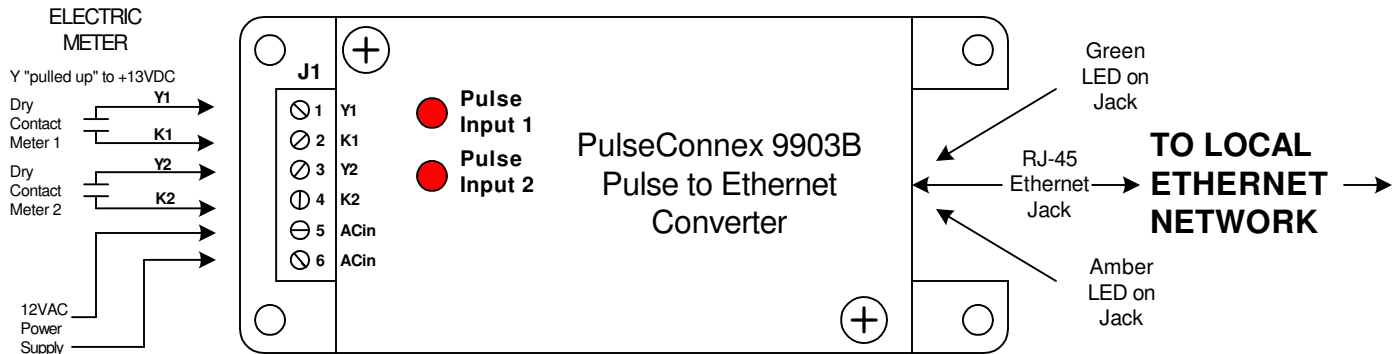


INSTALLATION INSTRUCTION SHEET

PulseConnex 9903B Pulse-to-Ethernet Converter



MOUNTING POSITION - The PulseConnex 9903B can be mounted in any position. Four mounting holes are provided.

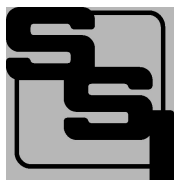
POWER INPUT - The PulseConnex 9903B is powered by an AC voltage of 12 volts. Connect the 12 VAC source to terminals 5 and 6 of the J1 connector.

METER INPUT - The PulseConnex 9903B has two 2-Wire (Form A) pulse inputs. Connect the 9903B's "K1" and "Y1" input terminals to the meter's "K" and "Y" output terminals. Connect meter #2 to the K2 and Y2 terminals. The two inputs are configured to accept dry contact switches or pulse outputs meaning that no external voltage is required. A "pulled up" +13VDC wetting voltage is supplied internally on each Y terminal. The 9903B's "K" terminals are the common return. Each closure of the meter's K-Y output will "pull down" the input line to the common return. Each time a pulse is received, the RED LED on the cover corresponding to that input will light indicating that the pulse input is active. The 9903B is compatible with either fixed width "momentary" pulses or 50/50 duty-cycle "toggle" pulses. Depending on the length of the fixed time pulse width, you may not be able to see the LED light. The minimum "on" pulse width is 20mS. A toggle pulse mode is generally more desirable. The absolute maximum pulse rate on each pulse input is 10 pulses per second. A good rule of thumb is to program the meter with a pulse constant that gives approximately 2 pulses per second at maximum demand and at least one pulse every 4 seconds at the minimum demand.

OUTPUT - The 9903B is configured as a web client, meaning that it does not need a static IP address. Plug a standard ethernet cable into the 9903B's RJ-45 jack. Connect the other end of the cable into your network's router, switch or hub. When the 9903B is connected to a network (and powered up), the network's router will assign it a dynamic IP address. Once the 9903B is reporting to the PulseConnex server you can now set up an account. Make note of the 9903B's MAC address. This is a 12-digit number which starts with 0090C2. You will need this number for setting up your account.

OPERATION - All settings are programmed into the 9903B from the www.pulseconnex.com website. The 9903B will report the power use information to the PulseConnex service every 5 seconds. You can observe this if desired by viewing the Yellow LED on the RJ-45 Ethernet jack. The communications are very short so you may have to look very closely to see the Yellow LED light. (Also see Diagnostic LED's on Troubleshooting page.)

NOTICE - The 9903B **MUST** be operating and communicating with the PulseConnex Server before setting up your account.



SOLID STATE INSTRUMENTS

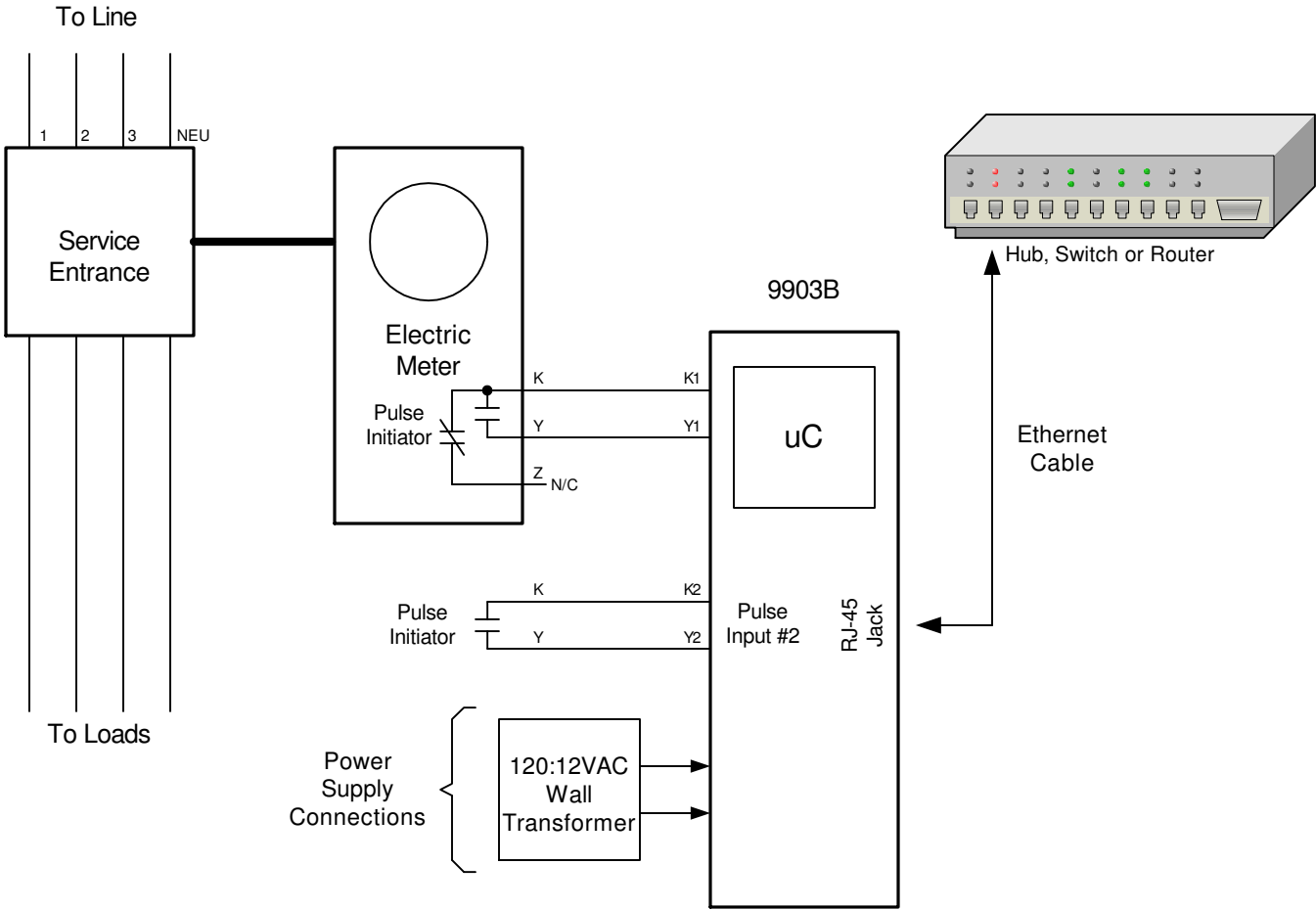
a division of Brayden Automation Corp.

6230 Aviation Circle, Loveland, Colorado 80538

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E-mail: support@solidstateinstruments.com

PulseConnex 9903B Wiring Diagram



PulseConnexWiringDiagram.vsd

| | | | |
|-------------------------------------|---------|-----------|-------|
| PulseConnex 9903B Wiring Diagram | | REVISIONS | |
| | | NO. | DATE |
| DATE ORIGINAL | SCALE | | |
| 10/15/2013 | N/A | | |
| LATEST REVISION | JOB NO. | CHECKED | DRAWN |
| | | | WHB |

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Setting up the PulseConnex 9903B Module

Once you have completed the wiring of the 9903B Device, assuming power is ON and it is reporting to the PulseConnex Server, then, and ONLY then, proceed to the PulseConnex website, www.pulseconnex.com. Click on **LOGIN** in the menu and you will move to the Login page. The Login page may also be accessed directly by going to www.pulseconnexlogin.com.

Setting Up an Account - If this is the first time you have accessed this page and do not already have an account, click on **"Create New Account"**. Fill in the information in all of the blanks and create a Username and Password. Click on **OK**, and this will take you to the device link and payment page. Enter the **Device Serial Number** (MAC Address) that was supplied to you. Pull the down the drop-down menu and select the PulseConnex service package that you want. Click **OK**.

Once your payment is processed, you can proceed to the Login page. Enter your **Username** and **Password**. Once you have logged in, your device should be showing in the window menu on the left hand side of the page.

Device Configuration - Press the **Device Config** button at the top of the page. All of the data in the 9903B device will be uploaded from the device and shown on the Configuration Page, now on your screen. The first three boxes should already be populated with the Device Serial Number, Software Version, and Subscription Expiration Date. Enter the following information:

- 1.) Enter a more descriptive name in the Device Name box. This could be the company name or address or whatever you like. This name must be unique from any other PulseConnex 9903B devices that may be operating on your network.
- 2.) Select the time zone you are located in and select Automatic daylight saving time adjust if your area uses daylight saving time.
- 3.) Enter the Pulse Constant for Meter #1. This parameter is in kilowatt-hours per pulse (kWh) and may be a number like .03 kWh/pulse (or 30 watthours per pulse). If this pulse constant is an industry standard 3-wire (Form C) number, you can enter it directly as a 3-wire number, even though you are only using two wires. If you wish to enter it as a 2-wire number (Form A), select 2-wire and enter the true 2-wire pulse constant (if actually a two-wire value) or double the 3-wire number to get the equivalent 2-wire number.
- 4.) If you wish to try to use PulseConnex to do some demand limiting, enter the desired Demand Limit.
- 5.) Enter the Demand Average Interval used by your utility, normally 15, 30 or 60 minutes. 15 Minutes is most common.
- 6.) Enter the Fast Instantaneous as Yes. If you find that your instantaneous fluctuates widely with lots of spikes, you can filter this out by using Fast Instantaneous = No. This may depend on the brand of the meter sending the pulses.
- 7.) Enable the desired Alarm Notification parameters. These combine to filter out most erroneous alarms. Check Averaging Increasing and Instantaneous Above Limit. Check and set "Average at Limit" in < 3:00, and "Average is > 95% of Limit". See how the combination of these parameters and the Demand Limit work for your situation. If you do not want to use the alarm options, uncheck all the alarm parameters.
- 8.) Notification Frequency - set to 5 minutes. Again, see how this works for your building and application.
- 9.) Text Message Recipients and Email Recipients - add the mobile phone number and/or email address as desired.
- 10.) Add the information for Channel 2 if used or desired.

Once your changes are complete, click on the **Update** button. All data will be uploaded to the PulseConnect Server, and then downloaded and implemented by the PulseConnex 9903B. This may take 15 to 30 seconds. This will then return you to the main PulseConnex page.

Real Time Graphing - Click on **RT Graphing**. You should see the Instantaneous and Average Demand lines starting to move in the real time graph. In 15 minutes (or the selected Averaging Interval), the average will be accurate. Upon start-up, the average demand is not accurate until a complete interval's data has been recorded. From then on, the Instantaneous and Average will be updated every 5 seconds.

Load Profile History - Click on **Profile History**. The current day's profile information will be immediately shown. Select the date of data that you wish to display using the arrows or the calendar, and then click on Profile History again to update the display with the selected information. Because the startup is normally not synchronized with the quarter hour, the first 15 minute interval datapoint will be inaccurate and as such, it is ignored. Therefore, the first accurate 15 minute interval datapoint will occur sometime within the first thirty minutes of start up. Upon the PulseConnex server receiving the second 15 minute interval datapoint, the Profile History Graphing will begin. Therefore, you may not be seeing the Profile history for up to 45 minutes after startup.

All parameters will be saved in non-volatile Flash memory. Flash memory uses no batteries for backup so all parameters will never be lost. In the event that internet connectivity is lost, but power to the unit is still on, the PulseConnex 9903B will continue to gather and record data for up to 24 hours. Once the internet connection is restored, all data will be uploaded to the PulseConnex server over the next hour.

Troubleshooting the 9903B

- 1.) Your PulseConnex Model 9903B should be communicating with the server almost immediately after power-up. Check the dashboard boxes for Instantaneous, Average and Peak Demands. Click on the **RT Graphing** button to check your device's Real Time Graphing mode. It should be updating and the graph should be moving from right to left about every 5 seconds.
- 2.) If there is no movement on the graph, check the following:
 - a.) Power is on to the unit;
 - b.) The RJ-45 Ethernet Jack is connected to a switch or router;
 - c.) The Green LED on the RJ-45 jack is on solid (meaning the Ethernet cable is connected on both ends);
 - d.) The Amber LED on the RJ-45 jack is flashing about every 5 seconds showing communications activity.
- 3.) Insure that you have entered the correct MAC address (Device Serial Number) in your account page.
- 4.) The Model 9903B Pulseconnex Device has 8 diagnostic LED's on the side to help diagnose any connectivity problems. LED #1 is the one closest to the Pulse Inputs. LED #8 is the one closest to the RJ-45 Jack. All are sequentially numbered in between. Here is the meaning of each LED. They are designed to provide a checklist in sequential order of the device status:
 - LED#1: Power is on to the 9903B.
 - LED#2: Slow, then fast flash while intentionally delay, then flickers during normal operation.
 - LED#3: A local DHCP server has assigned the 9903B an IP address to use. (Dynamic IP address obtained)
 - LED#4: The 9903B has successfully contacted the DNS server.
 - LED#5: The DNS Server has given the 9903B the IP address of the PulseConnex Server.
 - LED#6: The 9903B is preparing a packet of information to be sent to the PulseConnex server.(Every 5 seconds.)
 - LED#7: The 9903B has sent the packet of information to the PulseConnex server.
 - LED#8: The PulseConnex server has received the packet and sent back an acknowledgement.

Each LED in this "chain" is sequential and cumulative. LED#1 must be on before LED#2. LED #2 must be on before LED #3. Once LED #1 through #5 are on, they will remain fully ON (lit) with the exception of the flickering of #2. Then LED#6 will go on, then #7, and #8 in sequence and then go out. Each 5 second interval, this last sequence of LED's #6 through #8 will repeat.

- 5.) Make sure that your switch or router is not blocking any outgoing Port 80 traffic. In rare cases the 9903B may not be able to exit your network. In the event that happens, you must either create an alternate method of getting to the internet (new service) or have your IT department or service provider troubleshoot why your router or managed switch is preventing communications with the PulseConnex server. If your computer can access the internet, then generally speaking Port 80 is open. The PulseConnex system is designed to emulate a browser on Port 80 and eliminate any firewall issues.

Contact Tech Support at Brayden Automation Corp. at the number below for troubleshooting assistance.

Technical Support

Contact Brayden Automation Corp. Tech Support at 888-BRAYDEN (888-272-9336) if you need assistance on the application of the PulseConnex 9903B or the PulseConnex Website.