run during each of the HL, PF and LL tests. If PF is set to 0, the test will be skipped.

Also defines the weighted error ratio for single-phase meters including 12S. With a ratio of 4:1, the formula is $(4HL+1LL)/5$. However, for 3-phase meters, the ratio is computed using a set formula of $(4HL+2LL+PF)/7$ or $(4HL+PF)/5$ if LL is disabled in Preset-full mode.

The Factory button will restore all factory default settings for the Rev section only.

Load

Percentage of TA Determines what % of the meter's TA will be used as a load for each of the HL, PF and LL tests.

The Factory button will restore all factory default settings for the Load section only.

Misc.

Mode by Default	Determines which mode will be activated at startup. For the MT-1/NT3, MT-1/NT4, MT-1/NT7, MT-1/NT9 and MT-1/NTU, two choices are available in the Preset Mode: Quick or Full.
Display Report Format	Determines the format of the error percentages to be displayed first at the end of a meter test in all modes. The alternate display method is always available by hitting the mode key once the first set of test results are displayed.
Last Revolution at LL (MT-1/NT only)	For Tracking mode only, determines if the last revolution of a HL or PF test should be run at LL load to accurately stop the test at the correct flag position.
Enable Data Logging	When box is checked, all data logging options will be enabled in remote. Remotes can be programmed with all logging questions and parameters but have the logging process turned off until needed.
Remote Language	Determines the language to appear on the display of the remote in both test and data logging sections. The Factory button will restore all factory default settings for the Misc. section only.
Warning	By default, the warning message is disabled when the test results are over a predetermined percentage. The available percentages are 1%, 1.5%, 2%, 5% and 10%. The operator can decide to redo the test or not.
Minimum Length per Test Point	The minimum length of time assigned for each test point. The duration can be longer than the set length depending on the speed of the pulses but never shorter. Note: Not available for the MT-1/NT.
Disable LL	Skips LL load during individual phase test in Preset-full mode only.
Enable KYZ	Enables KYZ test mode. This feature is only available for the and MT-1/NT9.
Enable VARh Test	Enables VARh test mode. This is available only for MT-1/NT9.

Enable FITZALL	Enables the testing of GE FITZALL meters. This is only available on MT-1/NT9.
Enable Sensus	To enable a warning when testing 3S or 4S meter, asking you if it is a Sensus meter.
AutoSave Mode	To enable AutoSave after the completion of a meter test. When enabled, it will go directly to the save page after 0, 1, 2, 5, or 10 seconds. This function is only available when datalogging is enabled.

Main Menu Toolbar

FILE

- New Opens a new Remote Manager file with all factory default settings. The file name of the configurations file displayed in the software window will be shown as Untitled in the title bar of the active software window.
- Open Opens a previously saved Remote Manager file. The file name of the configurations file will be displayed in the title bar of the active software window. Configuration file has an .ntr, .nt3, .nt4, nt7, .nt9. or .ntu extension.
- Save Saves the configurations file displayed in the software window under the same file name as when originally opened.
- Save as Saves the configurations file displayed in the software window under a new file name.
- Load from Remote Loads the current configurations of the remote currently connected to the PC through the USB port. File name shown in the software window's title bar will appear as Untitled.
- Transfer to Remote Sends the currently displayed configurations to the remote connected through the USB port.
- Get Calibration Report Opens a window with the calibration data you can either analyze, copy or save to a CSV file.

Edit

- Restore All Factory Settings Resets all configurations of the active window in all fields.

Tools

- Delete Remote Records Manually deletes all test records stored in the remote connected through the USB port.
- Synchronize Remote Time/Date Manually synchronizes the internal clock of the remote that is connected to the USB port of the PC.

Remote Firmware Update Allows the update of the firmware version of the remote.

Probewell improves its firmware to allow our testers to work better with the newest meters which offer disconnect features such as the Itron OpenWay Centron or the Elster Rex2-EA. With this tool, you plug in the remote to be reprogrammed through the USB device, select the filename corresponding to the part number found on the backside of the remote and press Upload.

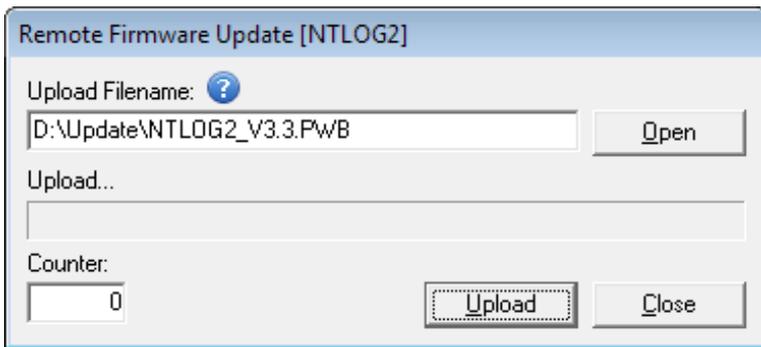


Fig. 4

Managing Your Data

To use your data file in Microsoft® EXCEL, simply open the data file you saved on your PC. You can automatically set column width to your Comma Separated Value file by clicking the FORMAT button at the top of EXCEL, then select COLUMN and AUTOFIT SELECTION. All the columns will then have the proper width for each separate field.

Typical Table of Results as Shown in Excel

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	TEST#	REC#	DATE/TIME	REMOTE#	SOCKET#	FORM PHASE	TA	KHz	MODE	SENSOR PULSE	METER ID	%HL	%LL	%WT	%PF
2	1	R00012	11/11/2012 11:46	10531112	10531112	9S ABC	2.5	1.8	PRESET	PULSE	28915286	99.94	99.94	99.95	99.99
3	2	R00013	11/11/2012 11:46	10531112	10531112	9S A	2.5	1.8	PRESET	PULSE	28915286	99.94	99.94	99.95	100.01
4	3	R00014	11/11/2012 11:46	10531112	10531112	9S B	2.5	1.8	PRESET	PULSE	28915286	99.94	99.94	99.94	99.97
5	4	R00015	11/11/2012 11:46	10531112	10531112	9S C	2.5	1.8	PRESET	PULSE	28915286	99.94	99.94	99.95	100.01
6	5	R00016	11/11/2012 11:52	10531112	10531112	16S ABC	30	1	PRESET	PULSE	43860577	100	99.99	99.99	99.95
7	6	R00017	11/11/2012 11:52	10531112	10531112	16S A	30	1	PRESET	PULSE	43860577	100.01	100	99.98	100
8	7	R00018	11/11/2012 11:52	10531112	10531112	16S B	30	1	PRESET	PULSE	43860577	100.02	100.01	99.98	100.01
9	8	R00019	11/11/2012 11:52	10531112	10531112	16S C	30	1	PRESET	PULSE	43860577	100.03	100.01	99.94	100.01
10															
11															
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22															

Appendix A

Description and Order of Parameters

The following describes all the different data fields contained in the .CSV (Comma Separated Value) file generated by the Probewell data logging option.

1- TEST#	This test # is given to each subsequent test conducted in the field. The unit can store up to 100 tests. Once the tests have been uploaded into your PC and deleted from the remote, the test # restarts at 1.
2- REC#	This is a permanent record number, with the prefix R, and cannot be modified or deleted (already stored in remote). This number is incremented at each new logged test. It starts at R00001 and increments by 1 up to R99999 then restarts at R00001.
3- DATE/TIME	Stamp date and time of the test.
4- REMOTE#	Remote Serial Number (already stored in remote).
5- SOCKET#	Socket Serial Number (already stored in socket).
6- FORM	Meter forms can be 1S, 2S, 3S, 4S, 5S, 6S, 8S, 9S, 12S, 14S, 15S, 16S or 45S.
7- PHASE	Phases of meter under test.
8- TA	Testing Amperage of meter tested.
9- Kh	Kh of meter tested.
10- MODE	Mode in which test was conducted. Result can be: PRESET, USER, PRESET_R, USER_R or PRESET_VARh.
11- SENSOR	Indicates what type of sensor was used during test. Result can be PULSE or CAM.
12- METER ID:	Tested meter's serial number as entered by technician in the field.
13- %HL	Result of HL test in registration percentage.
14- %LL	Result of LL test in registration percentage.
15- %WT	Weighted average in registration percentage.
16- %PF	Result of PF test in registration percentage

- 17- CREEP Status and result of creep test. There are 4 possible answers:
- a) N/A This will be returned when the %HL and %LL error difference falls within the acceptable error margin and no creep test needs to be run.
 - b) SKIP This will be returned when the %HL and %LL error difference is outside the acceptable error margin, but the technician decided not to run a creep test.
 - c) YES This will be returned when the %HL and %LL error difference is outside the acceptable error margin; a creep test has been run and the technician answers YES to the question: Does the meter creep?
 - d) NO This will be returned when the %HL and %LL error difference is outside the acceptable error margin; a creep test has been run and the technician answers NO to the question: Does the meter creep?
- 18-25 [] 8 programmable questions. Each programmable question will be transferred between brackets []. Answers will be transferred without brackets.
- 26- RevHL Revolutions or pulses accumulated during HL test.
- 27- RevLL Revolutions or pulses accumulated during LL test.
- 28- RevPF Revolutions or pulses accumulated during PF test.
- 29- RatioWT Weighted error ratio as defined in configuration.
- 30- AmpHL Load in amps applied during HL test.
- 31- AmpLL Load in amps applied during LL test.
- 32- AmpPF Load in amps applied during PF test.
- 33- WhHL Watthours recorded during HL test.
- 34- WhLL Watthours recorded during LL test.
- 35- WhPF Watthours recorded during PF test.
- 36- VOLT Line voltage recorded at end of all tests.
- 37- FREQ Line Frequency recorded at end of all tests.

The following information describes in detail all the fields and formats of the .CSV file transferred from the Remote. If for any reason, you should require additional information or details, feel free to contact us directly.

Field	Format	Minimum	Maximum	Comment
TEST#	##0	1	100	
REC#	R00000	R00001	R99999	24-hour clock
DATE/TIME	mm/dd/yyyy hh:mm	01/01/1970 00:00		
REMOTE#	00000000	00000000	99999999	
SOCKET#	00000000	00000000	99999999	
FORM	1S 2S 3S 4S 5S 6S 8S 9S 12S 14S 15S 16S			
PHASE	A B C A+C ABC			
TA	2.5 5 15 30 50			
Kh	#0.00000	0.00001	50.00000	
MODE	USER PRESET USER_R PRESET_R PRESET_VARh			
SENSOR	CAM PULSE			
METER ID:	String			Up to 15 Alphanumerical
%HL	empty ##0.00	0.00	199.99	See note
%LL	empty ##0.00	0.00	199.99	See note
%WT	empty ##0.00	0.00	199.99	See note
%PF	empty ##0.00	0.00	199.99	See note
CREEP	N/A SKIP YES NO			
[QUESTION1-8]	[String]			[] + Up to 16 alphanumerical
Answers	String			up to 15 Alphanumerical, no []

Field	Format	Minimum	Maximum	Comment
RevHL	empty #0	0	99	
RevLL	empty #0	0	99	
RevPF	empty #0	0	99	
RatioWT	empty #0	0	99	
AmpHL	empty #0.00	0.25	50.00	
AmpLL	empty #0.00	0.25	50.00	
AmpPF	empty #0.00	0.25	50.00	
WhHL	empty ###0.00000			
WhLL	empty ###0.00000			
WhPF	empty ###0.00000			
VOLT	##0.00			
FREQ	#0.00			

NOTE: String fields will never contain commas, quotation marks or backslashes.

In the previous format table, “empty” means that no data will be sent in fields where it does not apply (Example: If no test was run at PF, the Rev field will be empty instead of showing 0).

All % test results are expressed in registration mode (Ex. 98.85%, never -1.15%).

If an operation error occurs and the % test result is greater than 199.99, the remote will return a value of 999.99 to indicate an error has occurred.



We believe that field testers should be easy to use, portable and safe.

Creating value for utilities by bringing flexibility and efficiency.

Through our expertise and continuous innovation, we develop cutting edge field testing technologies that delivers a premier solution for utilities when it comes to quality, ease of use, sturdiness and customer satisfaction.

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