



EKM Omnimeter Direct Attach - Domestic Installation

Summary

Meter Manufacturer	EMK
Meter Models	Pulse v3; Pulse v3 UL; Pulse v4; Pulse v4 UL
Size	All sizes
RS485 Interface	Included with all models
Maximum number of meters connected to a single SPLASH Monitoring STREAMbox	100

List of parts required for connection of meter to SPLASH Monitoring

To enable you to connect the above meters to SPLASH Monitoring you will need a SPLASH Monitoring STREAMbox and connection cables, these parts are listed below:

Part description	Part number
Meter Make / Model	As above
SPLASH Monitoring STREAMbox	SBoxS2 - Hardwired network and meter connections
Connection cable STREAMbox to meter	Part numbers USB to pig-tails Adapter (YHI)
Connection cable STREAMbox to clients router or LAN	Part numbers SM CAT5 1m – 1m CAT5 cable SM CAT5 2m – 2m CAT5 cable SM CAT5 5m – 5m CAT5 cable SM CAT5 10m – 10m CAT5 cable
USB Serial Adapter (Splash model)	USB to RS485 D9F Adapter (SM)
USB Serial Adapter (YHI model)	USB to pig-tails Adapter (YHI)

Installation Guidelines

We have found that the most reliable long-term results are achieved when the STREAMbox, and its power supply is installed well away from daily operational areas. The problem is that the loss of the Splash Monitoring service is not immediately obvious, so it can be many days or weeks before someone realises that their system is not being updated. We are in the process of developing a mechanism to detect the loss of communication which optionally sends an email alert to one or more nominated recipients, but it is always prudent to minimise the risk of disruption by following these guidelines:

- If possible install the equipment and power supplies well away from daily operational areas such as someone's desk or work bench.
- Try and secure the equipment by attaching it to a wall or shelf with screws, Velcro or double sided tape. This should prevent it from slipping and becoming disconnected.
- Always secure the STREAMbox power cord to the STREAMbox using the P clip supplied. The P clip should be located on the side of the STREAMbox using the mounting panel screw, as illustrated:



- Always ensure the LAN cables you use are in sound condition with their retaining clips intact, and make sure they are securely fitted to the equipment by giving them a gentle tug.
- Always ensure that all cables are secured using cable ties to protect them from accidental snagging.
- Never stretch cables to the point where any movement could cause them to become dislodged.
- The equipment and power supplies should be labelled 'DO NOT SWITCH OFF', but you should inform people with access to the installation area that this equipment should not be turned off; for example cleaning and maintenance personnel.

Setting Up Your STREAMbox and Omnimeters

This section is intended as a quick guide to setting up Splash Monitoring and assumes your meter is already connected to all relevant CTs and power points, and where necessary programmed according to your requirements. For more details please refer to the Omnimeter User Manual.

Basic Connectivity

New Schematic Needed

The diagram above shows the connectivity between the various devices. The connections are:

- 1 – RS485 data bus between the meter(s) and the STREAMbox.
- 2 – CAT5 or CAT6 LAN cable between the STREAMbox and your Network Access Device

Network Access Device: This may be a Router, ADSL Modem, Switch or other network device connected to the Internet.

The USB adapter can be located in any of the USB sockets on the STREAMbox. The adapter tails connect to the terminal block on the first meter and all subsequent meters are daisy-chained from there with twisted pair cable (usually CAT5 or CAT6).

Please take care when connecting the meter(s) to the STREAMbox, if the distances are long then twisted pair cable must be used and the pairing is critical. Also the termination at the ends of the bus can be critical, however, in practice we have found that on short cable runs in particular, the terminators are not critical, and sometimes impedes the signal. You may have to try both options to get it to work. Please refer to the Omnimeter Installation Guide for details.

Setting Up Your STREAMbox

Unless the STREAMbox has already been configured according to your specifications, it will be configured to acquire a DHCP IP address from your router or DHCP server. For most domestic applications this will work without any modification. However, if you do need to change its settings see below for guidance.

In order to monitor an Omnimeter the Streambox has to be pre-configured with each meter's serial number and model type. So please contact us prior to shipment with this information.

Setting Up Your meters

Please refer to the Omnimeter manual for instructions on how to change the settings.

Trouble Shooting:

“No Stream Found” on the SM Web site:

This is because the web site hasn't received any data from the STREAMbox.

- Omnimeters will not respond if there is no AC power so make sure at least one of the AC power lines (L1) is connected to the AC power line.
- Allow at least 10 minutes after powering up the STREAMbox before starting your diagnostic checks.
- Check the connections between the STREAMbox and your router and ensure you have a solid green light at the top right of the RJ45 LAN socket and a flashing green light at the top left of the socket.
- No solid green light could indicate: the STREAMbox is switched off, check the power lights on the front of the STREAMbox, both top and bottom LEDs should be illuminated.
- Check the router is powered up; the LAN cable is connected to the router; the LAN cable isn't faulty. To eliminate the LAN cable and router, connect the LAN cable to a known working device like your laptop or PC and if you can get a web session, then the LAN connectivity is OK.
- Check the connection between the STREAMbox and the meter, making sure the tails on the cable are connected to the correct terminals on the meter. If you are using a cable supplied by SPLASH Monitoring, the pin configuration is:

SPLASH Monitoring USB Adapter	Omnimeter
-----Green -----	signal D-
-----White -----	signal D+
-----Orange -----	signal gnd

YHI USB Adapter	Omnimeter
-----Yellow -----	signal D-
-----Red -----	signal D+
-----Black -----	signal gnd

NOTE: please remove the remaining cores, some carry voltages that will destroy the meter's comms card.

- Try power cycling the STREAMbox – switch it off, wait 5 sec, switch it back on.
- Try logging on to the STREAMbox: enter “splash” in your web browser's address line, or if your STREAMbox has a fixed IP address, enter that into your web browser. For instructions on how to use the STREAMbox's 'Web Information Page' go to <http://www.splashmonitoring.com/assets/SM-STREAMbox-Web-Information-Page.html>
- The most common issue we encounter is the site's network firewall not allowing outbound traffic. This is rarely an issue with domestic routers, but very common in managed commercial networks. Unless you have someone you can ask (like a network administrator) a good way to detect this issue is to log onto the STREAMbox and run a 'Healthcheck' report. This will give you lots of information including whether the STREAMbox can 'see' the internet.
- The STREAMbox is not able to work with a proxy server. If you have a proxy server you will need to make special arrangements with your network administrator to have the STREAMbox circumnavigate it by issuing a fixed IP address with appropriate privileges.
- Generally there must only be on 'master' device on an RS422/RS485 bus. The STREAMbox is a master device and as such can be the only one attached to your meters, so make sure you don't have another data logging device attached to the RS422/RS485 bus. It will very likely work intermittently, but the data flow will be unreliable and possibly corrupt if there are multiple master devices attached.

Status Codes:

Pulse Input State:

- 0 = High/High/High
- 1 = High/High/Low
- 2 = High/Low/High
- 3 = High Low/Low
- 4 = Low/High/High
- 5 = Low/High/Low
- 6 = Low/Low/High
- 7 = Low/Low/Low

Current Direction:

Line1/Line2/Line3

- 1 = Forward/Forward/Forward
- 2 = Forward/Forward/Reverse
- 3 = Forward/Reverse/Forward
- 4 = Reverse/Forward/Forward
- 5 = Forward/Reverse/Reverse
- 6 = Reverse/Forward/Reverse
- 7 = Reverse/Reverse/Forward
- 8 = Reverse/Reverse/Reverse

Outputs Indicator:

- 1 = OFF/OFF
- 2 = OFF/ON
- 3 = ON/OFF
- 4 = ON/ON

Global Status:

- 0 = normal status
- 1 = the meter did not respond when interrogated by the Streambox.