

Renfell Engineering Pty Ltd

Single Port USB Host

FX30™ Internet of Things module



Introduction

The Renfell Engineering Single Port USB Host IoT card enables the user to add an additional Type 'A' USB host port to either a FX30™ or mangOH™ platform. The port provides USB over current limiting to 500mA and Hot-Plug protection via integrated ESD diodes.

Additionally, power control over the USB host port is provided by using the IoT connector nRESET line.

Note that this card only adds a USB Hardware interface – it is the users' responsibility to add any drivers or modules to the Yocto Linux™ distribution running on the FX30™ or mangOH™ platform to support USB devices plugged into the USB host port.

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Important Notice

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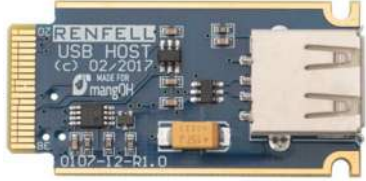

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FX30™, mangOH™, Legato™ and the mangOH™ symbol are Registered Trademarks® of Sierra Wireless, Inc and are used with permission. All other product and company names are trademarks™ or registered® trademarks of their respective holders. Use of them does not imply any affiliation with or endorsement by the respective trademark owners

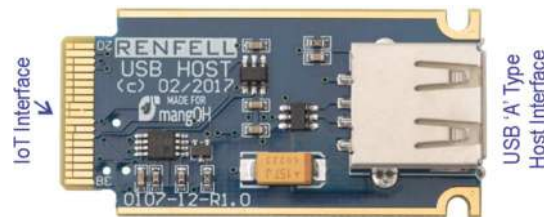
Items Supplied in the Kit

The following items are supplied in the kit. Please check carefully that all items are present and contact your supplier if any are missing.

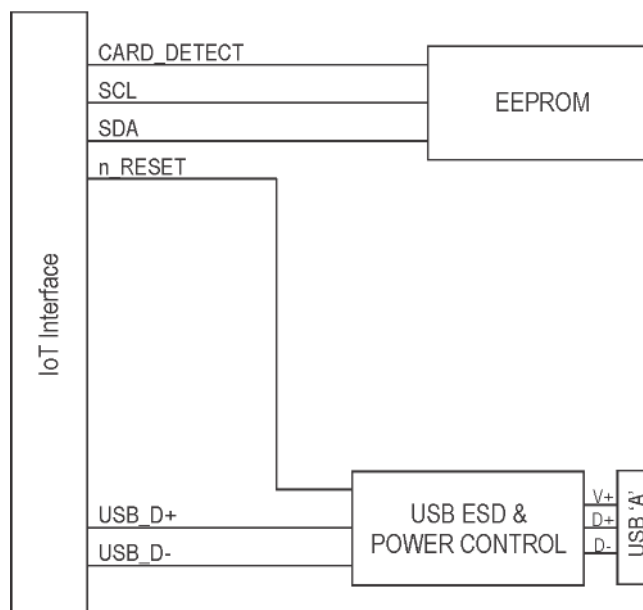
1	USB Host IoT Card	
2	Aluminium cover-plate for FX30™	
3	2 x M2 x 6 Pan head screws	

Please note that the Aluminium endplate and M2 screws may be packaged together.

Board Overview



Block Diagram



Connection Details

Connection to the IoT card is via a standard USB 'A' Type connector

WARNING: This is NOT an isolated USB interface.
The USB Ground connection is common to the Ground connection on the FX30™ or mangOH™ platform.

ATTENTION: The nRESET signal MUST be asserted (i.e. not set) in software to enable USB power (V_{BUS}) on the 'A' type host connector.

Assembling the IoT card into the FX30™

Some minor electronic and mechanical skills are required to assemble the IoT card and the FX30™.

Skill Level: Easy

Tools Required: ESD safe workspace
#1 Phillips Screwdriver

NOTE: Both the FX30™ and IoT card are sensitive, precision electronic devices and some care is required during assembly. If you are not comfortable doing this assembly, please get a trained technician to do it for you.

WARNING: Before commencing work, ensure that the FX30™ is completely unplugged from the power supply, Ethernet/ Serial connection and the GNSS/ CELL antennas.

Step 1



Undo the two countersunk M2 Phillips Head screws and set them aside

Step 2



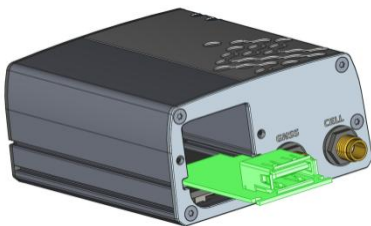
Once both screws have been removed, take the original cover-plate off the FX30™ and set it aside.

Step 3



After removing the cover-plate, the IoT slot (and SIM slot) can be accessed

Step 4



Carefully line up the IoT card with the slots in the aluminium extrusion.
Take care that both edges of the IoT card are in the slots – it is possible to put the card in on a slight angle and then it won't seat home correctly

Step 5



Gently push the IoT card into the slot. There should be almost no force required at this point.
The IoT card is ready to be seated into the edge connector in the FX30™ once the card has about 6 mm left outside the FX30™ housing.
Firmly push the card into the FX30™ until the end of the card is flush with the outside of the FX30™ housing.

Step 6



Place the replacement cover-plate (supplied with the IoT card) over the end of the connector on the IoT card and line up the two screw holes.

Step 7



Use the two Pan-Head screws supplied with the IoT card to screw the end-plate into place.
Take care when starting the screws not to cross-thread them in the FX30™ or you will damage the existing threads.
Likewise, **do not over-tighten** the screws or you will strip the thread in the FX30™.