

VR18 FAQs - Frequently Asked Questions

- Q1: What is the maximum scale low and scale high values we can set in the recorder for the analog inputs and outputs?**
- Q2: What is the maximum distance between PC and Recorder for Ethernet communication?**
- Q3: What is the maximum distance if PC is accessing data from recorder on wireless network through Ethernet protocol?**
- Q4: Is there any battery available inside the recorder, which needs to be changed frequently?**
- Q5: What is the accuracy of Real Time Clock in the recorder?**
- Q6: What kind of security is available in recorder?**
- Q7: What is Boot Rom? Anything related to Math option? Is it possible to upgrade it into new version via internet or CF card?**
- Q8: How are the VR18 recorder firmware & PC Observer software upgraded to latest version?**
- Q9: Are there other considerations prior to updating recorder firmware to most recent version?**
- Q10: What are the differences between Observer I & Observer II PC software?**
- Q11: How many AI, AO, DI, DO cards, and 24VDC auxiliary power card can be inserted into the recorder?**
- Q12: What are those larger capacities of compact flash cards supported by the recorder and recommended manufacturer?**
- Q13: What is the product warranty period of time? How does the user handle the defective recorder?**
- Q14: What is the procedure to transfer data from the internal memory to CF card after the internal memory is full?**
- Q15: Is Alarm banner available in the recorder along with customized message display?**
- Q16: How many analog and math channels available and is it possible to retransmit these channels?**

- Q17 Is the recorder supplied with OPC server?**
- Q18: Which protocols and hardware interface recorder supports?**
- Q19: How many recorders can be connected in a network?**
- Q20: How many recorders can be viewed in the Real-time Viewer of PC software Observer II?**
- Q21: Once the user forgot the password, is there a common password? If not, how to reset recorder to the factory settings?**
- Q22: To change the analog input using Observer I or II software, what is the next step after changing the dip switches and jumpers on the analog input card?**
- Q23: Which type of Ethernet cable should be used to connect with the recorder?**
- Q24: How many days the data can be stored in CF card?**
- Q25: Is it possible to display all the selected channels in one page on recorder?**
- Q26: Is it possible to print out the data in selected time from the recorder?**
- Q27: How many timers, counters and totalizers are available in a recorder?**
- Q28: Can I use digital inputs for the counting application?**
- Q29: When Observer II software, the user may see the following message, what is the next move?**
- Q30: How to write Observer data and configurations back up to CD's?**
- Q31: If I have some configuration problems, which files I have that to send to the supplier?**
- Q32: Does the recorder have an option to supply DC power supply to the transmitters?**
- Q33: I am trying to connect recorder on RS 232/RS422/RS485/Ethernet but I couldn't set up the communication properly.**
- Q34: When export data as .csv format to read in Excel what if the historical data is not appearing in spread sheet?**

Q35: I want to count pulses to measure power consumption in KWH. Each pulse is one KWH. Can I use Math application for this?

VR18 FAQs – Answers to Frequently Asked Questions

Q1: What is the maximum scale low and scale high values we can set in the recorder for the analog inputs and outputs?

A1: The minimum low scales of analog input are various -19999, - 1999.9, - 199.99, - 19.999, -1.9999, -0.19999 depending on the position of the decimal point

The maximum high scales of analog input are various 45536, 4553.6, 455.36, 45.536, 4.5536, and 0.45536 depending on the position of the decimal point

The minimum low scales of Math input are various -32768, -3276.8, -327.68, -32.768, -3.2768, -0.32768 depending on the position of the decimal point

The maximum high scales of Math input are various 32767, 3276.7, 327.67, 32.767, 3.2767, and 0.32767 depending on the position of the decimal point

Q2: What is the maximum distance between PC and Recorder for Ethernet communication?

A2: The distance is limited in 100 meters. If it is farer than that, then you can use Hub or networking bridge to strengthen the signal.

Q3: What is the maximum distance if PC is accessing data from recorder on wireless network through Ethernet protocol?

A3: Maximum distance should be within 30 meters. Also make sure that there are no obstacles/ HT cables between PC and recorder to avoid communication errors. Also Noise could effect the wireless communication at the factory floor.

Q4: Is there any battery available inside the recorder, which needs to be changed frequently?

A4: The lithium battery Toshiba CR2032 3.0V/220mAH can last for many years. It can be replaced by local sourcing if Real Time Clock is not working properly.

Q5: What is the accuracy of Real Time Clock in the recorder?

A5: The crystal oscillator used in recorder could have a lag time in a few seconds each week. Press Synchronization button in PC software Observer II to synchronize the time between PC and the recorder. The temperature inside the housing has an effect on accuracy of Real Time Clock of crystal oscillator.

<u>Temperature range</u>	<u>Time lag per month</u>
10 ~ 40 °C	18 seconds
0 or 50 °C	52 seconds
-10 or 60 °C	107 seconds

Q6: What kind of security is available in recorder?

A6: There are two kinds of security. The normal security offers a common password. The high security with FDA 21 CFR Part 11 features is available from version 2.2 on both recorder and PC software Observer. It supports maximum 30 users with different passwords. The administrator has the right to define supervisor and operators. The supervisor can change configuration, save and clear data but not operators. Operators can only view the historical data, events and status.

Q7: What is Boot Rom? Anything related to Math option? Is it possible to upgrade it into new version via internet or CF card?

A7: Boot ROM is a chip installed in the recorder containing system boot information. The Boot ROM BT181 is the base unit with no options. The Boot ROM BT182 has options of Math, Counter, Totalizer & FDA 21 CFR part 11 features. It is not possible to upgrade the Boot ROM via Internet or CF card. To add Math and/or High Security features the BT181 chip must be replaced with the BT182; these chips are socket mounted.

Q8: How are the VR18 recorder firmware & PC Observer software upgraded to latest version?

A8: If necessary, contact your supplier about the latest updates or visit our website <http://www.futuredesigncontrols.com>. Your supplier is able to supply the latest version of recorder firmware system and PC software on CD or via email or FTP (file transfer protocol). Follow the procedure to update the recorder firmware. Install the new version of Observer software; it will automatically uninstall the old one.

Q9: Are there other considerations prior to updating recorder firmware to most recent version?

A9: Any recorder firmware before V1.20 must first be updated to V1.20. Direct update to the latest version could damage the DOC. Once recorder has V1.20 it may be updated to the most current firmware. Note V1.20 began shipping approx. January 2004.

Q10: What are the differences between Observer I & Observer II PC software?

A10: Observer I is supplied as standard & Observer II is supplied at additional cost. Observer I is used for recorder configuration from PC and reading historical data in PC at set time period of 1 to 24 hours. Data is exchanged between recorder & PC via CF card. Observer II is used for real time data monitoring in PC via Ethernet or RS232/422/485 along with configuration and historical data view.

Q11: How many AI, AO, DI, DO cards, and 24VDC auxiliary power card can be inserted into the recorder?

A11: Maximum 6 cards in any combination can be inserted into rear Slots.

Q12: What are those larger capacities of compact flash cards supported by the recorder and recommended manufacturer?

A12: If the user prefers to use larger capacities CF card we usually recommend 256MB or 1GB. To be fully compatible, we only recommend one brand **SanDisk** CF card.

Q13: What is the product warranty period of time? How does the user handle the defective recorder?

A13: Warranty period is 24 months from ship date. Contact your supplier or Future Design Controls directly.

Q14: What is the procedure to transfer data from the internal memory to CF card after the internal memory is full?

A14: After 8MB internal memory is full, the earliest data and events will be saved into CF card in small batch automatically, details in **3.11 Small icons**.

Q15: Is Alarm banner available in the recorder along with customized message display?

A15: Alarm banner is unavailable for customized message display. The alarm banner appears after alarms or events occurred, or the internal memory or CF card is running shortage. A buzzer can be set to activate if any alarms/events arise.

Q16: How many analog and math channels available and is it possible to retransmit these channels?

A16: Maximum 18 analog inputs plus 18 math inputs are available in one recorder. It is possible to retransmit the analog and math channels by using 3-channel current output card AO183I or 3-channel voltage output card AO183V.

Q17 Is the recorder supplied with OPC server?

A17: The OPC server is not available in the VR18. However Observer II PC software does offer DDE solution to allow data transferred to other devices like PLC, SCADA etc. Please review a few examples in **5.5 DDE dynamic data exchange**.

Q18: Which protocols and hardware interface recorder supports?

A18: The protocol for RS-232, RS-422, RS-485 communication is Modbus RTU. For Ethernet communication, the protocol is TCP/IP.

Q19: How many recorders can be connected in a network?

A19: It depends on hardware interface selected. With Ethernet communication a maximum, 255 devices can be connected in the network with each device requiring a unique IP address. With RS 485 communication a maximum of 247 units can be connected in the network.

Q20: How many recorders can be viewed in the Real-time Viewer of PC software Observer II?

A20: Maximum 1024 tags can be viewed from the Real-time Viewer. These tags cover AI, Math, DI, DO, Counter and Totalizer, excluding AO. As an example if on average each recorder has 6 tags read, then the Real-time Viewer can view maximum of 170 recorders.

Q21: Once the user forgot the password, is there a common password? If not, how to reset recorder to the factory settings?

A21: There is no common "back door" or hidden password. If the password is lost the recorder must be reset to factory default settings using the RESET procedure. Press and hold the top left key with power off and turn on the power. Do not release it until you hear two "BI " sounds. Turn the power off and on again. All factory settings will be restored. Please note that after this procedure all project configuration data have been erased; the recorder will have to be re-configured.

Q22: To change the analog input using Observer I or II software, what is the next step after changing the dip switches and jumpers on the analog input card?

A22: Observer II connected to recorder via Ethernet or RS232/422/485; press the icon to receive configuration from the recorder to PC.
Observer I or II via CF card; first save new configuration on recorder since changing DIP-switch settings on input card to CF card. Then open configuration file from within Observer.
Modify the configuration as necessary and send the new configuration back to the recorder in the same fashion as it was read.

Q23: Which type of Ethernet cable should be used to connect with the recorder?

A23: Straight through cable should be used for the real network connection between HUB and recorder. Cross-through [patch cable] cable should be used for the non-real network connection such as between PC and recorder.

Q24: How many days the data can be stored in CF card?

A24: It depends on the number of channels, the log speed of channels, and the memory size of CF card. If the recorder is used with **6-channel inputs**, an easy chart to show the maximum days CF can store the data.

CF card memory size:	<u>32MB</u>	<u>256MB</u>	<u>1GB</u>
Log speed			
1 second	30 days	240 days	960 days
10 seconds	300 days	2400 days	9600 days
120 seconds	3600 days	28800 days	115200 days

Q25: Is it possible to display all the selected channels in one page on recorder?

A25: Yes, press **Page** key to get to **Page all** mode. Then, all selected channels in digits can be displayed in one page.

Q26: Is it possible to print out the data in selected time from the recorder?

A26: No, it is not possible to connect printer directly to the recorder. However it is possible to print out the data in selected times from the Observer software. Observer also supports exporting Historical & Event files in .csv format which when opened in Excel can be sorted and printed.

If any error appears when user attempts to print data, i.e. floating point error, the reason might be that data is not available for selected pens. Search by a specific time or by a period of time making sure that data is shown on the trend line. Select the pen correctly and proceed with the printing.

Q27: How many timers, counters and totalizers are available in a recorder?

A27: 6 counters, 6 timers and 18 totalizers are available in one recorder if the Math option was ordered.

Q28: Can I use digital inputs for the counting application?

A28: The sample rate of recorder is 200 msec and the quickest data log speed is 1 sec per data. It is possible to use digital input(s) as counter(s) if the duration between two pulses is more than 200 msec. Recorder will not detect pulses if the duration is less than 200 msec. Recorder can detect maximum 5 counts/sec or 300 counts/min or 18000 counts/hr. For applications pulse duration faster than 200 msec a third party converter is required (pulse to 4-20mA converter).

Q29: When Observer II software, the user may see the following message, what is the next move?



A29: Most likely the Observer software file was corrupted in the PC; possible reasons might be a virus or installation of new incompatible software with your operating system. The solution is to uninstall the old Observer software as per procedure given in section 1.4 of this software guide. Then, install the new Observer software from CD supplied. If the problem still can't be solved, then uninstall the old Observer software and create a back up for the historical and real-time folders under C:/Observer and remove Observer folder from C: Then install the new Observer software again.

Q30: How to write Observer data and configurations back up to CD's?

A30: Data will be available at .dat,idx files and .lst files at the path C:/Observer. The files will be available under historical and real-time folders. Configuration file name is Recorder.config. You can create a folder and save all historical and real time folders in to back up folder and then you can write this information to CD.

Q31: If I have some configuration problems, which files I have that to send to the supplier?

A31: Both Recorder.cfg and IO.dat files found in C:/Observer/Historical are required.

Q32: Does the recorder have an option to supply DC power supply to the transmitters?

A32: The AP181 transmitter module has 6 non-isolated 24VDC power supply terminals with a maximum of 30mA per channel. This power supply is electrically isolated from other I/O of the recorder and is installed in one of the six module slots on the back of the recorder.

Q33: I am trying to connect recorder on RS 232/RS422/RS485/Ethernet but I couldn't set up the communication properly.

A33: Please refer detailed information to **5.1 Observer I & Observer II PC software guide, 5.2 Ethernet Configuration & 5.3 RS 232, RS485, RS422 Configuration.**

Q34: When export data as .csv format to read in Excel what if the historical data is not appearing in spread sheet?

A34: Make sure that the selected pens are available at destination list. If they are available at source list, then move them to destination list, and then you can export data. Also make sure that data is available at the selected period or interval time, otherwise you may not see anything in the target Excel sheet.

Q35: I want to count pulses to measure power consumption in KWH. Each pulse is one KWH. Can I use Math application for this?

A35: Yes, use DI and configure Events of Channel as follows

Event Type = High, Job 1 = Increase Counter, Target = Counter 1

But please note that maximum value counter can store is 65535.

Note that if you have time period between pulses less than 200 msec, then you cannot use digital input at the recorder. A possible solution is to use an external converter for the application. The standard pulses to 4-20mA converters are available in the market where you can set pulse width and duration between pulses (frequency).