

PD9000 ConsoliDator+ Multivariable Controller

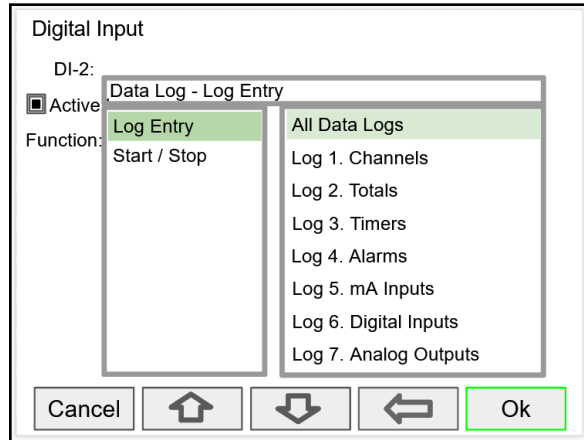
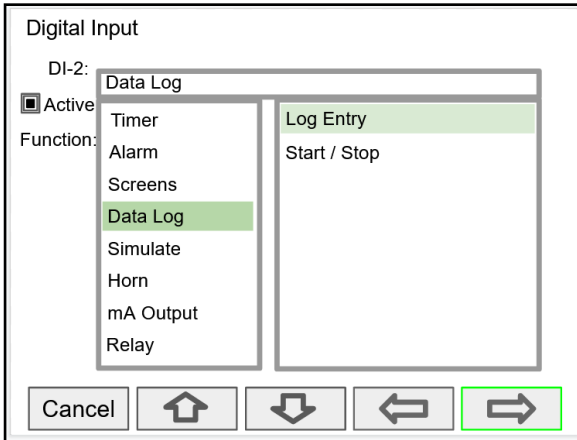
Data Logger Excerpts From Instruction Manual

Digital Inputs & Data Logger

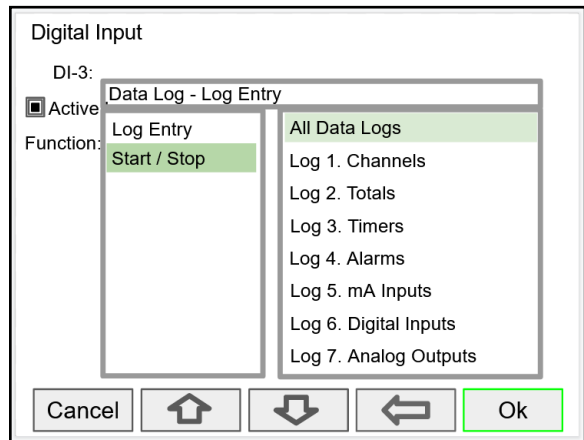
If the Data Logger feature is enabled, a digital input can be used to start / stop, enable, or to capture a log entry at any time.

⚠ IMPORTANT

- The *Data Logger* functions are available only if the *Add-On* feature has been enabled in the *System – General Settings*, see *Add-On Features* on page 6. Refer to page 2 for *Setup Data Logs*.



Choose to capture all the data logs or choose any log.



Choose to start / stop all data logs or choose any log.

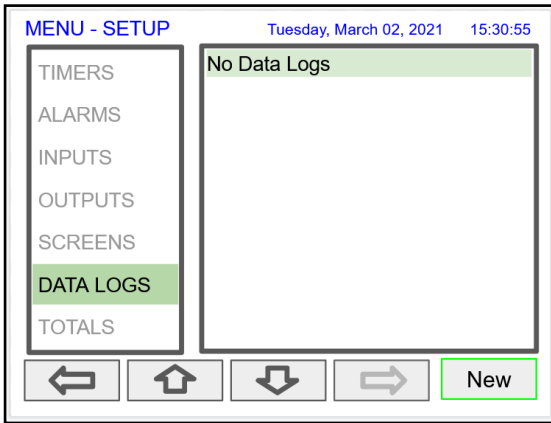
PD9000 ConsoliDator+ Multivariable Controller

Data Logger Excerpts From Instruction Manual

Setup Data Logs

The *Setup Data Logs* menu is used to configure settings that are used for logging data to an external USB flash drive. Any data parameter can be logged; up to 8 data logs can be created. Each data log can contain from 1 to 12 parameters.

Setup New Data Log

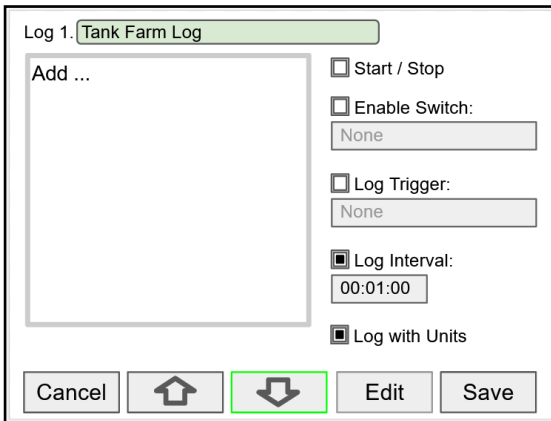


IMPORTANT

- The *Data Logs* menu is available only if the *Add-On* feature has been enabled in the *System – General Settings*, see *Add-On Features* on page 6.
- For specifications, refer to *Data Logger – USB Drive* on page 7.

The setup of the data logs is easy, intuitive, and flexible. You can create logs that contain the same type of process data or you can have a mixed of just about anything you might want to log.

- Navigate to the *Data Logs* menu
- Press the *New* key (F4) to create a new log
- An untitled log is created



Log #:	Enter log file name
Add:	Add items to be logged
Start / Stop:	Control the log start & stop
Enable Switch:	Select an additional log control
Log Trigger:	Trigger log on a specific event
Log Interval:	Log at the specified interval
Log with Units:	Each log entry will have the corresponding engineering units

CAUTION

- Do not change the units for totals, while the data logger is running; the accumulated total will not be converted to the new units and the reflected value will not be accurate.

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Data Logger Excerpts From Instruction Manual

Add Items to Be Logged

Log 1: Tank Farm Log

Start / Stop

Add ...

- Digital Input
- Modbus Input
- Channel
- Total
- Timer
- Alarm
- mA Output
- Relay Output

- 1. Tank 1
- 2. Tank 2
- 3. Tank 3
- 4. Tank 4
- 5. Tank 5
- 6. Tank 6
- 7. Tank 7
- 8. Tank 8

Cancel [Home] [Back] [Ok]

Each log can contain up to 12 process variables, inputs, outputs, timers, alarm status, relay status, or a combination of any of the following parameters:

1. mA Inputs
2. Digital Inputs
3. Modbus Inputs
4. Channels
5. Totals
6. Timers
7. Alarms
8. mA Outputs
9. Relay Outputs
10. Digital Outputs
11. Modbus Outputs

Setup Log Start / Stop

Log 1: Tank Farm Log

- 1. Tank 1
- 2. Tank 2
- 3. Tank 3
- 4. Tank 4
- Add ...

Start / Stop

Enable Switch: None

Log Trigger: None

Log Interval: 00:01:00

Log with Units

Cancel [Home] [Back] [Save]

The log *Start / Stop* is used to give the system or the operator control to start and stop the log process.

The *Start / Stop* function is available in the *View Log* menu via the function keys.

The *Start / Stop* function can be activated with:

- Screen F1-F4 function keys
- Digital inputs
- Modbus inputs
- Modbus outputs
- Channel Control: Schedule, Sampler

Setup Log Enable Switch

Log 1: Tank Farm Log

- 1. Tank 1
- 2. Tank 2
- 3. Tank 3
- 4. Tank 4
- Add ...

Start / Stop

Enable Switch: DI-1. Digital Input 1

Log Trigger: None

Log Interval: 00:01:00

Log with Units

Cancel [Home] [Back] [Edit] [Save]

The log *Enable Switch* can be any item with a binary value (on / off, 0 / 1, true / false). Log entries will be made only if the Enable Switch is in the on position.

The Enable Switch input can be:

- Digital input
- Modbus input
- Channel
- Alarm
- Relay Output

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Data Logger Excerpts From Instruction Manual

Setup Log Trigger

Log 1: Tank Farm Log

1. Tank 1	<input checked="" type="checkbox"/> Start / Stop
2. Tank	Digital Input
3. Tank	Modbus Input
4. Tank	Channel
Add ...	Alarm
	Relay Output

A1. High Alarm
A2. Hi-Hi Alarm
A3. Low Alarm
A4. Lo-Lo Alarm

Cancel [Home] [Back] [Left Arrow] Ok

The *Log Trigger* can be any event from the list below. Log entries will be made every time the input is activated.

The *Log Trigger* input can be:

- Digital input
- Modbus input
- Channel
- Alarm
- Relay Output

The Modbus outputs can be used to trigger log entries.

Setup Log Interval & Log Units

Log 1: Tank Farm Log

1. Tank 1	<input checked="" type="checkbox"/> Start / Stop
2. Tank 2	<input checked="" type="checkbox"/> Enable Switch: DI-1. Digital Input 1
3. Tank 3	<input checked="" type="checkbox"/> Log Trigger: A1. High Alarm
4. Tank 4	<input checked="" type="checkbox"/> Log Interval: 00:01:00
Add ...	<input checked="" type="checkbox"/> Log with Units

Cancel [Home] [Back] Edit Save

The *Log Interval* can be from 1 sec to 99:59:59 hh:mm:ss. Log entries will be made at the selected interval.

In this example the log must be started, and the digital input 1 must be on to log the tanks volume every minute.

To log continuously without the need to start or enable the log, deselect the *Start / Stop* and the *Enable Switch* settings.

If engineering units are not needed, deselect the *Log with Units* setting.

CAUTION

- If Start / Stop is enabled, the log will stop on a power cycle. Make sure to monitor if the power is turn off and re-start the log when the power is turned on.

Setup USB Drive

System - USB Drive

USB Drive: Ready

Capacity: 15630139392 bytes

Used Space: 22216704 bytes

Free Space: 15607922688 bytes

Stop when Full

Remove Device

[Left Arrow] [Home] [Back] [Right Arrow]

The *System – USB Drive* provides status information about the connected flash drive.

- USB Drive Status
- Capacity
- Used Space
- Free Space

Stop when Full: This should be selected, if the oldest logged data is more important than logging new data.

If *Stop when Full* is not selected, the oldest block of data will be deleted to make room for new data.

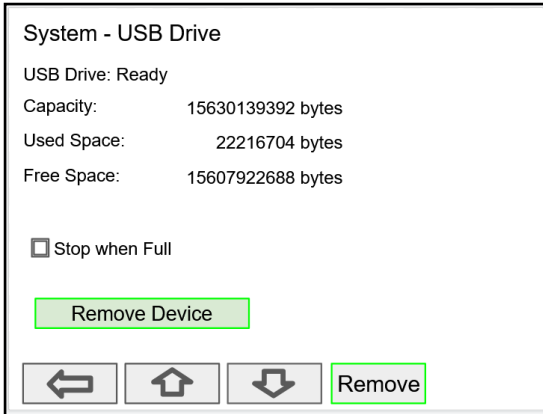
IMPORTANT

- The *USB Drive* menu is available only through the front panel.

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Data Logger Excerpts From Instruction Manual

Safely Remove Flash Drive



To safely remove the flash drive:

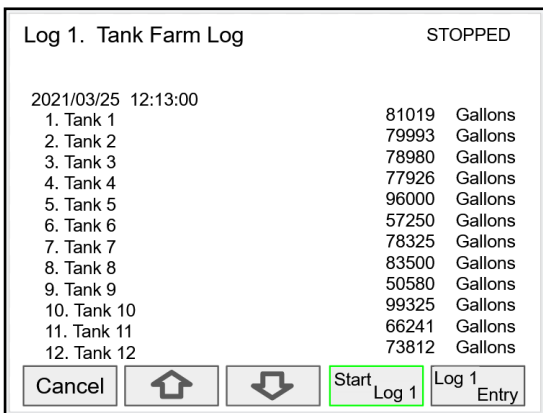
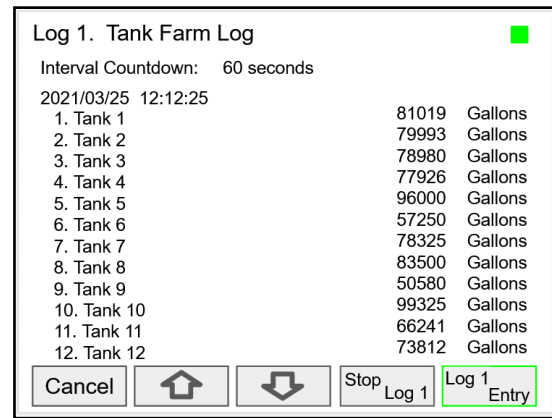
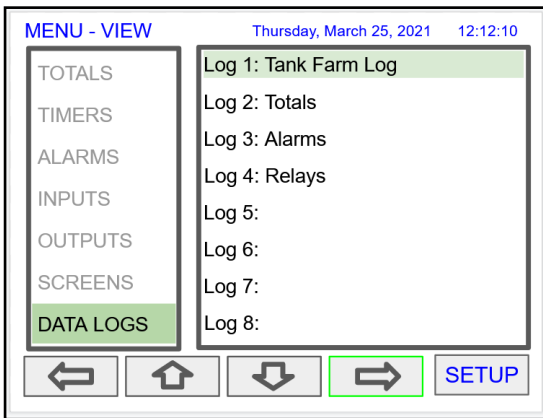
Go to the *System – USB Drive* screen, navigate to the *Remove Device* button using the down arrow key, then press the Remove key.

This procedure allows the USB drive to finish writing any log data in progress and prevent the lost or corruption of data.

View Data Logs

In the *View Data Logs* menu you can see a list of the active data logs. Press the right arrow key to go to the log list and to see details of any of the logs.

This screens shows a snapshot of the log in progress. If the log is not running, the screen will only show the log # and name. Press *Start Log* followed by *Log Entry* to capture the first log.



Press the *Stop Log* key to stop logging the selected log.

The *Start / Stop* function can be enabled or disabled during the log setup. This function is independent for each log.

After the log is started, the system will capture the first log according to the log setup selected.

The *Log Entry* key allows the user to capture a snapshot of the process any time.

Note:

There is no provision for viewing previous log records on the screen. The flash drive must be removed and connected to a computer to download the saved logs.

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Data Logger Excerpts From Instruction Manual

Add-On Features

System - General Settings

Device Tag: Multivariable Controller

Device UID: TKU3 - GYRT - KPQH - WCTP

System Info: SFT144 - v2.200

Feature Add-Ons:

- Modbus Client / Snooper
- USB Data Logger

Enable Buzzer Beeping

Save Backup

Restore Backup

Load Defaults

Set Password

Clear Password

← ↑ ↓ Add-On

The Add-On Features can be enabled at the factory or they can be purchased and enabled by the user at any time. A unique key code is required to enable Add-On Features.

P/N: PDK9000-M1 Modbus Client/Snooper (Ver. 2.1 & up)

P/N: PDK9000-D1 USB Data Logger (Ver. 2.2 & up)

To purchase an Add-On Feature, follow these steps:

1. Obtain the Device UID (Unique ID), the graphic to the left shows the location of the Device UID.
2. Place an order for PDK9000-M1 or PDK9000-D1 and provide the Device UID.
3. A unique key code will be sent to you.
4. Go to the *System - General Settings*.
5. Navigate to the *Features Add-Ons* area.
6. Press the *Add-On* key and enter the unique alphanumeric key received.
7. The added feature will be displayed in this window. Press any arrow key to move to other settings or exit.

USB Drive Settings

System - USB Drive

USB Drive: Ready

Capacity: 15630139392 bytes

Used Space: 22216704 bytes

Free Space: 15607922688 bytes

Stop when Full

Remove Device

← ↑ ↓ □

The *System - USB Drive* provides status information about the connected flash drive.

- USB Drive Status
- Capacity
- Used Space
- Free Space

Stop when Full: This should be selected, if the oldest logged data is more important than logging new data.

If *Stop when Full* is not selected, the oldest block of data will be deleted to make room for new data.

▲ IMPORTANT

- The *USB Drive* menu is available only through the front panel.

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Data Logger Excerpts From Instruction Manual

Data Logger – USB Drive

USB Data Logger Add-On Feature PDK9000-D1	The Data Logger is an option in the ConsoliDator+. It can be purchased at the time the order is placed or it can be purchased and enabled at any time. The Data Logger feature is available on ConsoliDator+ units with a firmware version 2.2 or greater.
Storage Device	External USB flash drive Format: FAT32 (32 GB maximum)
Number of Data Logs	8, maximum
Number of Variables / Log	12, maximum
Number of Log Variables	96 variables, maximum (8 logs x 12 variables / log)
Number of Log Records	The number of records depends on the flash drive size. Examples for 32 GB: 1) 4 logs with 8 variables each 1 min rate: ~160,000,000 records Log time: 60 years 2) 8 logs with 12 variables each 1 min rate: ~70,000,000 records Log time: 16 years
Log File Type	csv (comma separated value)
Maximum Log File Size	100 MB A new file is automatically created when the log file exceeds 100 MB.
Stop when Full	This should be selected if the oldest logged data is more important than logging new data. If <i>Stop when Full</i> is not selected, the oldest block of data will be deleted to make room for new data.
Remove Device	Use the <i>Remove Device</i> button, in the <i>System – USB Drive</i> , to safely remove the USB drive and prevent data corruption.
Start / Stop	Selecting this feature enables the <i>Start / Stop</i> function key in the <i>View – Data Logs</i> menu. The <i>Start / Stop</i> function can be activated using the digital inputs, F1-F4 function keys in the <i>Setup – Screens</i> menu, Channel control schedule, Modbus inputs, and Modbus outputs.
Log Enable Switch	The <i>Enable Switch</i> setting can be used to control the log process using digital inputs, Modbus inputs, Channel control, alarms, or relay outputs. Logs are recorded only if the <i>Enable Switch</i> input is in the active (on) condition.
Log Trigger	The <i>Log Trigger</i> setting is used to log data on a specific event; a log can be triggered using digital inputs, Modbus inputs, Channel control, alarms, relays.

Manual Log	The user can record a log entry at any time by using the F4 key in the <i>View – Logs</i> menu or by assigning a function key in the <i>Setup – Screens</i> menu.
Log Interval	00:00:01 to 23:59:59 hrs:min:sec

How to Enable Add-On Features

To enable the Data Logger features, see *Add-On Features* on page 6.

⚠ IMPORTANT

- The *USB Data Logger* functions are available only if the *Add-On* feature has been enabled in the *System – General Settings*, see *Add-On Features* on page 6.

Sample Data Log File

Device Tag: Multivariable Controller									
Log Name: Tank Farm Log									
Date	Time	T1. Tank 1	T1. Units	T2. Tank 2	T2. Units	T3. Tank 3	T3. Units	T4. Tank 4	T4. Units
4/8/2021	7:41:07	109690	Gallons	99690	Gallons	89690	Gallons	79690	Gallons
4/8/2021	7:41:10	109691	Gallons	99691	Gallons	89691	Gallons	79691	Gallons
4/8/2021	7:41:11	109692	Gallons	99692	Gallons	89692	Gallons	79692	Gallons
4/8/2021	7:41:12	109693	Gallons	99693	Gallons	89693	Gallons	79693	Gallons
4/8/2021	7:41:13	109694	Gallons	99694	Gallons	89694	Gallons	79694	Gallons
4/8/2021	7:41:14	109695	Gallons	99695	Gallons	89695	Gallons	79695	Gallons
4/8/2021	7:41:15	109696	Gallons	99696	Gallons	89696	Gallons	79696	Gallons
4/8/2021	7:41:16	109697	Gallons	99697	Gallons	89697	Gallons	79697	Gallons
4/8/2021	7:41:17	109698	Gallons	99698	Gallons	89698	Gallons	79698	Gallons
4/8/2021	7:41:18	109699	Gallons	99699	Gallons	89699	Gallons	79699	Gallons
4/8/2021	7:41:19	109700	Gallons	99700	Gallons	89700	Gallons	79700	Gallons
4/8/2021	7:41:20	109701	Gallons	99701	Gallons	89701	Gallons	79701	Gallons
4/8/2021	7:41:21	109702	Gallons	99702	Gallons	89702	Gallons	79702	Gallons
4/8/2021	7:41:22	109703	Gallons	99703	Gallons	89703	Gallons	79703	Gallons
4/8/2021	7:41:23	109704	Gallons	99704	Gallons	89704	Gallons	79704	Gallons
4/8/2021	7:41:24	109705	Gallons	99705	Gallons	89705	Gallons	79705	Gallons
4/8/2021	7:41:25	109706	Gallons	99706	Gallons	89706	Gallons	79706	Gallons
4/8/2021	7:41:26	109707	Gallons	99707	Gallons	89707	Gallons	79707	Gallons
4/8/2021	7:41:27	109708	Gallons	99708	Gallons	89708	Gallons	79708	Gallons
4/8/2021	7:41:28	109709	Gallons	99709	Gallons	89709	Gallons	79709	Gallons
4/8/2021	7:41:29	109710	Gallons	99710	Gallons	89710	Gallons	79710	Gallons
4/8/2021	7:41:30	109711	Gallons	99711	Gallons	89711	Gallons	79711	Gallons
4/8/2021	7:41:31	109712	Gallons	99712	Gallons	89712	Gallons	79712	Gallons
4/8/2021	7:41:32	109713	Gallons	99713	Gallons	89713	Gallons	79713	Gallons
4/8/2021	7:41:33	109714	Gallons	99714	Gallons	89714	Gallons	79714	Gallons