Steca Tarom Charge Controller – 3G STREAMBbox Installation

Hardware summary

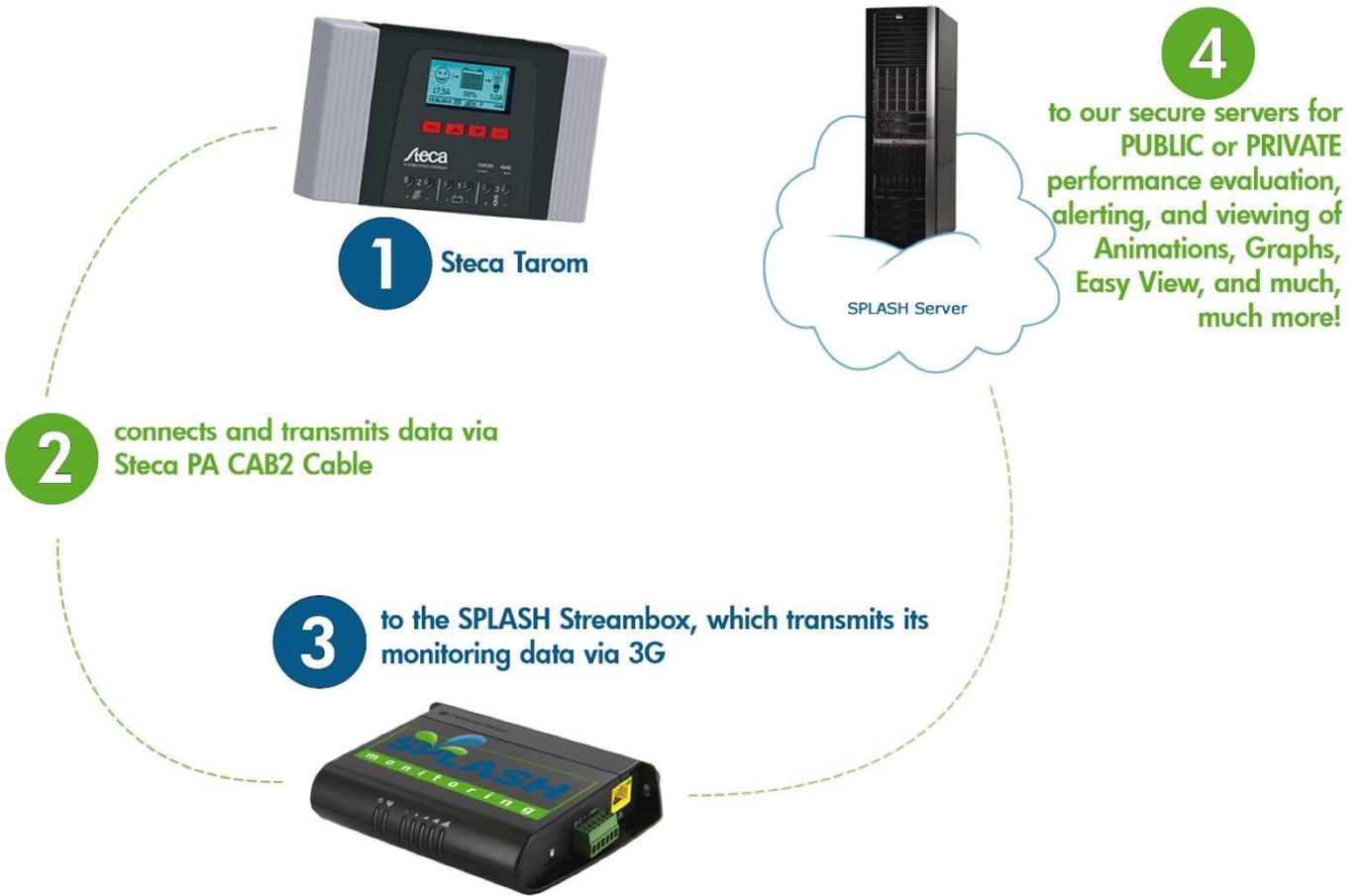|	
Manufacturer	Steca
Model	Tarom 4545
Size	NA
Maximum number of this device connected to a single SPLASH Monitoring 3GSbox	1

List of parts required for connection of inverter to SPLASH Monitoring 3G STREAMBox

To enable you to connect the above hardware to SPLASH Monitoring you will need a SPLASH Monitoring 3G STREAMBox and connection cables, these parts are listed below.

Part description	Part number
Device Make / Model	As above
SPLASH Monitoring 3G STREAMBox	With Vodafone world-wide sim or local sim by agreement
Connection cable 3G STREAMBox to device	Part numbers Steca PA CAB2
Connection cable 3G STREAMBox to client's router or LAN	None required
Optional External Antenna High Gain External Antenna and mount	 AGM024P WMO

Data Transmission

The following diagram shows the hardware and how the data is transferred from the Tarom to the SPLASH Monitoring Servers.

1 Steca Tarom

2 connects and transmits data via Steca PA CAB2 Cable

3 to the SPLASH Streambox, which transmits its monitoring data via 3G

4 to our secure servers for PUBLIC or PRIVATE performance evaluation, alerting, and viewing of Animations, Graphs, Easy View, and much, much more!

SPLASH Server

Installation Guidelines

To ensure long term reliable monitoring;

1. Install the Streambox and its power supply away from daily operational areas where the hardware could be accidently turned off such as someone's desk or work bench.
2. Locate or secure the equipment to prevent it from falling, slipping and becoming disconnected
3. Secure the power cord to the STREAMbox using the supplied "P" cable clamp (see below)
4. Ensure all cables are in good condition
5. Secure cables to protect them from accidental snagging
6. Do not stretch cables to the point where any movement could cause them to become disconnected.
7. The equipment and power supplies will 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

Basic Connectivity 3G STREAMBox USB Port:

The 3G STREAMBox has only one mini USB port so a USB type A male to mini male converter is required to attach the Steca PA CAB2:
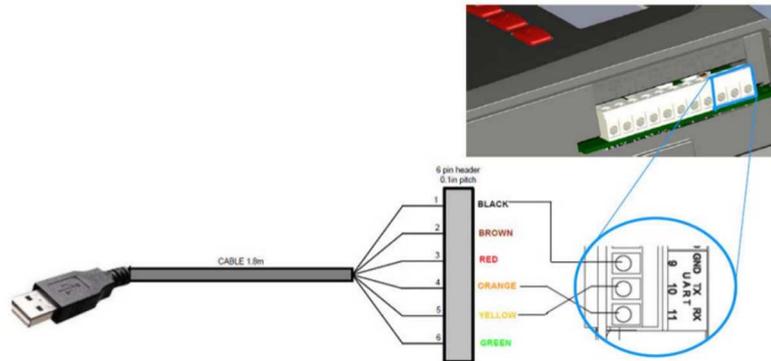
Setting Up Your Tarom

Set up the Tarom as directed in the Tarom User Manual, but in particular you must set the Open UART/RS232 to 'On': (Set -> System Settings -> Open UART/RS232 -> On)

Setting Up Your 3G STREAMBox

The 3G STREAMBox is fully pre-configured and therefore the management interface has been disabled to prevent misuse or accidental corruption. The RJ45 LAN connector is used for factory set up, but has no functionallity in the field.

Connecting more Taroms

The 3G STREAMBox currently supports only a single Tarom unit.

3G STREAMBox Operation

Once the power, data and optional antenna connections have been installed, power up the 3G STREAMBox. After a couple of minutes the signal lights should show at least one or two green or orange bars illuminated.

After the 3G connection has been established the 3G STREAMBox will send the first set of data from the Tarom to the web site, which you should be able to see immediately from the Splash Monitoring dashboard.

To minimise data transmission costs the 3G STREAMBox is designed to minimise the amount of 3G time and volume it uses (aka bandwidth). To achieve this it collects the Tarom data into batches and compresses each batch of data before sending it to the servers. It does this once an hour, so all subsequent data you will see on the web site may be up to one hour old.

If an alarm condition develops on the Tarom during the hour the 3G STREAMBox is storing the data, the 3G STREAMBox will transmit the stored data immediately so that any alarms set up on the Splash Monitoring dashboard will be triggered immediately rather than waiting for the batch period to finish. If the Tarom remains in an error state the 3G STREAMBox will continue to transmit data each minute for up to ten minutes. If the Tarom remains in an error state after that, the 3G STREAMBox will drop back to hourly batch transmissions for another eight hours. If the Tarom remains in a continuous error state this cycle of ten minutes single data transmissions followed by eight hours batch transmissions will continue until the Tarom error state returns to normal.

If the Tarom error state returns to normal during the eight hour batch transmission period, then the regime returns to continuous hourly batch transmissions until the next error condition occurs, whereupon this cycle starts again.

The hourly batch period, ten minute error reporting period and eight hour error reporting cycle are all factory configurable and can be updated remotely if required. If you believe you have a reasonable need to modify these values please contact Splash Monitoring at info@splashmonitoring.com

Web Site Setup:
The STREAMBox has already been preconfigured for monitoring the Tarom and the online setup takes only a few minutes. The Online setup consists of;
1. Registering with SPLASH Monitoring
2. Entering the location and name for the system
3. Selecting a name for your system

The data is collected from the Tarom every 1 minute however to minimise data costs the information is sent from the 3G STREAMBox to the online servers once per hour. The scan frequency should not be changed from its preset 60 seconds.

Web Site Values:
The monitoring may indicate error codes from the Tarom, the following are the error codes.

0	No error
1	Information (module operating normally, but supplementary information available)
2	Warning (module operating normally, but requires attention)
3	Error (module inoperable and requires immediate attention)
4	External temperature sensor defect
5	Tarom has exceeded its maximum operating temperature
7	Battery voltage too low
8	Battery voltage too high
9	Maximum load current exceeded
10	Maximum PV input current exceeded
11	Short circuit on the output load
13	Battery not connected
14	Battery polarity connected incorrectly
15	PV polarity connected incorrectly
19-24	Tarom module error – requires factory attention
26	Battery voltage not detected
29	Date/Time not set
31	Battery voltage detected
34	Over current protection triggered

The monitoring will indicate Mode codes from the Tarom, the following Mode values represents the following battery charging modes:

1	Float
2	Boost
3	Equalise
4	IUIA
5	NiMH
6	Li-ion

Trouble Shooting:

- "No Stream Found" on the SM Web site: This is because the web site hasn't received any data from the 3G STREAMBox.

- The Tarom can only be interrogated for data if the batteries are connected and have sufficient charge, or the PV is generating sufficient power. Otherwise no data will be produced.

- Allow at least 10 minutes after powering up the 3G STREAMBox before starting your diagnostic checks.

- Check the connections between the 3G STREAMBox and the Tarom.

- Check the power and signal lights on the 3G STREAMBox. You should see a solid green power light, a flashing green antenna light, and at least two solid orange or green signal lights.

- If there is no power light, check the green power plug is plugged into the 3G STREAMBox, the wires haven't become dislodged from the green plug, the power adapter is set to the correct voltage (12V), the power adapter is fully located into the wall socket and there is power at the wall socket.

- If there are no signal lights, check there is a sim inserted in the 3G STREAMBox and it is fully located. Check to see if there is a 3G signal in your area. General availability of 3G in your area should have been checked prior to obtaining a 3G STREAMBox, but sometimes the signal goes down for maintenance or other issues, in which case the 3G service provider will be able to tell you if that's the case in your area. Often this information can be found on the internet by doing a web search for your 3G provider and '3G status', ie: 'vodafone 3G status'.

- Failing that please contact info@splashmonitoring.com and we will attempt to track down the issue if you provide your full address. Please note if you have supplied your own sim you will have to contact your service provider.

- Try power cycling the 3G STREAMBox – switch it off, wait 5 sec, switch it back on.