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Q330M+

AUG MEETING – TAORMINA, SICILY

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| May 28 – 30, 2019

Q330M+ Overview

Q330M+



Q330M+ Overview

Features

2

- CD1.1, native Q330, and SeedLink communication protocols
- Data packet authentication via Spyrus Authenticator device (DSA, ECDSA)
- PTP Timing option
- High input impedance and gain settings of 1, 2, 4, 8, 16, 32, 64, 128 for passive sensors selectable per sensor group
- Webserver for setup and configuration via GUI
- Optional Auxiliary Channel Processor (ACP) adds 5 16-bit auxiliary channels and one serial digital interface for environmental sensors
- Digital I/O for vault intrusion switch
- Dedicated power input for sensor power



Q330M+ Overview

Technical Specifications

- 3 or 6 main channels with 24-bits
- 6 auxiliary channels with 8-bits
- Over 50 SOH channels (temperature, voltages, currents, GPS status, sensor boom positions)
- 141dB RMS sine wave dynamic range (\approx 150dB peak-to-peak sine wave)
- Configurable linear or minimum-phase filtering
- Sample rates 1000, 500, 250, 200, 100, 50, 40, 20, 10, 1
- Time accuracy $< 1\mu\text{s}$ when locked to GPS or PTP server
- Wide input voltage range 9-36VDC (nominal 12V)
- Temperature range -20° to $+60^{\circ}\text{C}$ (fully specified); -40° to $+70^{\circ}\text{C}$ (guaranteed operative)
- Sensor control lock/unlock & re-center
- Calibration functions step, low-THD sine wave, MLS or random binary



Q330M+ Overview

Data

4

- (1) Ethernet port 10/100BaseT (full Linux IP protocol stack, hardcoded non-routable IP address: 169.254.10.10/16)
- (3) Virtual data ports: CD1.1, native Q330, and SeedLink
- (1) USB2.0
- (2) Console ports at 115kbaud
- Data storage on PC/MAC/Linux-formatted removable SLC SD card, standard 8GB (up to 32GB)
- Data copying or mirroring on optional external USB flash, standard 64GB (up to 256GB)



Q330M+ Overview

Connections



Sensor Group A

GPS (TNC)

Sensor Group B

Power

ACP

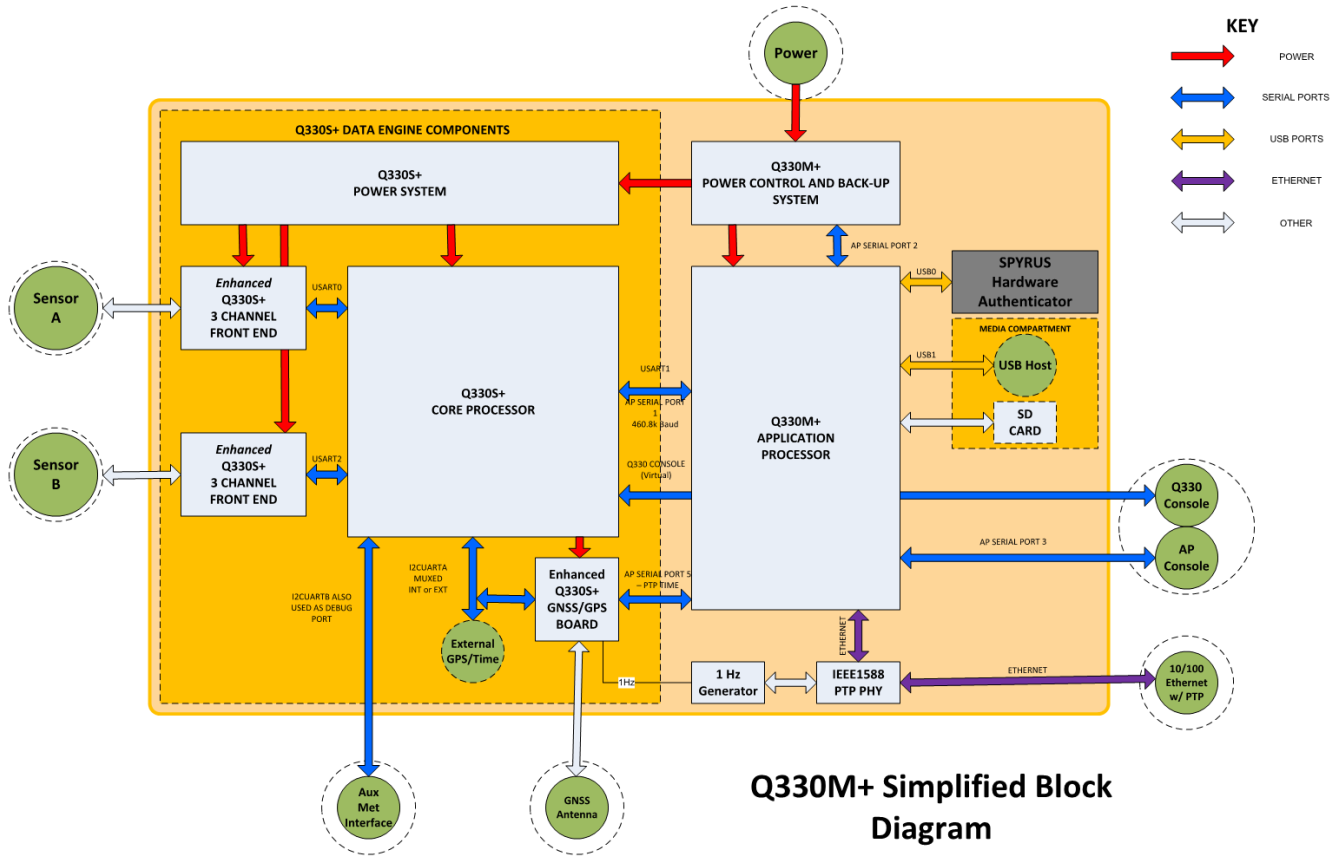
Vault Intrusion Switch

Linux Console Willard Console

Ethernet (RJ45)

Q330M+ Overview

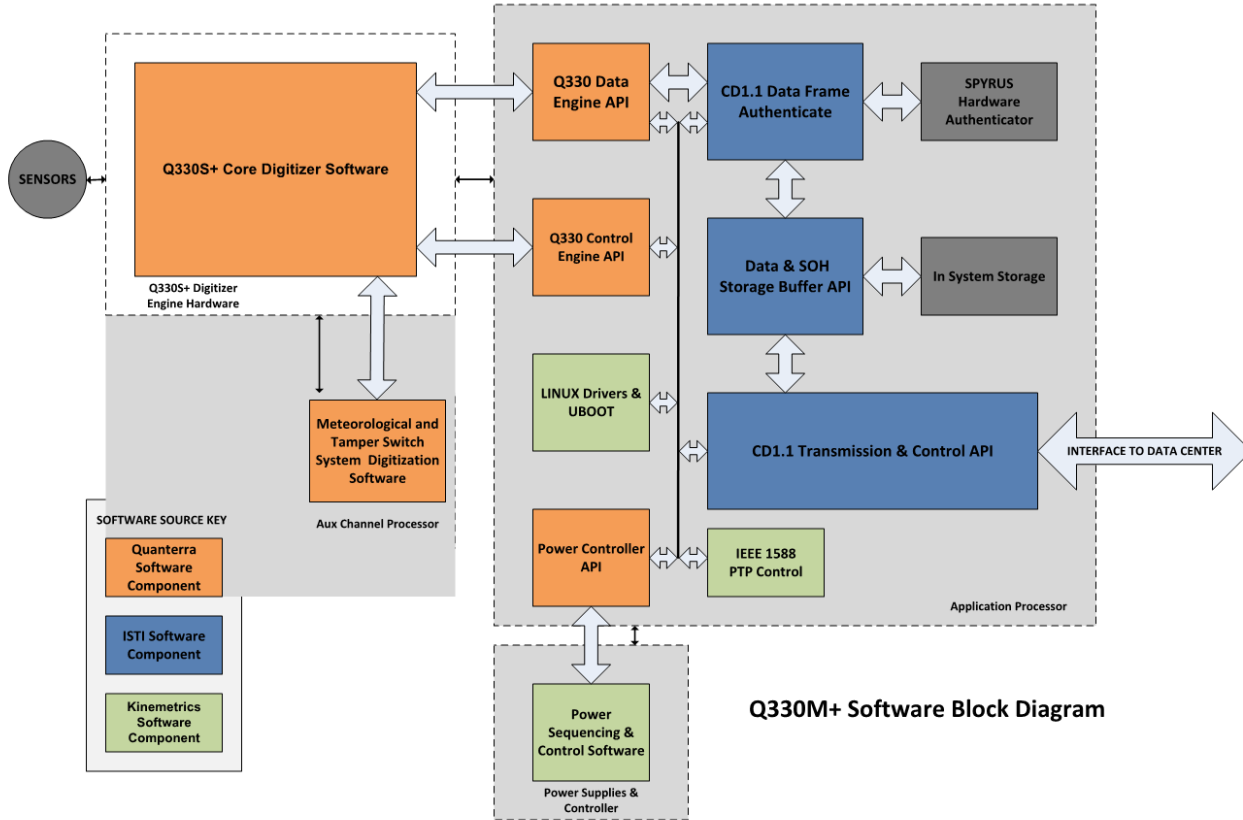
Simplified Block Diagram



Q330M+ Simplified Block Diagram

Q330M+ Overview

Software Block Diagram



Q330M+ Software Block Diagram

How to Communicate with the Q330M+

Console Connection

8

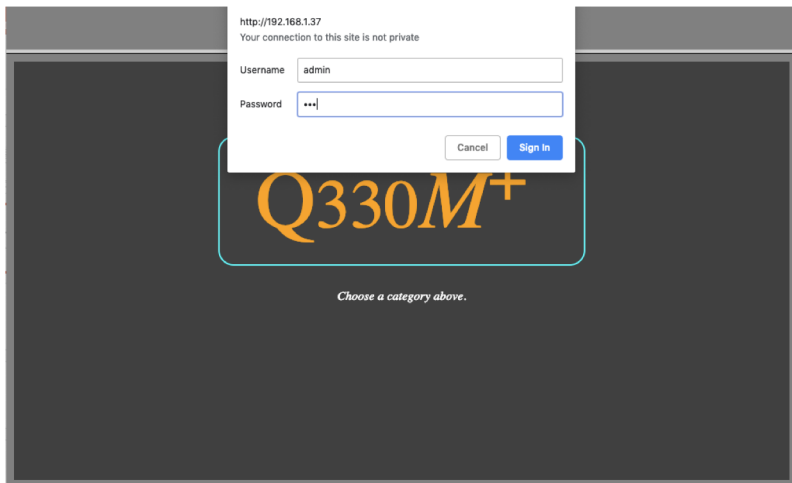


Procedure

- A. Establish Connection to the Linux console
 1. Connect console cable to 'Console' interface
 2. Connect 9-pin D-sub connector labeled 'L' to computer
 3. Using a serial client (e.g., minicom, PuTTY) establish an RS-232 (asynchronous serial) communication at with 115.2kbaud, 8 bit, no parity, and 1 stop bit (8N1)
 4. At the login prompt enter "root" and then the password "kmi"
- B. Establish Connection to the Quanterra console
 1. Connect console cable to 'Console' interface
 2. Connect 9-pin D-sub connector labeled 'Q' to computer
 3. Using Willard as usual

How to Communicate with the Q330M+

Web Interface



Procedure

- A. Establish Connection with the hardcoded IP Address
 1. Connect Ethernet Cable between Q330M+ and Laptop
 2. Configure NIC of laptop, e.g., 169.254.10.222/16
 3. Open browser and type in 169.254.10.10
 4. Enter Username: admin; and Password: kmi

How to Communicate with the Q330M+ Web Interface

Q330

Digitizer Q330CD System Status Logout

Configuration Status Commands Configuration Waveform

System 1 System 2 Data 1 Data 2 Data 3 Data 4

Load Local XML Configuration File
Choose File No file chosen Load

Load Remote XML Configuration File
Load

Configuration Status
'Save As' to generate and download file [6971.xml](#)

GPS
Source: Internal GPS Network Time GPS Power: Continuous PLL Lock or Max.
Any change to 'Source' requires save to EEPROM and digitizer reboot
Starting Hour 0:00 Update

Sensor Control

Enable	Sensor A Function	Active-Volts	Enable	Sensor B Function	Active-Volts
Gen-1	Idle	<input type="radio"/> 5V <input checked="" type="radio"/> 0V	Gen-1	Idle	<input type="radio"/> 5V <input checked="" type="radio"/> 0V
Gen-2	Idle	<input type="radio"/> 5V <input checked="" type="radio"/> 0V	Gen-2	Idle	<input type="radio"/> 5V <input checked="" type="radio"/> 0V
Gen-3	Idle	<input type="radio"/> 5V <input checked="" type="radio"/> 0V	Gen-3	Idle	<input type="radio"/> 5V <input checked="" type="radio"/> 0V
Cal	Sensor A Calibrate	<input checked="" type="radio"/> 5V <input type="radio"/> 0V	Cal	Idle	<input type="radio"/> 5V <input checked="" type="radio"/> 0V

STS2 STS5 GurHi GurLo None STS2 STS5 GurHi GurLo None

Update

How to Communicate with the Q330M+ Web Interface

SSI

The screenshot displays the SSI (System Setup Interface) for the Q330M+ device. At the top, there are navigation tabs: Digitizer, Q330CD, System, Status, and Logout. The main content area is titled "Authentication" and features the isti logo on the left. A sidebar menu on the left lists various configuration options: CONFIG, GENERIC PARAMETERS (highlighted in green), AUTHENTICATION (highlighted in green), DIGITIZER, CHANNELS, and CD SENDER. Below these are buttons for READ CONFIG, WRITE CONFIG, VIEW CONFIG, and RESET CONFIG. A plus sign indicates expanded options: KEY MGMT and HELP. A legend box at the bottom left defines status colors: Untouched (grey), Visited (yellow), Save Failed (red), and Saved (green). The main form contains the following fields and controls:

- CARD PIN: 1234
- CARD TYPE: spyrus
- KEY TYPE: ECDSA
- AUTH CARD SLOT: 1
- COMMON NAME: I13H1
- LOCALITY NAME: I13CL
- UNIT1 NAME: Data Authenticators
- UNIT2 NAME: IMS
- ORGANIZATION NAME: CTBTO

At the bottom of the form are buttons for UPDATE, UNDO, DEFAULT, ADVANCED, and HELP. A message box at the bottom center states "Form Successfully Updated".

How to Communicate with the Q330M+

Web Interface

12

Status

Digitizer Q330CD System Status Logout

Health Status: OK

Site: I13H1
Property Tag: 6977
Serial No: 0360009CFBCE6017
Temperature: 28c
Clock Qual/Ph: 100% / 0%
Lat/Lon/Elev: / / /
Time Mode: PTPSLAVE
TCXO: Consistency=100
OS Time: Fri May 24 17:58:03 UTC 2019
OS Uptime: up 57 minutes
Load Avg: 4.48
Mem Free: 362168kB
RT Uptime: 17 minutes
SW Ver: KMI Q330MPlus Update 2.5

Health Issues: None

CD Send: Channels=5 Signed=Yes RXOps=62 TXOps=3094 IOErrs=12

PSU: volts=12.789 Amps=0.269

Filesystem	Size	Use%	Mounted on
/dev/root	2.5G	58%	/
/dev/mmcblk0p3	998M	12%	/mnt/sysrw
/dev/mmcblk1p1	29G	1%	/mnt/data1

Log Info Help This page will auto-refresh.

How to Communicate with the Q330M+

Web Interface

13

System

Network Parameters

Host Name

Domain Name

Eth0 Mode DHCP Static

IP Address

Netmask

Gateway

DNS1

DNS2

Runtime Parameters

Q330 ESN

Q330 Auth Code

Ring Server Size MB

Q330CD/SSI Startup Enable

DNS1

DNS2

Runtime Parameters

Q330 ESN

Q330 Auth Code

Ring Server Size MB

Q330CD/SSI Startup Enable

PTP Master Enable

PSU Parameters

DCOn Volts

DCOff Volts

APOn Volts

APOff Volts

Q330M+



Thank You Questions?