Fortecho Solutions
FS1000 IP Reader
User Manual

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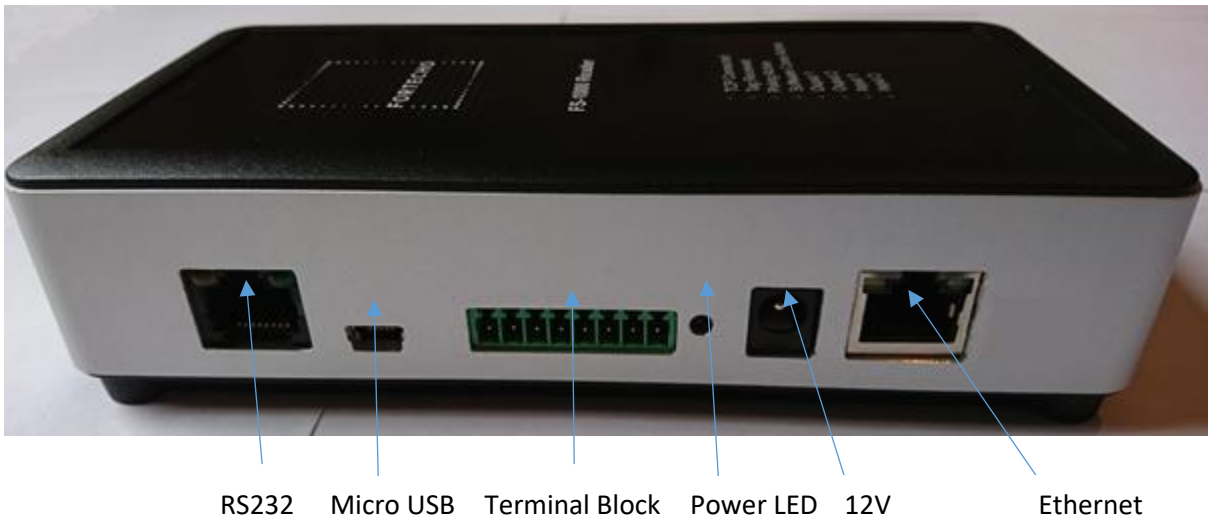
Manual Content

This manual provides the operational detail and overview for the Fortecho FS1000 RFID Reader.

Powering and Connections

The FS1000 can be powered by 12V via the 2.5mm Jack plug or by USB, these ports are shown in figure 1.

Figure 1, FS1000 Connections



When powering over the 12V The RS232 port can be used to connect to a Fortecho RX210 reader. The RS232 port is not powered when the FS1000 is connected over USB.

Terminal Block

The terminal pin outs are shown in Table 1, terminal 1 (T1) is the terminal closest to the USB port.

Figure 2, Terminal block detail

Terminal	Function
1	Input 1
2	Input 0
3	Output 1 – NO – Voltage Free
4	Output 1 – NO – Voltage Free
5	Output 0 – NO – Voltage Free
6	Output 0 – NO – Voltage Free
7	Ground
8	+12VDC Regulated Output

The default states for Inputs 1&2 is high VCC 12V, they are switched by pulling them to GN

Protection

The FS1000 has a suitable level of protection in the event of connections errors.

Connecting RS232 or Ethernet in the wrong RJ45 is not advisable but will not damage the unit.

Antenna Connections

The 2 RF antenna are connected to the 50 ohm BNC connectors as shown in Figure 3.

Figure 3

Ethernet Setup

In order to configure the Network settings of the FS1000 the Lantronixs device manager should be used, this can be downloaded using the following link:-

https://www.lantronix.com/products/deviceinstaller/

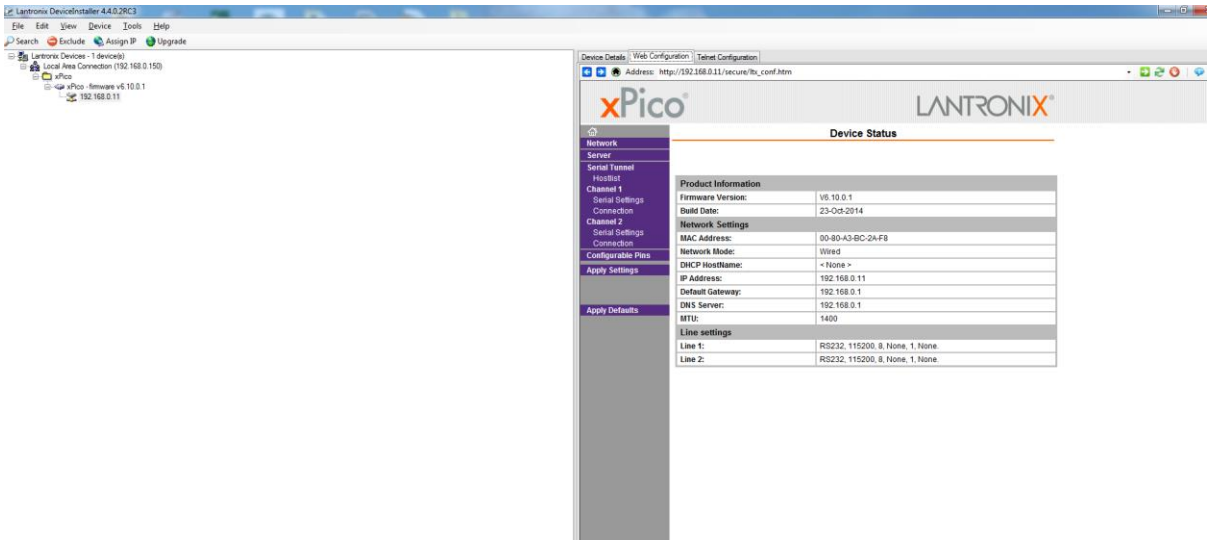
If prompted for a Password and Username the default settings for the FS1000 reader are for these field to be blank, figure 4.

Figure 4, Login Screen

To change the Ethernet setting use the device installer to identify the FS1000 on your network, if the IP address on the reader is on a different subnet to the host PC then the host PC's subnet must be changed to match that of the readers.

With the reader and the host both on the same subnet, the Ethernet settings can be viewed through the web browser, figure 5.

Figure 5, Network Configuration

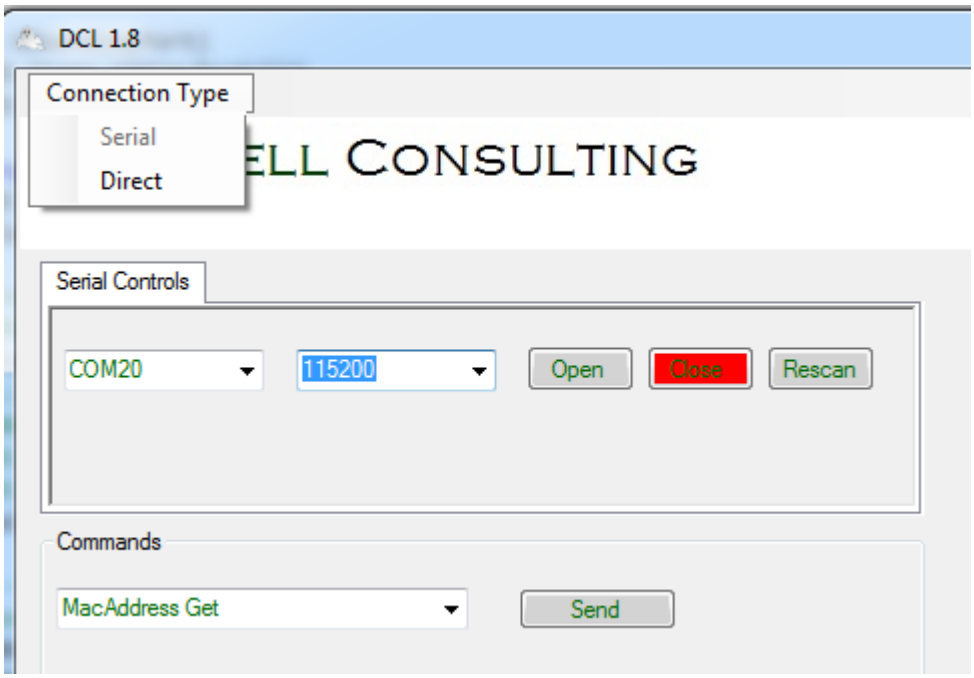


Test Harness

The FS-1000 reader is provided with a test harness piece of software written in VB.Net, which allows the user to operate and configure the reader's full functionality.

The harness allows the user to connect via either the USB port or the Ethernet port, these can be selected from the Connection Type tab, figure 6.

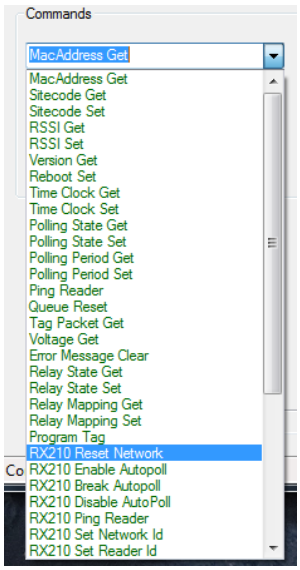
Figure 6, Connection Tab



With the reader connected the user can exercise the FS1000 Commands via the command tab.

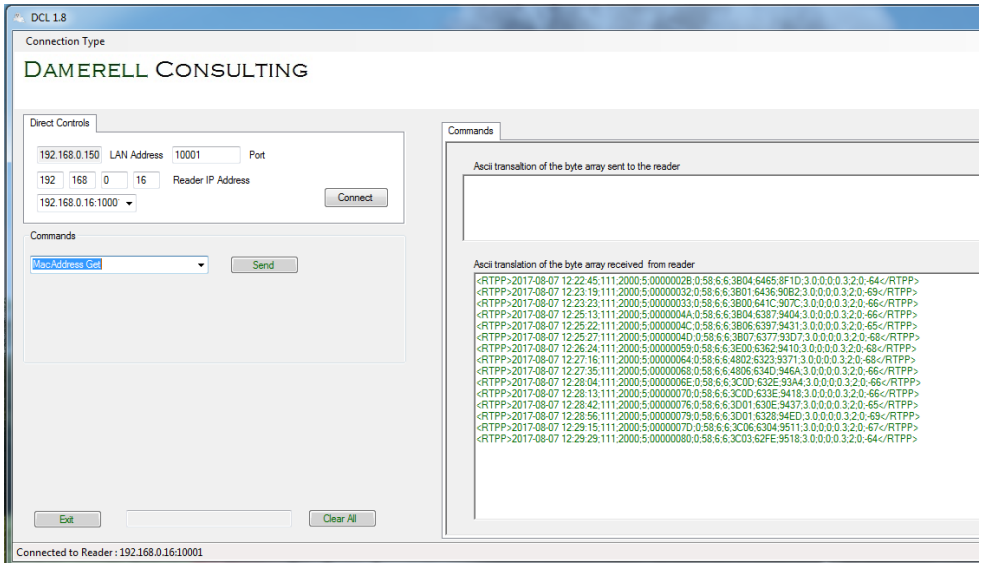
It should be noted that the FX commands are those topmost in the menu with the Wavetrend reader commands prefixed RX210, Figure 7.

Figure 7, Command tab



With the FS1000 poling rate set, raw tag packets will be shown in the Tag window, figure 8.

Figure 8, FS Tag Packets

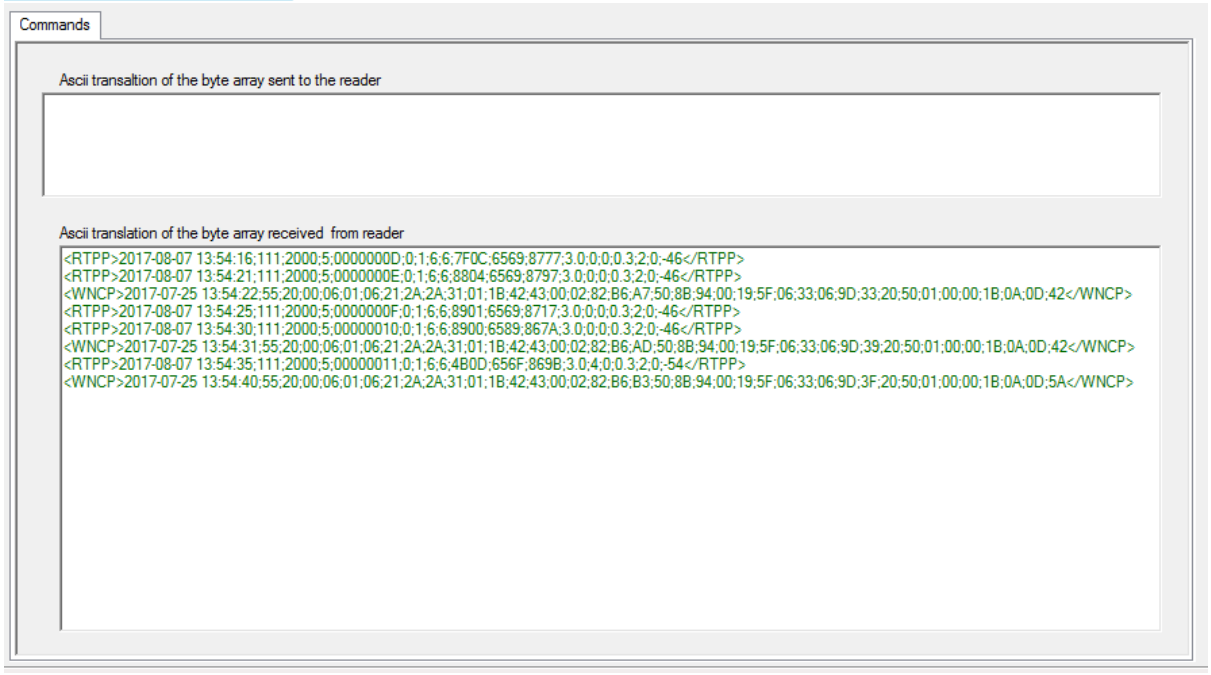


The FS tag messages are formatted as below:-

<RTPP>2017-08-07 12:23:23;111;2000;5;33;0;8;6;6;3B00;641C;907C;3.0;0;0;0.3;2;0;-66</RTPP>

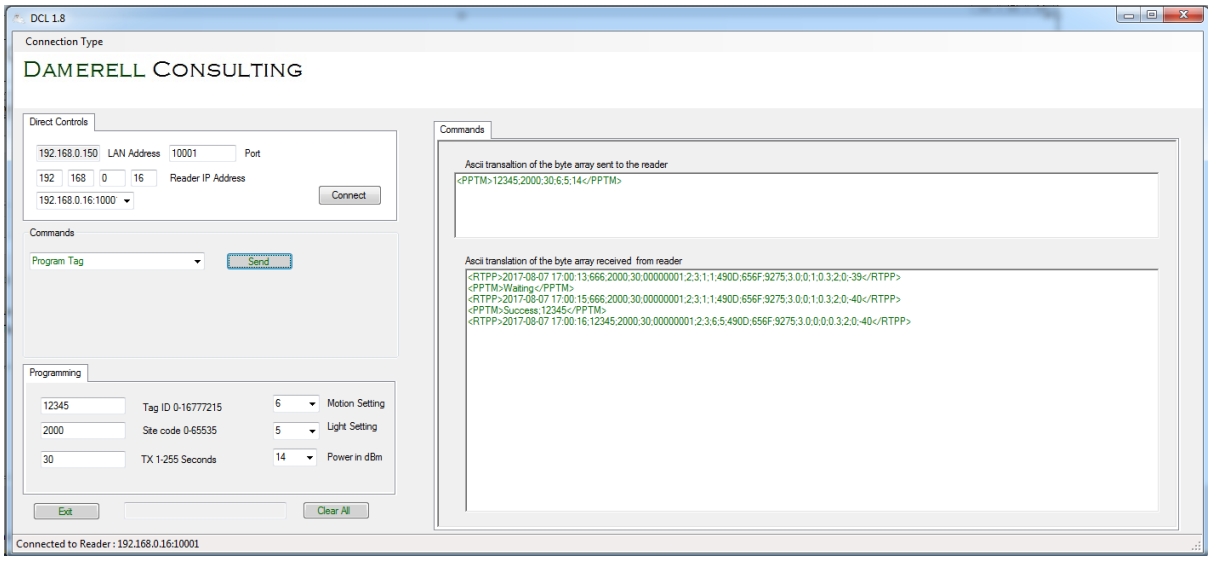
Figure 9, FS Tag packet

Field	Value	Description
1	<RTPP>	Header
2	2017-08-07 12:23:23	Time Stamp
3	111	Tag ID
4	2000	Site Code
5	5	Beacon Rate
6	33	Age Counter
7	0	Tamper count
8	8	Motion Count
9	6	Motion Threshold
10	6	Light Setting
11	3B00	Ambient Light in Lux Raw Hex Data
12	641C	Temperature Raw Hex Data
13	907C	Humidity Raw Hex Data
14	3.0	Voltage
15	0	Alarm Bits
16	0	Status
17	0.3	SW Version
18	2	HW Version
19	0	Antenna Number
20	-66	RSSI
21	</RTPP>	Footer



To program the tag, a magnet should be placed over the reed switch, after 5 seconds the tag will be programmable. The user sends the program command to the FS1000 and the tag transmits back its new values, figure 14.

Figure 14, Tag programming

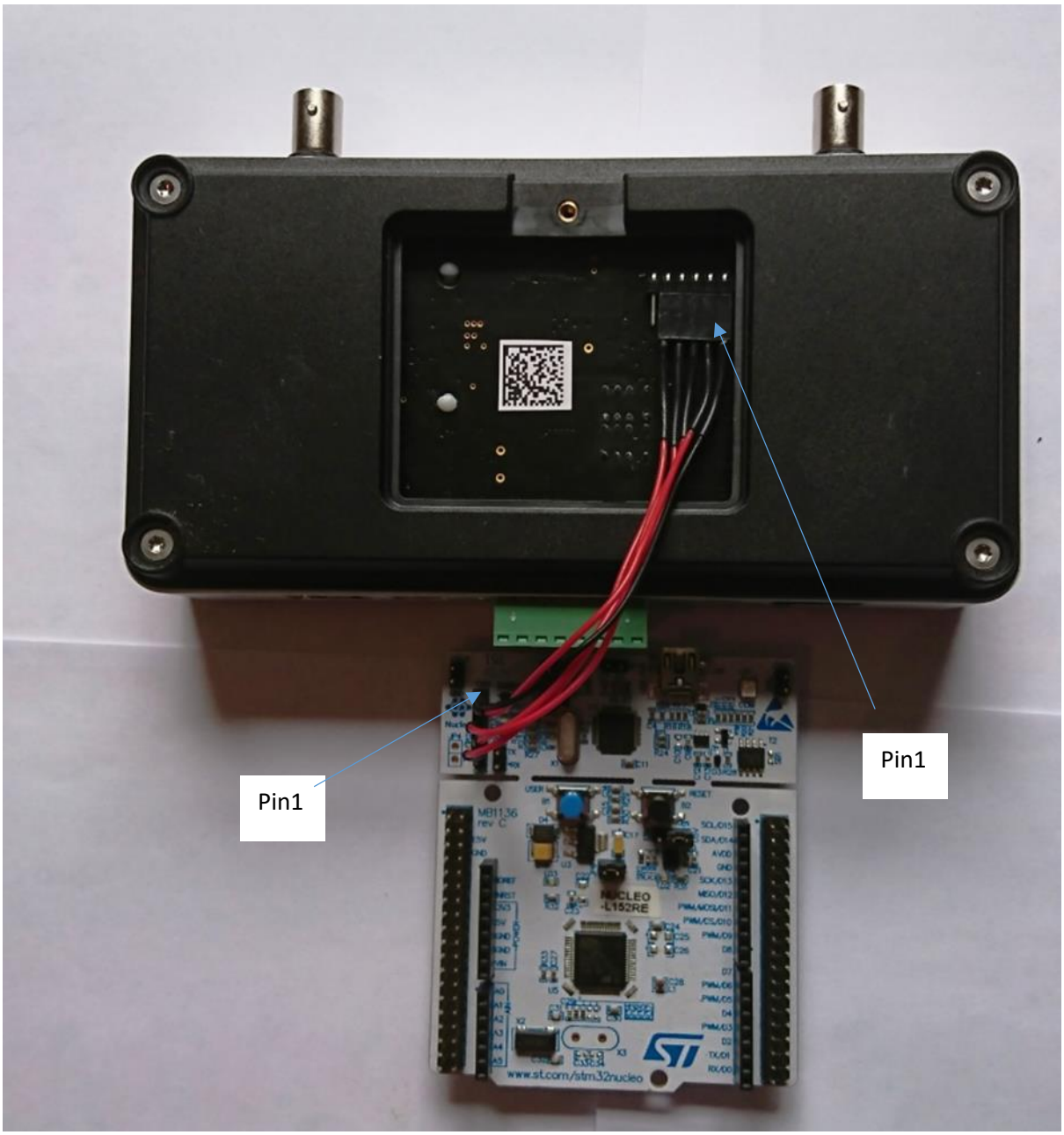


The tags can be programmed at full read range so it is recommended to set an RSSI threshold to reduce the programming range.

Updating FS1000 Firmware

The FS1000 Fw can be updated by using the supplied flash tool connected to the header accessible via the panel in the underside of the unit, figure 15.

Figure 15, FS1000 Inline programming header



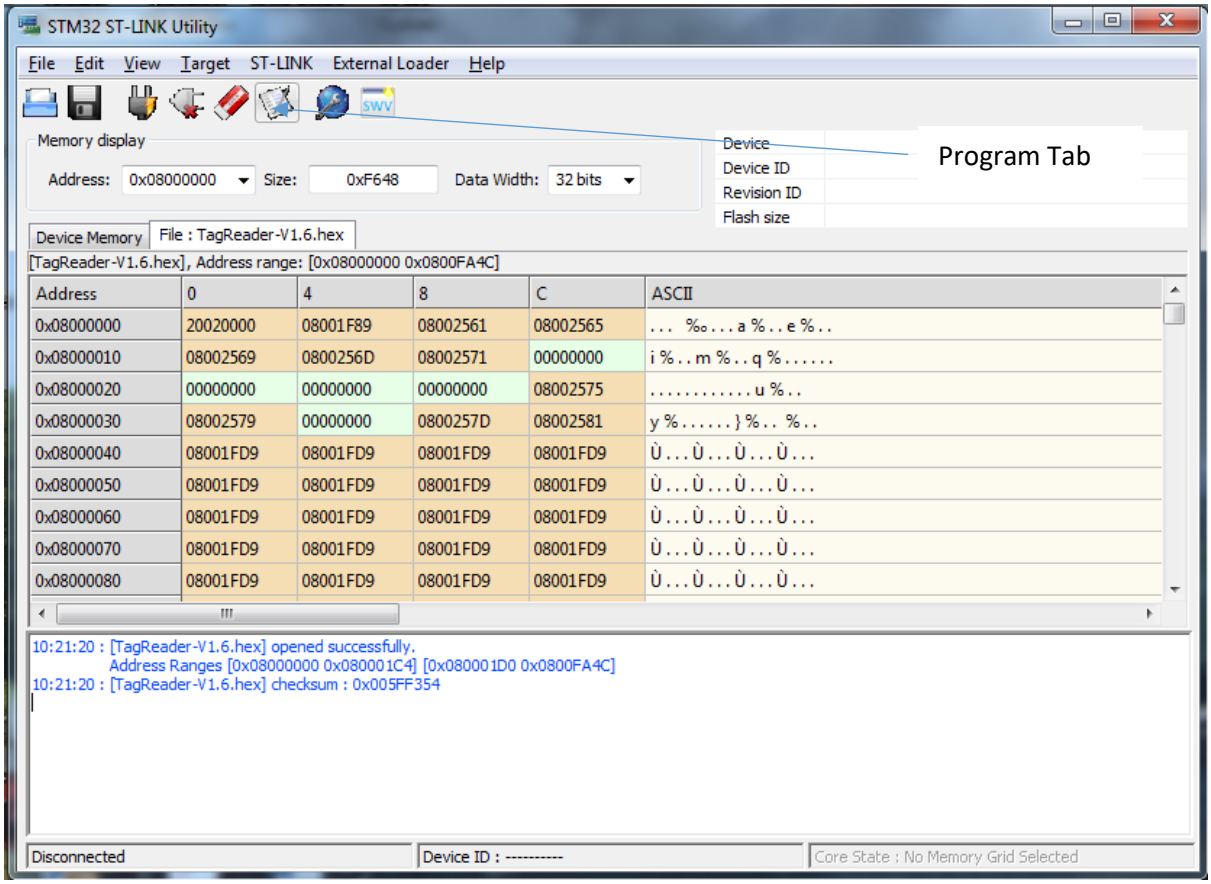
The FS1000 should be connected with Pin1 of the inline programmer connected to Pin1 of the reader. Pin 1 on the programmer is the top most pin of the 6 pin jumper CN4 and is marked with a dot, Pin 1 on the reader is the furthest pin to the right as shown above.

The software application STM32 ST-Link Utility that required to flash the FW can downloaded using the link below.

http://www.st.com/en/embedded-software/stsw-link004.html

The process to flash the reader straight forward, first open the application, then click file Open and navigate to the Hex file provided. To flash the reader click the program tab, figure 16.

Figure 16, STM32 Link software



Contact Details

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Fitting Instructions

Requirements

- FS1000
- Screws

Installation

First ensure that the mounting surface is clean and free from debris, remove any dirt using the cloth.

The FS1000 can be mounted directly to a wall using screws or mounted on a flat fixture

The FS1000 should not be installed at a height above 2m from the floor

Maintenance

The FS1000 is a sealed unit and requires no maintenance during its life span.

Cleaning

The FS1000 can be cleaned using water applied to a cloth.

Please ensure that device is disconnected from power before cleaning.

Solvents and Oils should not be used for cleaning the FS1000

End of Life

At the end of its functional life the FS1000 must be disposed of in a suitable local recycling facility and in accordance with any local laws pertaining to the recycling of waste electronic equipment. The FS1000 consists of an ABS and Aluminium housing with it are electronic components. It contains no substances banned by the European Union's Restriction of Hazardous Substances (RoHS) directive.

Environmental

The FS1000 has an operational temperature range of -20 to +55 Degrees Celsius.

FCC Statement

This device complies with Part 15 of FCC Rules and standard(s).

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.