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Rockhound Changes and More

Antelope/Kinemetrics User's Group

5/7-5/9, 2018

Dennis Pumphrey
Manager, Software Engineering
Kinemetrics, Inc.

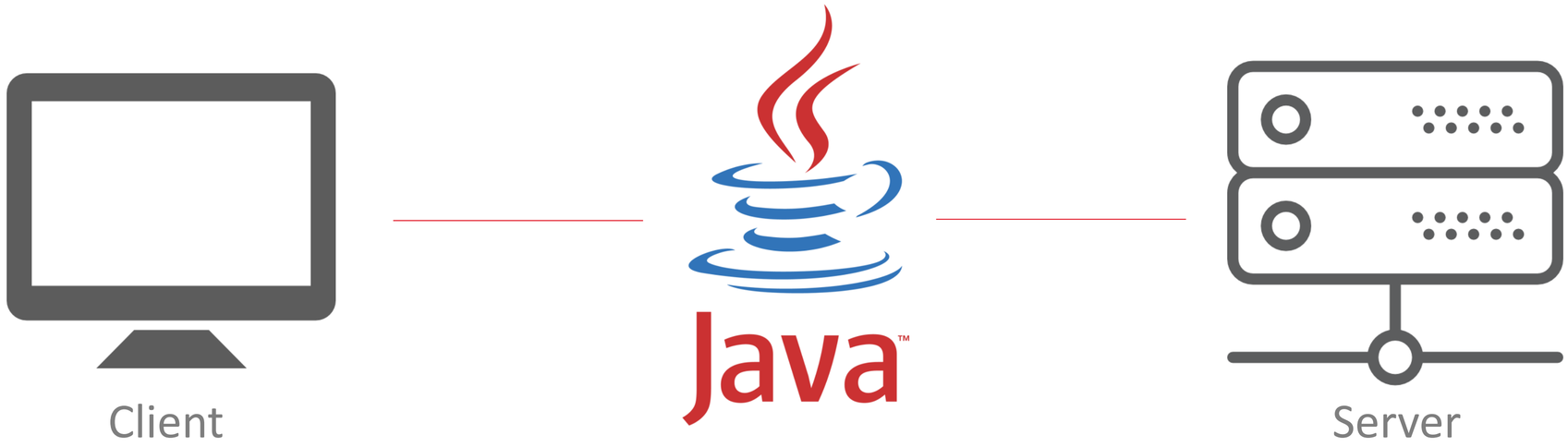
Rockhound v3.15 & Later

v3.15 released since the last AUG, and v3.16 is imminent:

- New Waveform Viewer
- EpiRange command
- ORB pf/cfg packets
- Rock Monitor
- Lots of small changes and fixes

Waveform Viewer[1]

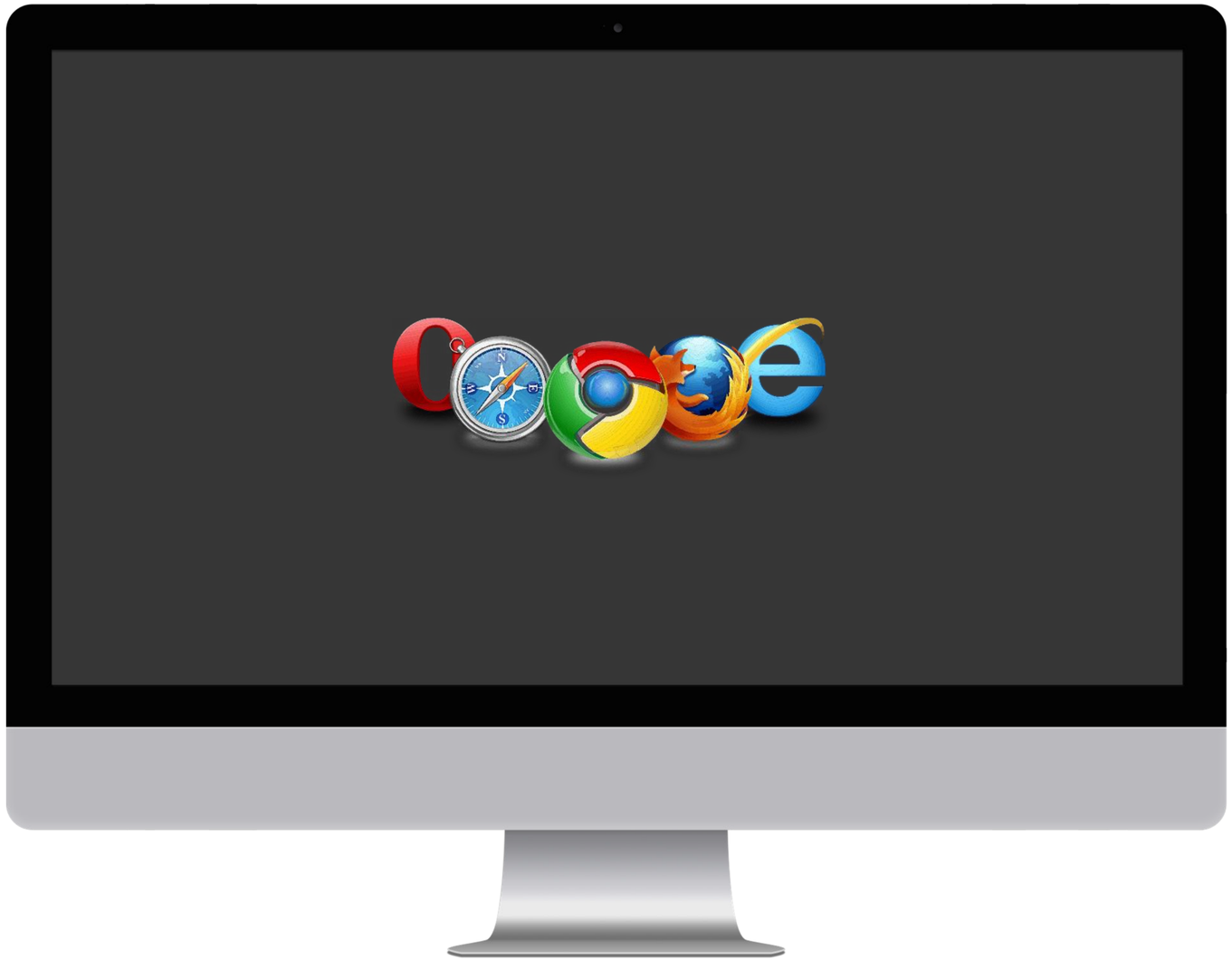
Replaces the Java Applet*-based Waveform Viewer



Waveform Viewer 2

Why replace it?

- Required Java in the browser
- Security concerns that got press time
- Browsers have mostly dropped support for Java Applets
- Never worked on mobile devices such as phones and tablets



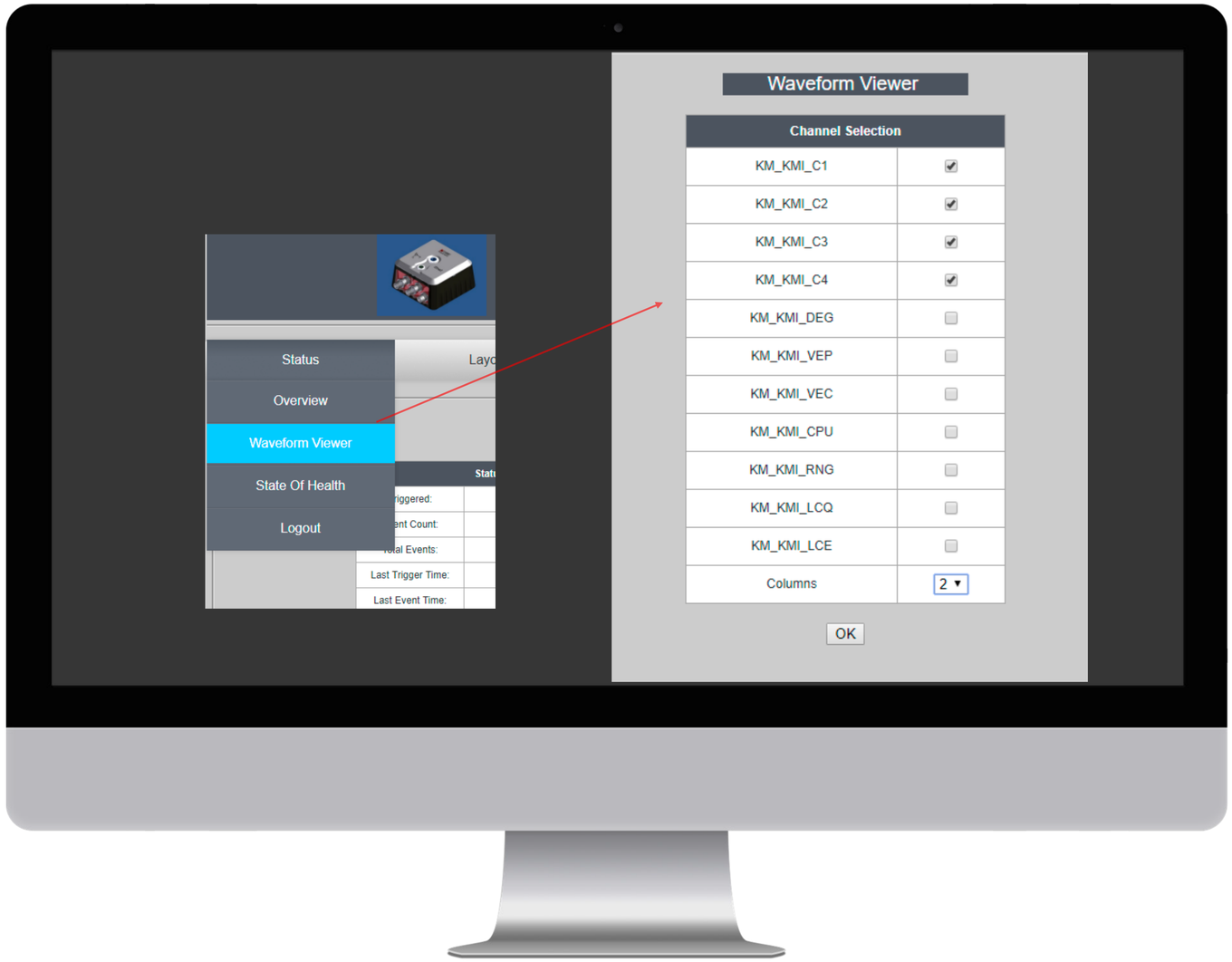
Waveform Viewer 3

New Waveform Viewer:

- Ground-up rewrite
- Does NOT require Java in the browser
- Based on Javascript* and web sockets
- Supported by all modern browsers including phones and tablets
- Will work on Etna2 and Obsidian as well as Basalt/Granite (old & new web servers)
- Is the default Waveform Viewer *

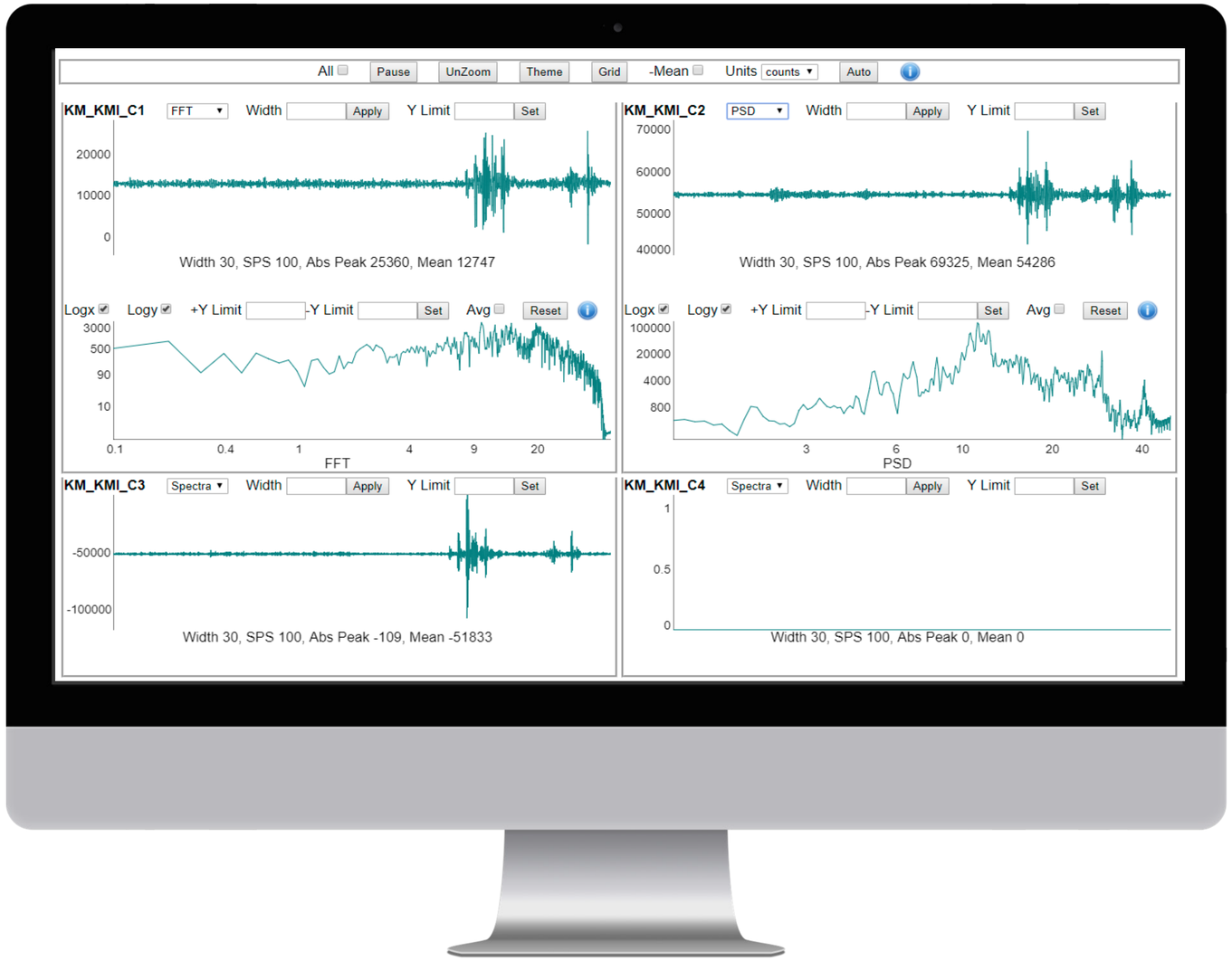
Waveform Viewer [4]

Select channels and columns:



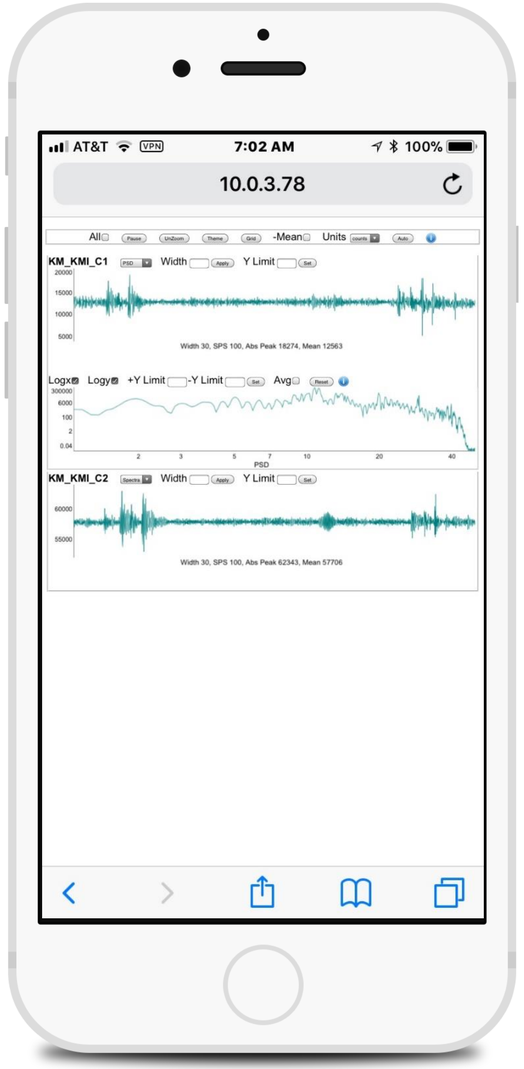
Waveform Viewer [5]

Waveform Viewer [6]



Waveform Viewer [7]

Works on your phone and table too, including the spectral displays.



EpiRange

Question from AUG 2017: I have a mix of units in the field, how can I remotely tell what ranges their individual EpiSensors are set to?

4g?

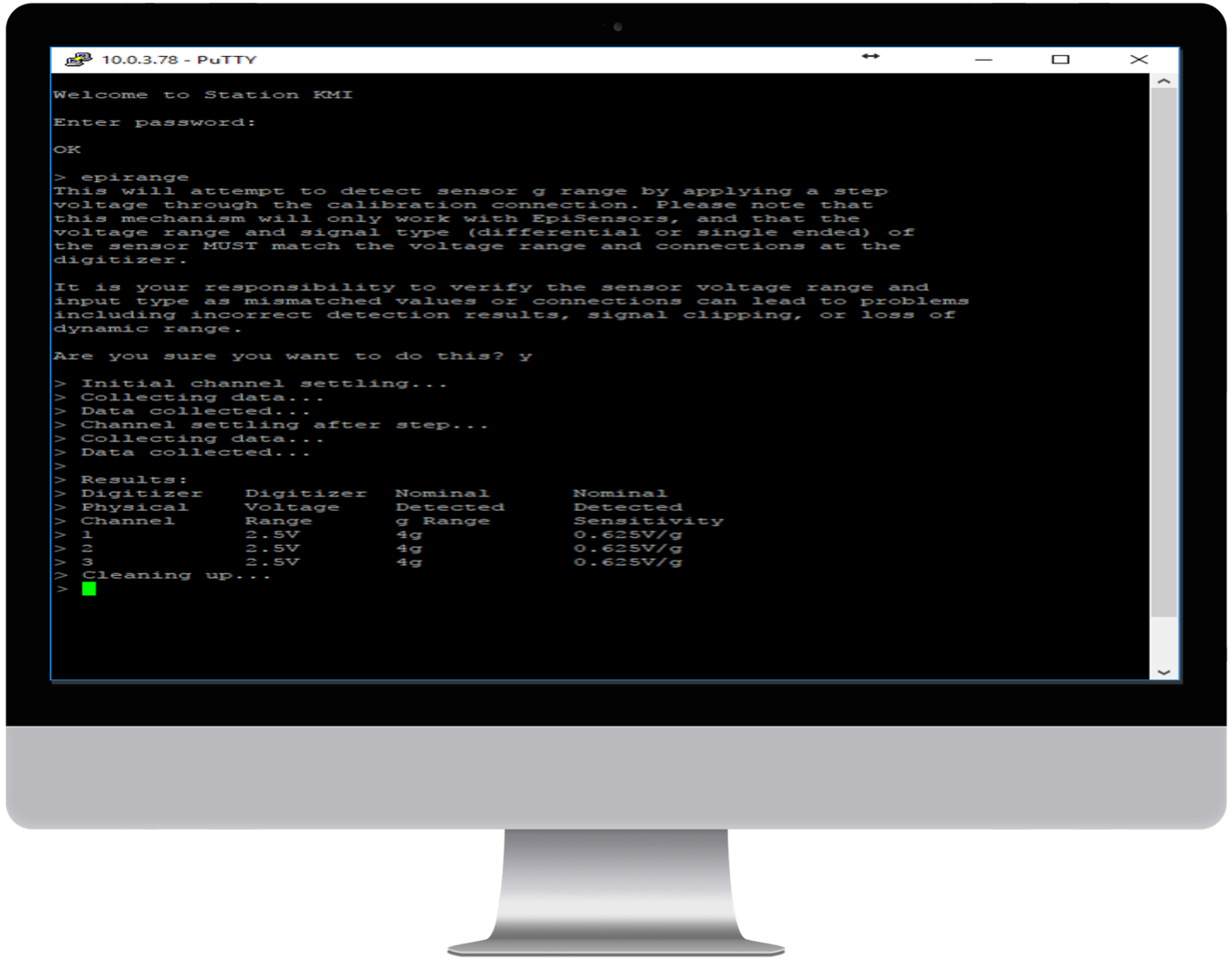
1g?

2g?

 |

EpiRange^2

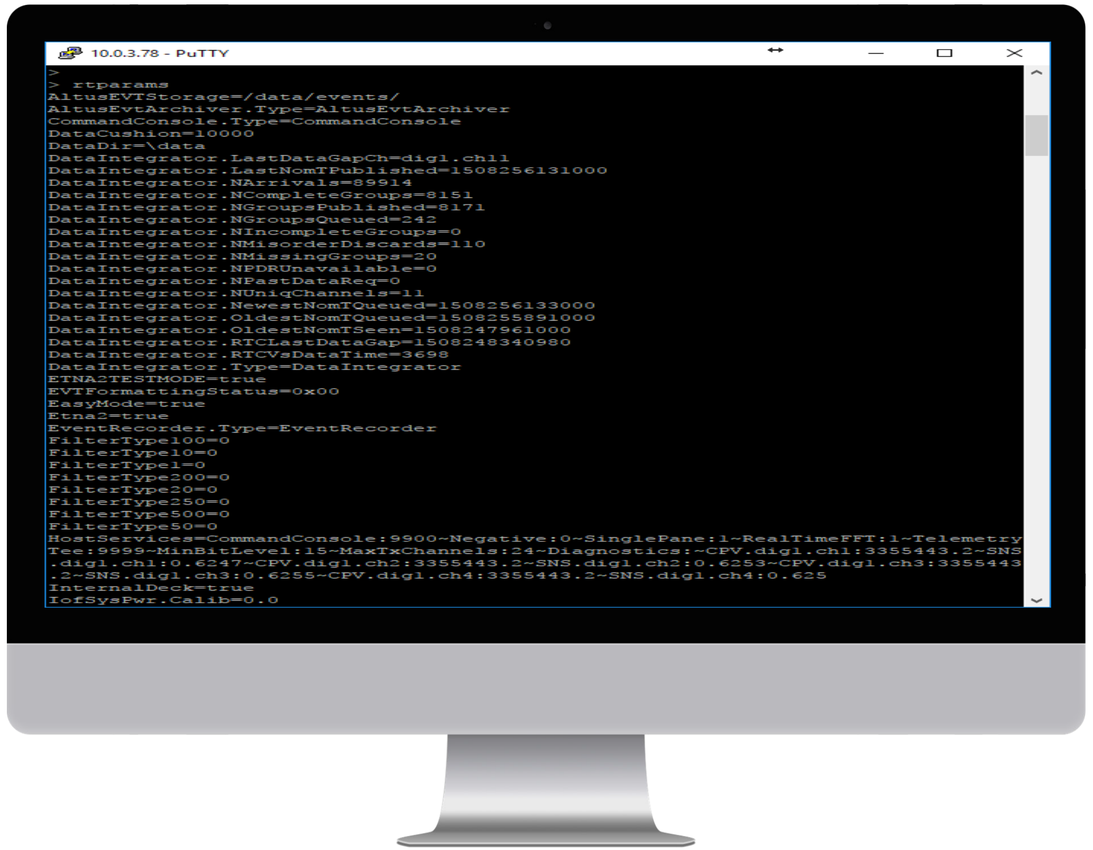
Answer: Use the “Epirange” command from the Rockhound console, port 9900:



Ring Buffer /PF/CFG

Also from AUG 2017:

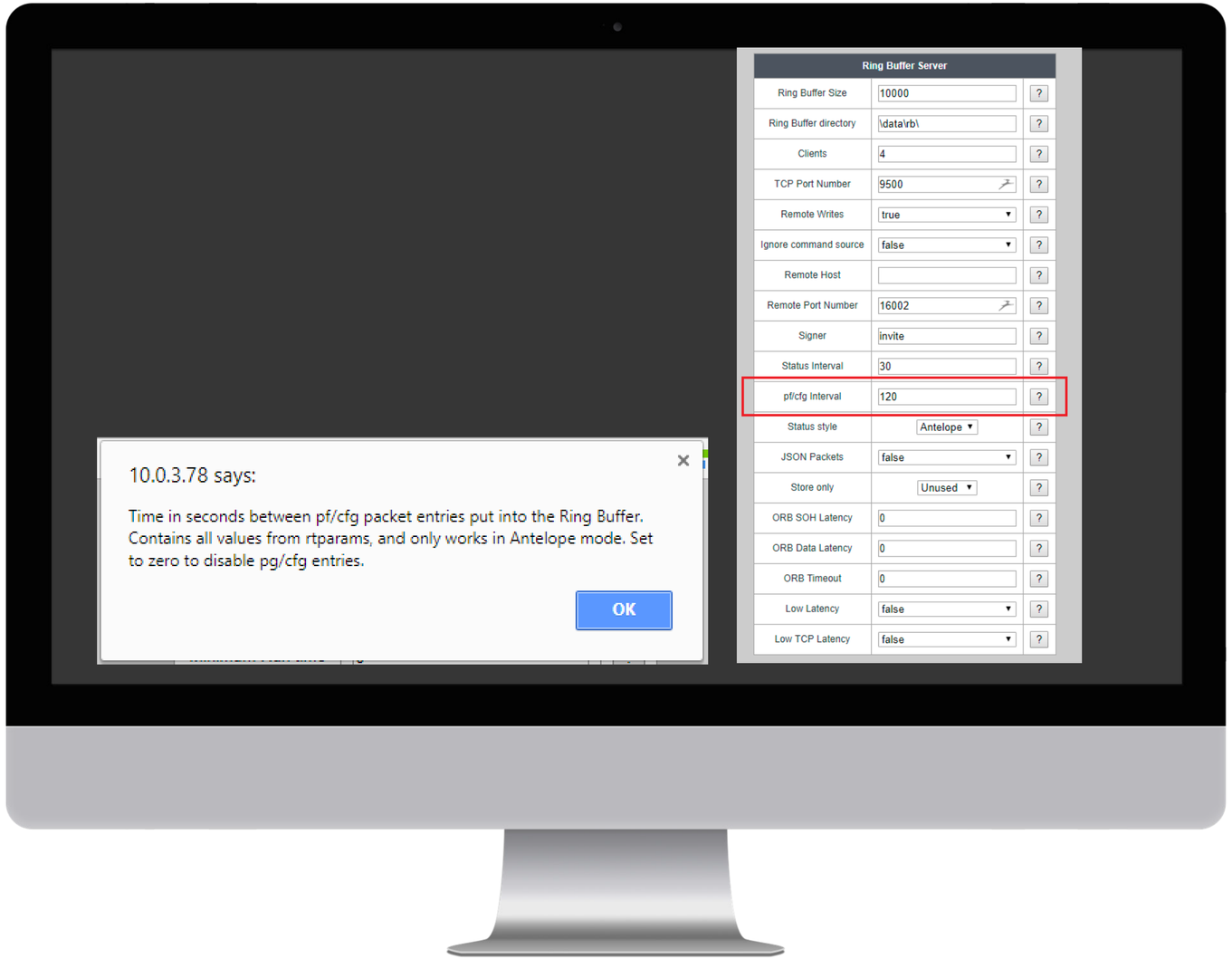
We’ve long had the ability to “brain dump” what the digitizer knows about itself using the Rockhound Console command “rtparams”



Ring Buffer /PF/CFG^2

A new packet /pf/cfg can now be generated automatically or on request and sent to Antelope

(or dlcm command cfgrequest)



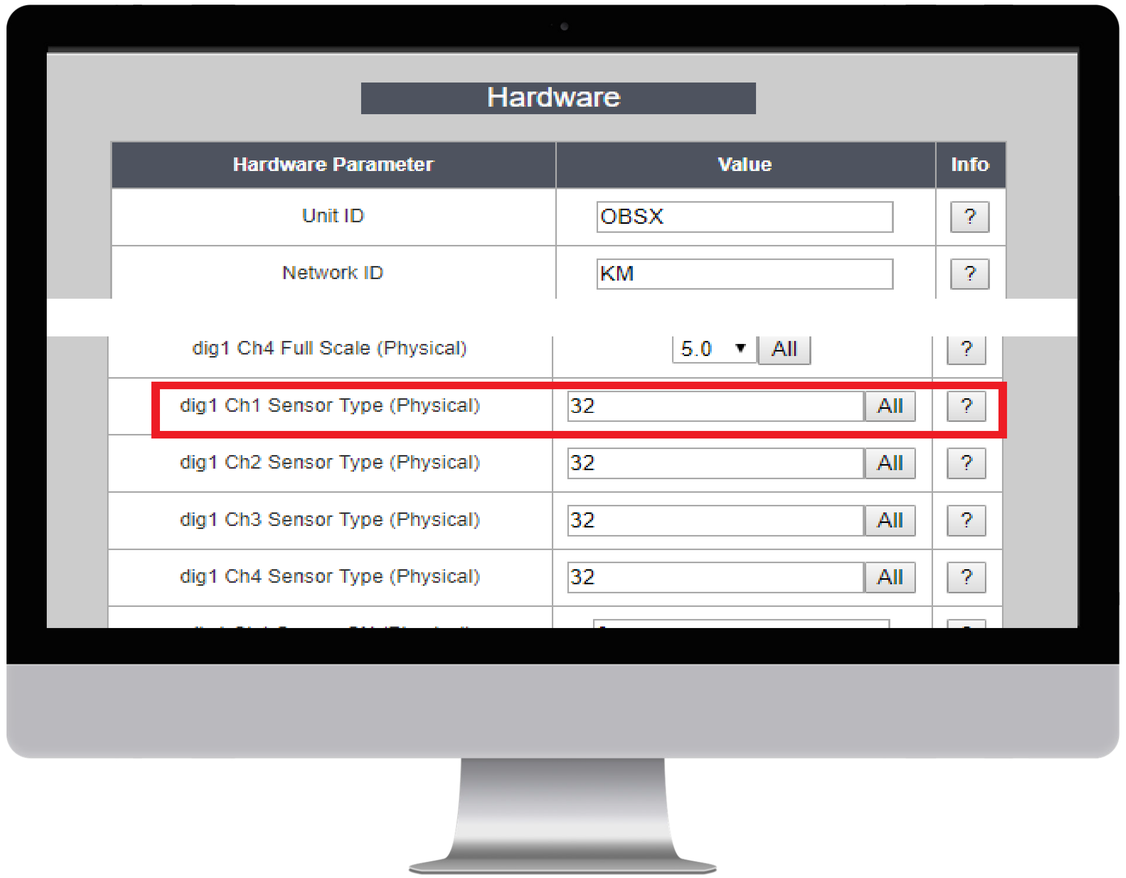
Basalt/Obsidian Calibration

The Basalt and Obsidian digitizers support external sensors of 2.5V, 5V, and 20V ranges.

But did you know that they also give you significant control over sensor calibration sequences?

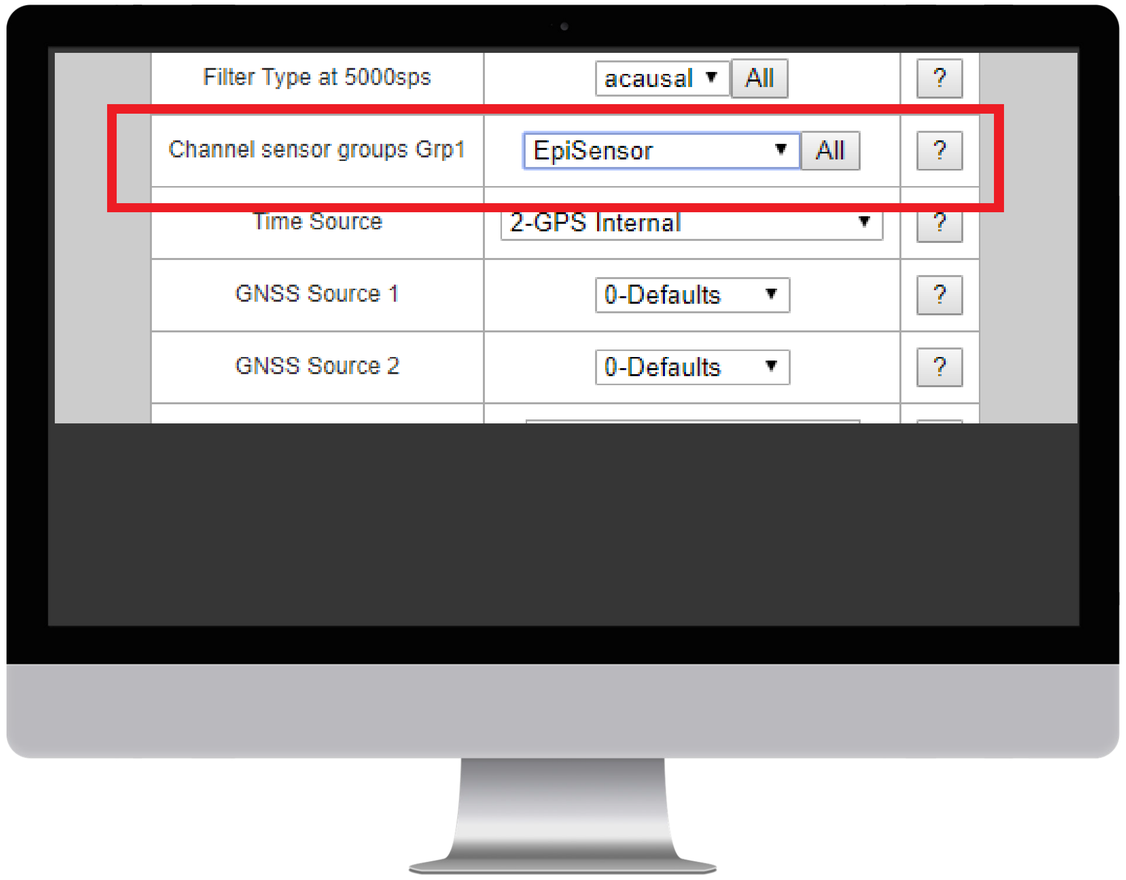
Basalt/Obsidian Calibration[2]

Sensor Type (in Hardware) is a notational entry for certain file or telemetry formats that support it



Basalt/Obsidian Calibration[3]

The selections here correspond to .CSQ files, which are sensor control scripts. Presence of a .CSQ file causes it to appear in this list



Basalt/Obsidian Calibration[4]

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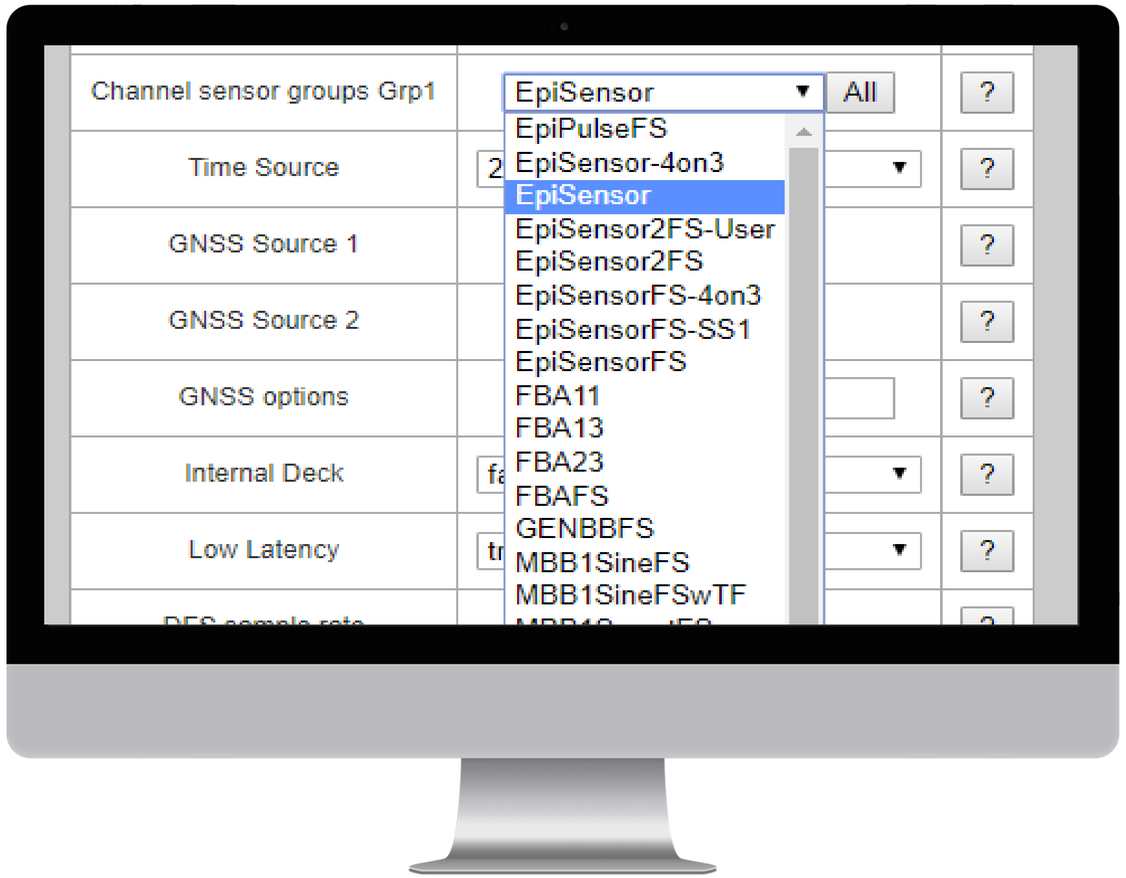


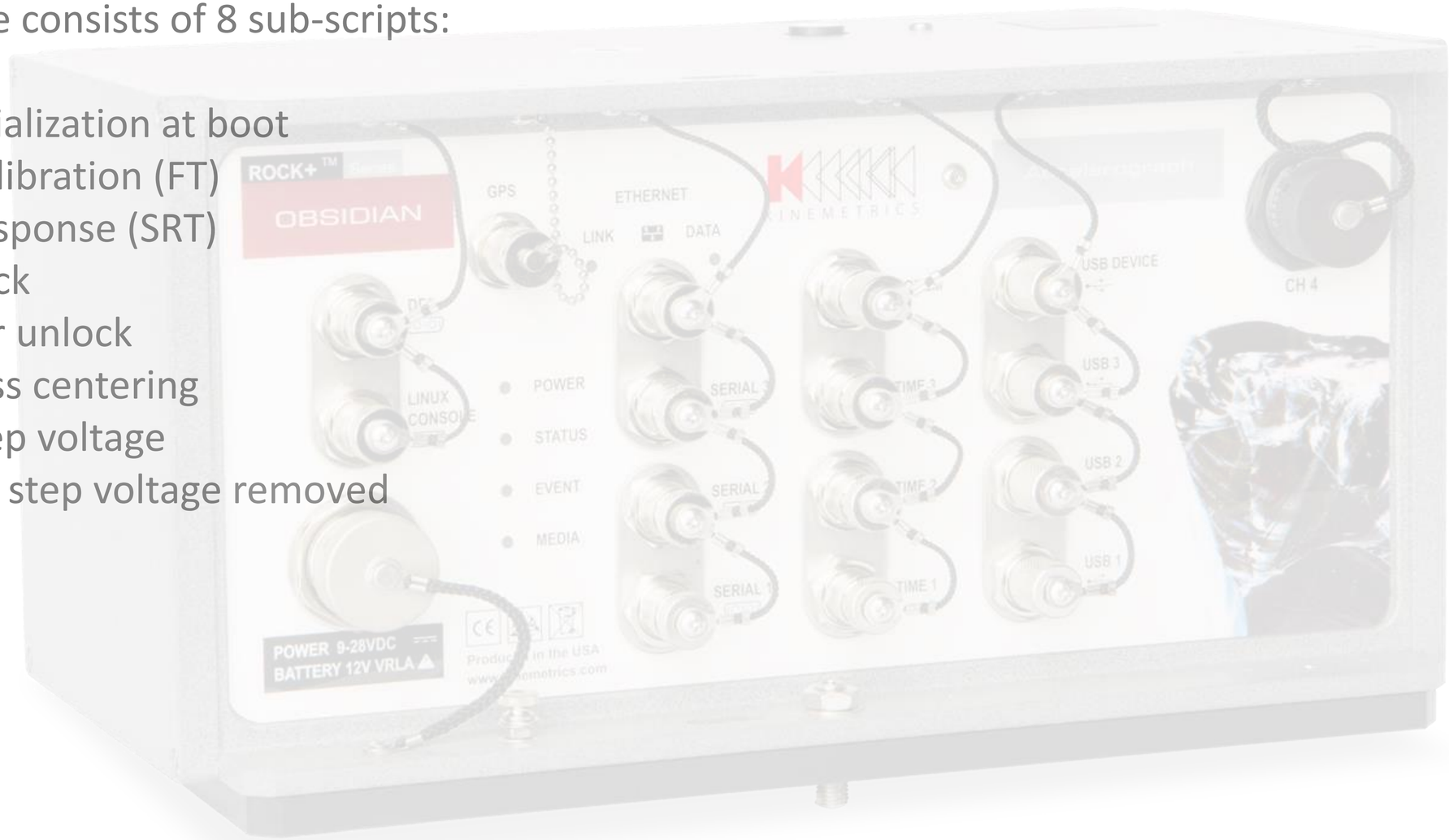
Basalt/Obsidian Calibration[5]

```
Obsidian:/usr/rock/SMARTSDist# ls *.csq
EpiPulseFS.csq          FBA11.csq          MBB1SweptFSwTF.csq
EpiSensor-4on3.csq      FBA13.csq          MBB2SineFS.csq
EpiSensor.csq           FBA23.csq          MBB2SineFSwTF.csq
EpiSensor2FS-User.csq   FBAFS.csq          MBB2SweptFS.csq
EpiSensor2FS.csq        GENBBFS.csq        MBB2SweptFSwTF.csq
EpiSensorFS-4on3.csq    MBB1SineFS.csq     PBBFS.csq
EpiSensorFS-SS1.csq     MBB1SineFSwTF.csq  PBBFSwTF.csq
EpiSensorFS.csq         MBB1SweptFS.csq    SS1FSwTF.csq
```

Basalt/Obsidian Calibration[6]

Each .csq script file consists of 8 sub-scripts:

- INIT: Sensor initialization at boot
- CAL1: Sensor calibration (FT)
- CAL2: Sensor response (SRT)
- LOCK: Sensor lock
- UNLOCK: Sensor unlock
- MASS_CTR: Mass centering
- STEP: Sensor step voltage
- UNSTEP: Sensor step voltage removed



Basalt/Obsidian Calibration[7]

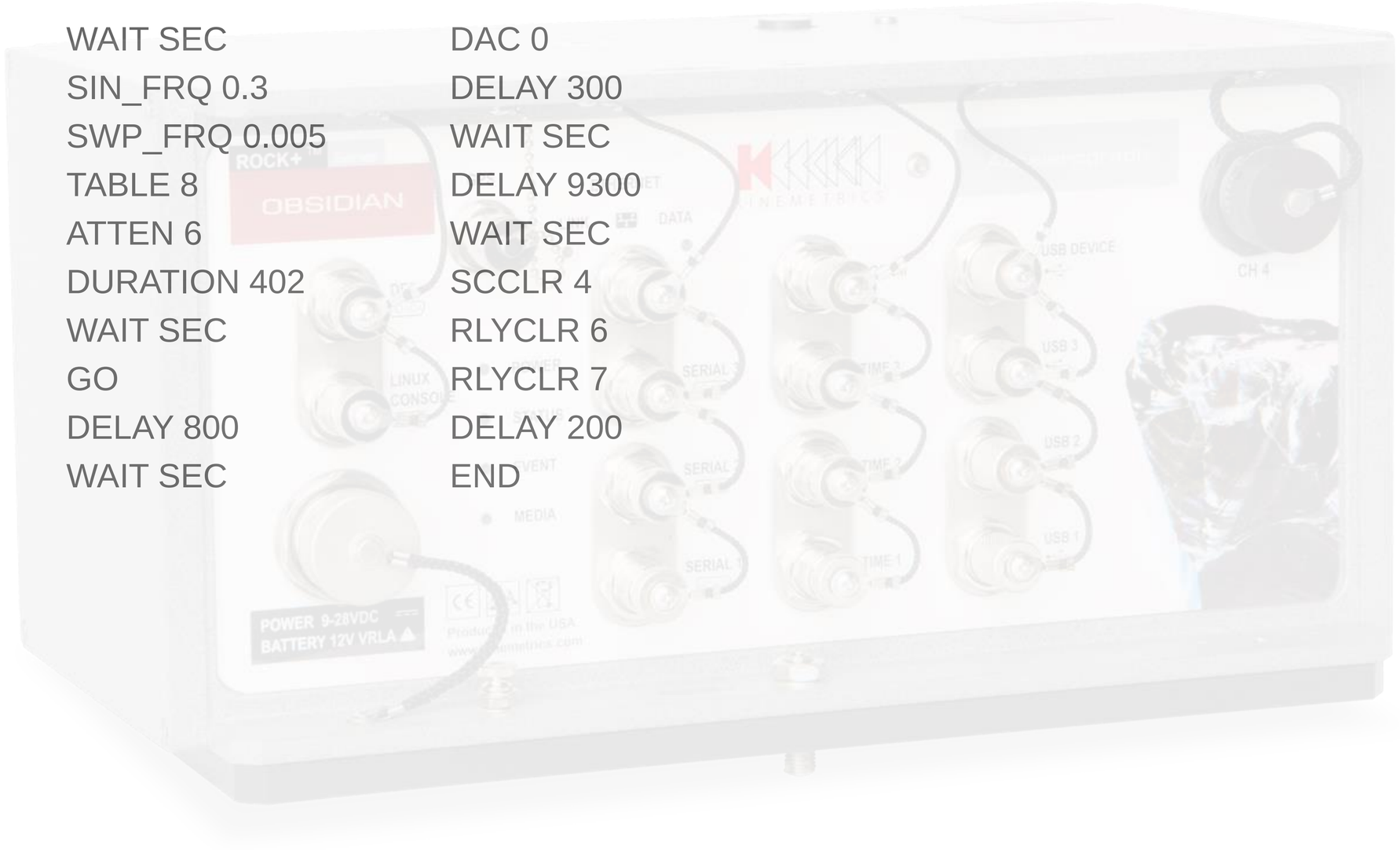
Commands (*Really* Quick Overview)

ATTEN	GO	SCCLR
CBSET	KBTRI	SCSET
DAC	MASSPOS_CHECK	SWP_FRQ
DELAY	MASSPOS_RETRIES	TABLE
DURATION	MASSPOS_WND	UNSCALED
END	NOTRIGGER	WAIT
EPI2_MASTER	RLYCLR	
EPI2_SLAVE	RLYSET	
EQU	SCALED	

Sensor control lines, programmed delays, steps, signal attenuation, Mass centering, and signal generation including PRN, Sine, and Swept Sine

Basalt/Obsidian Calibration[8]

```
; Sensor test
:CAL1
KBTRI 540
WAIT SYNC
SCSET 4
RLYSET 6
RLYSET 7
DELAY 300
DAC 0
DELAY 119300
WAIT SEC
SIN_FRQ 0.3
SWP_FRQ 0.005
TABLE 8
ATTEN 6
DURATION 402
WAIT SEC
GO
DELAY 800
WAIT SEC
DAC 0
DELAY 300
WAIT SEC
DELAY 9300
WAIT SEC
SCCLR 4
RLYCLR 6
RLYCLR 7
DELAY 200
END
```



Basalt/Obsidian Calibration[9]

You can write your own!

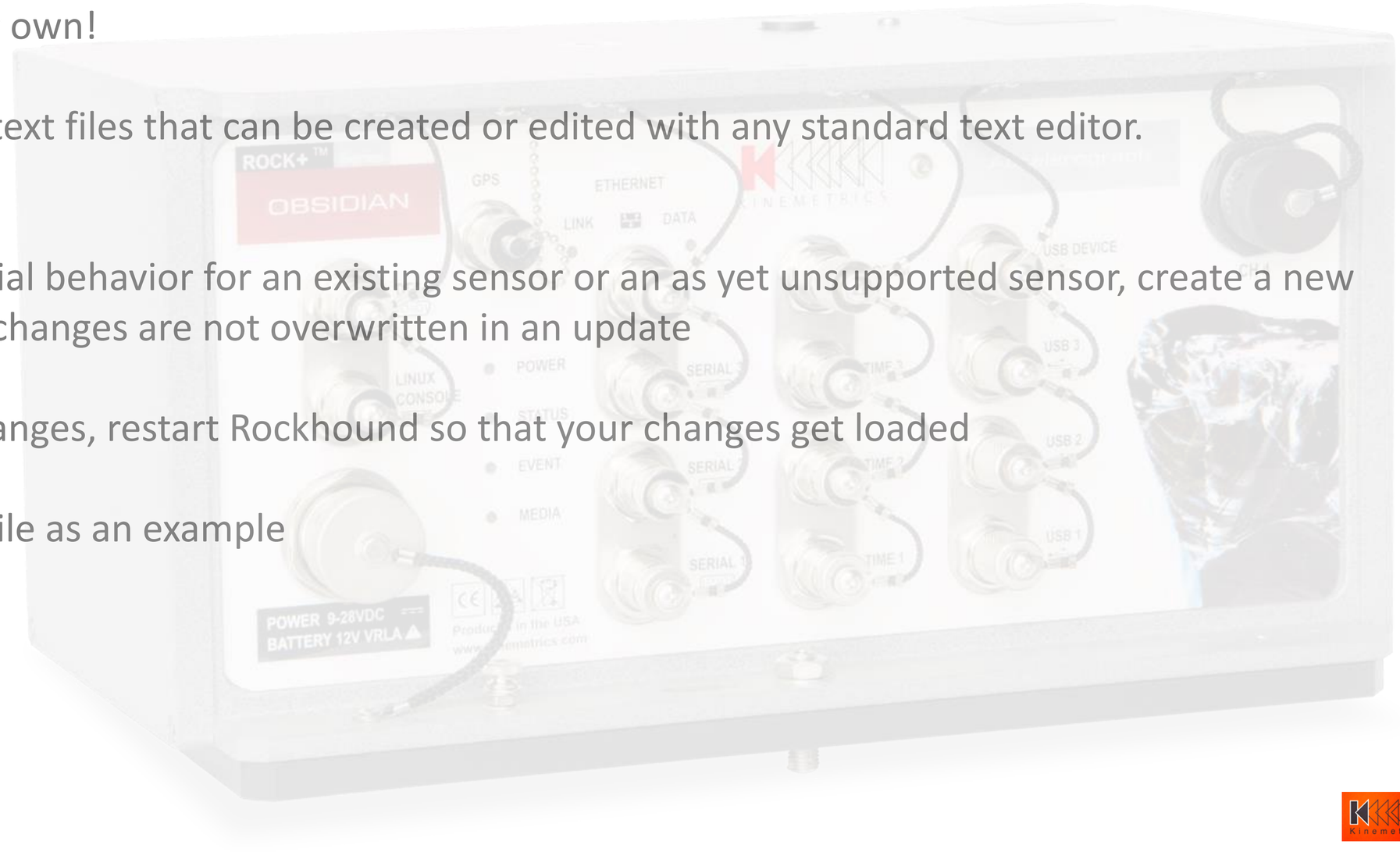
.CSQ files are just text files that can be created or edited with any standard text editor.

Notes:

- If you want special behavior for an existing sensor or an as yet unsupported sensor, create a new file so that your changes are not overwritten in an update

- After making changes, restart Rockhound so that your changes get loaded

- Use an existing file as an example



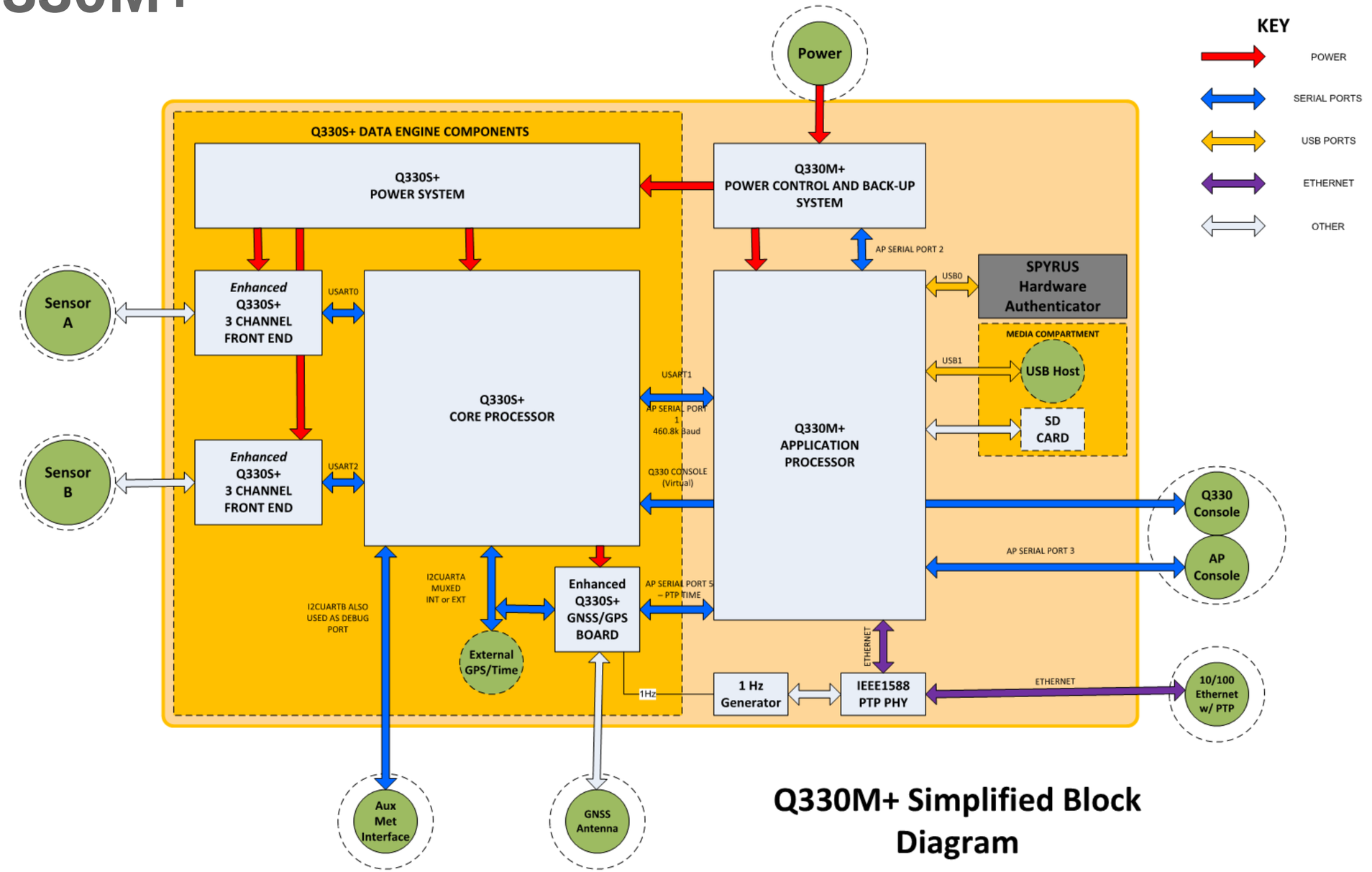
Q330M+

The Q330M+ is the newest member of the world-standard Q330 family, addressing the special needs of the nuclear treaty verification community. Largely based on the time-proven Q330S+ datalogger, Q330M+ leverages Quanterra's extensive experience in ultra-reliable network-aware seismic systems design.

The Q330M+ combines sampling rates up to 1kHz with a rich protocol library, including CD1.1, IEEE-1588 Precision Time Protocol (PTP), and FIPS-compliant hardware authentication.

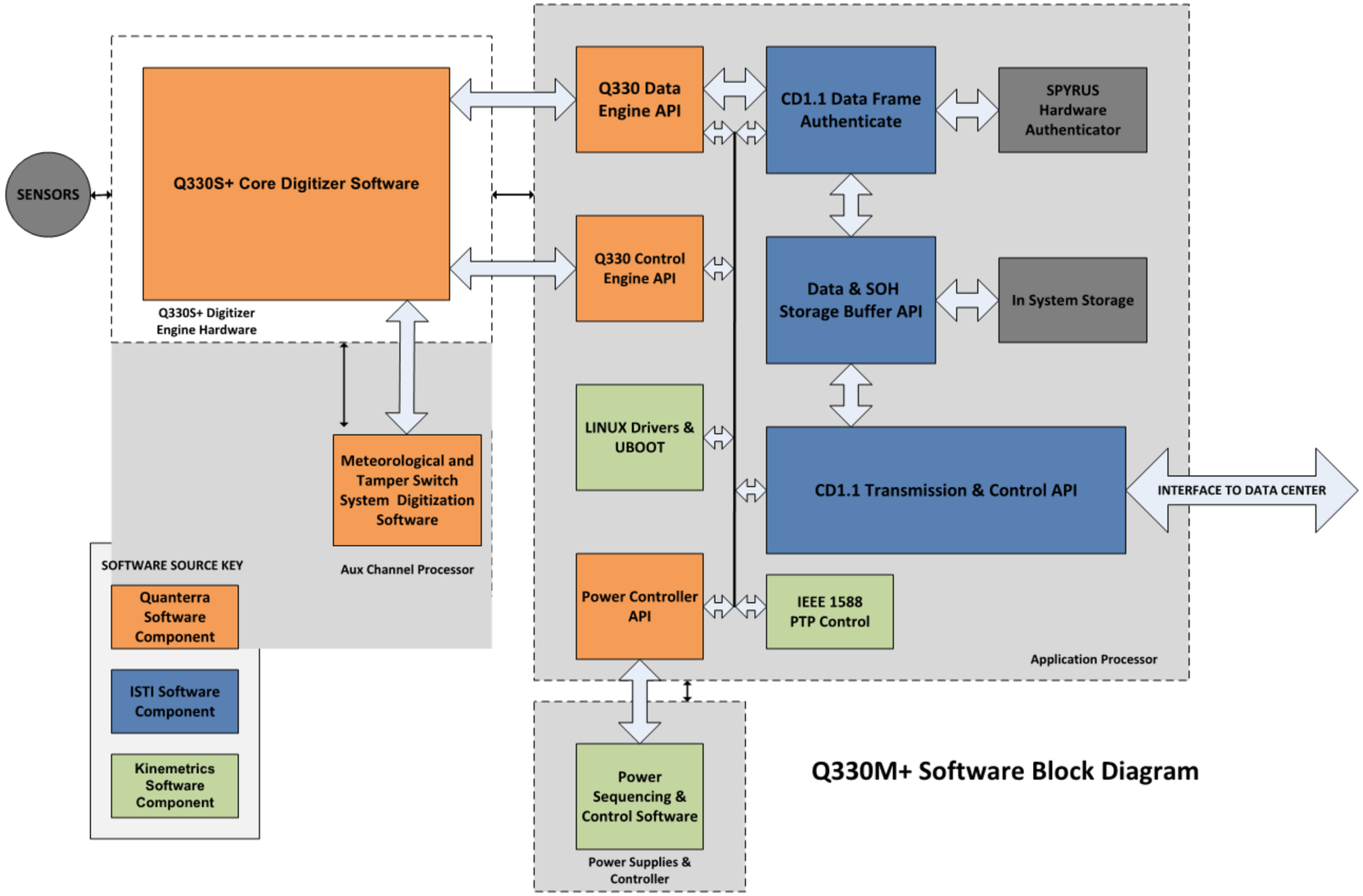
The Q330M+ supports real-time data telemetry to several data consumers in parallel, each stream with its own data buffering, and internal, reliable recording on SLC SD card, simultaneously.

Q330M+ 2



Q330M+ Simplified Block Diagram

Q330M+ 3

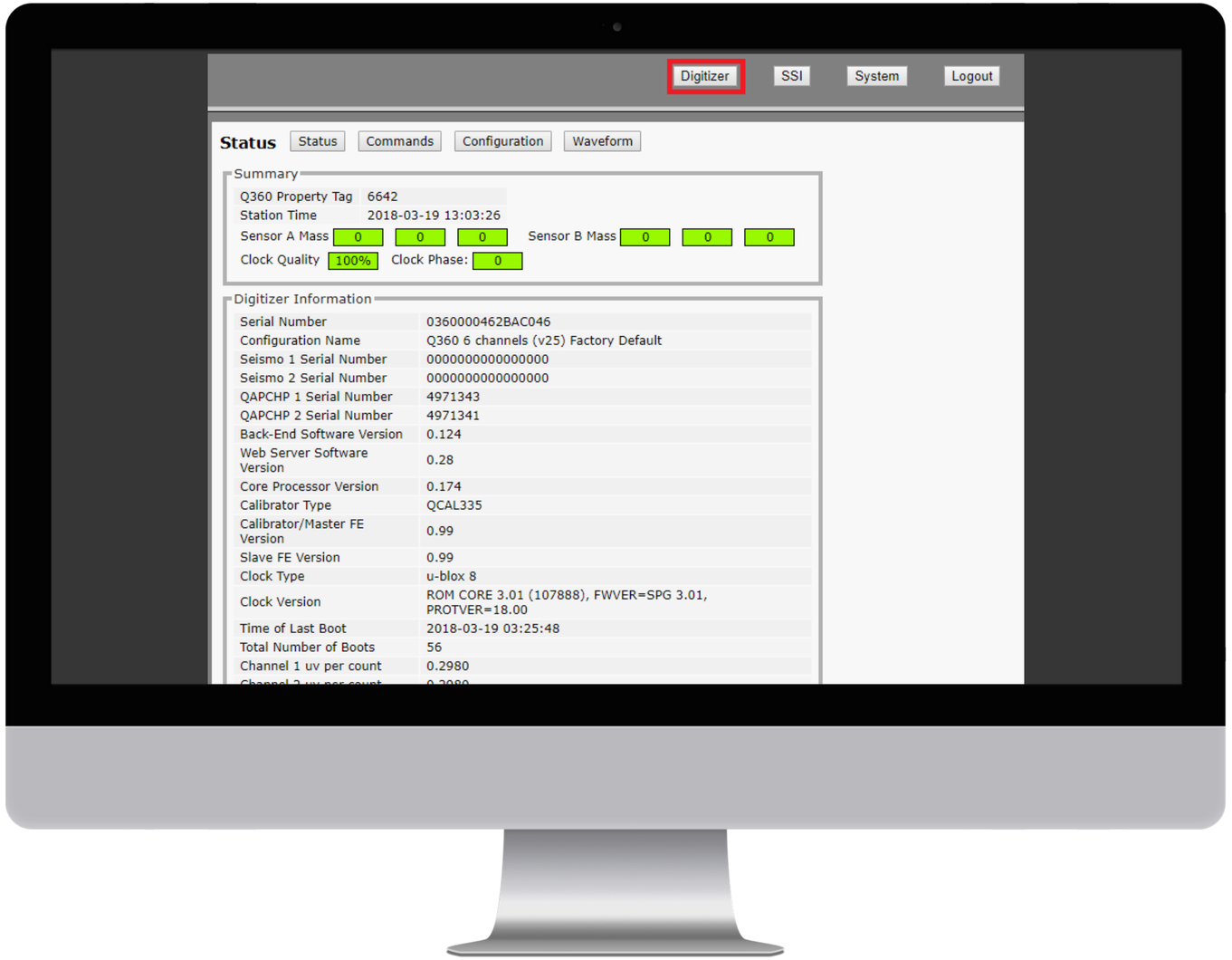


Q330M+ Software Block Diagram

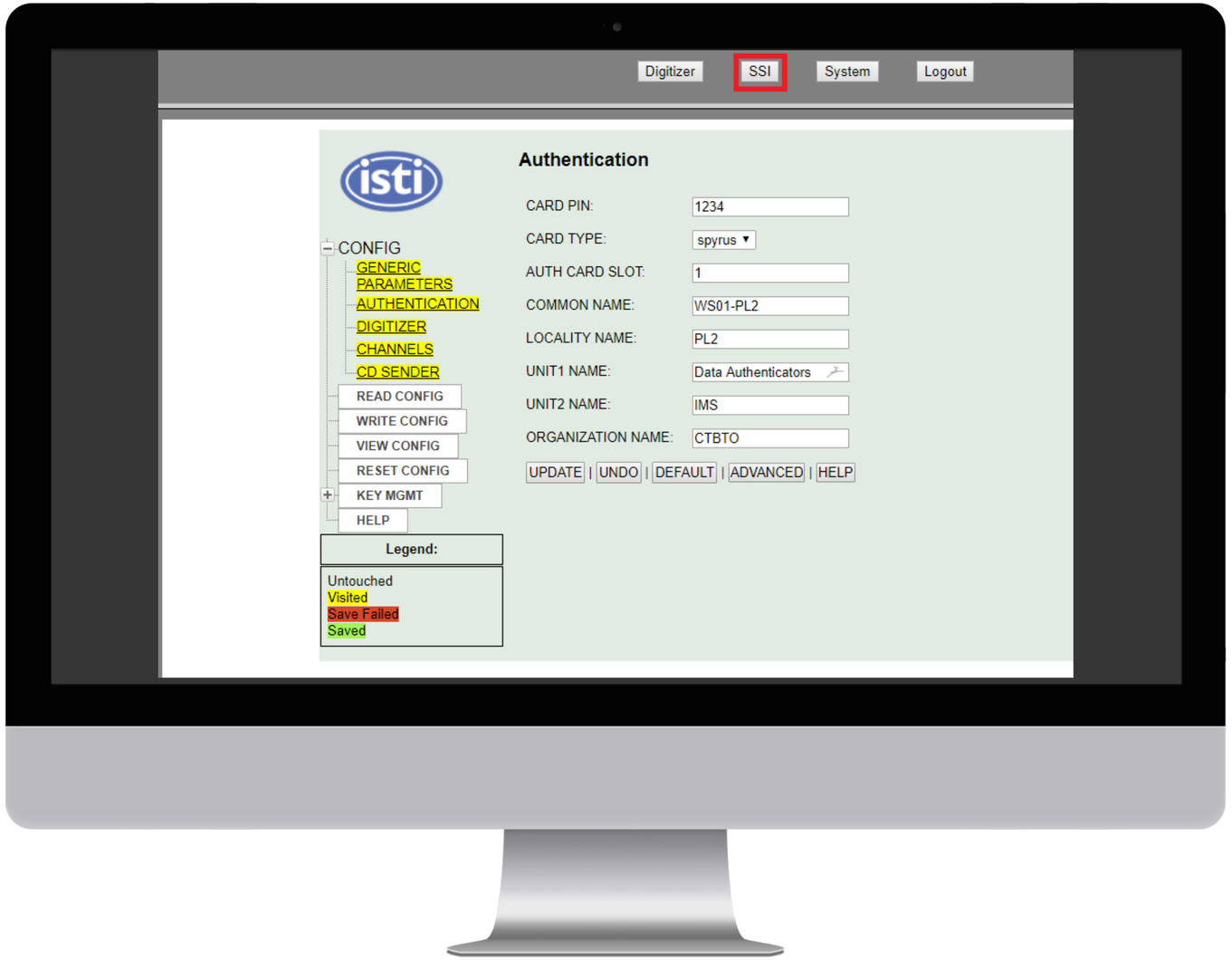
Q330M+[4]


Digitizer
Q330CD / SSI
System
Logout
OS Time: Mon Apr 2 16:37:15 UTC 2018
OS Uptime: up 3 days, 11 hours, 33 minutes
Load Avg: 4.36
Mem Free: 4452kB
TSMode: GPS
TCXO: Consistency=100
RT Uptime: 3 days
Running: lighttpd sshd ssiconfigd be335 ws360 q3302cd cdsend
tcxomgr gpsmond
Health Issues: none
CD Send:
Channels=7 Auth=Yes RXOps=4836 TXOps=30123 IOErrs=2
PSU:
VofSysPwr=11.874 VofIofSysPwr=0.320 VofSC=4.425 VofVseisA=1.497
VofVseisB=1.497 VofIofACPPwr=0.004 VofACPPwr=11.855 VofLVDCOn=8.000
VofLVDCOff=7.000 VofLVAPOn=11.000 VofLVAPOff=9.000 Version=1.9
Filesystem Size Use% Mounted on
/dev/root 2.5G 58% /
/dev/mmcblk0p1 128M 11% /boot
/dev/mmcblk0p3 998M 13% /mnt/sysrw
/dev/mmcblk1p1 30G 2% /mnt/data1
Click the System button above to refresh this information.
Network Parameters
Host Name
QM647
Domain Name
Eth0 Mode
DHCP
Static
IP Address
10.0.3.128
Netmask
255.255.248.0
Gateway
10.0.1.1
DNS1
10.0.1.53
DNS2
10.0.1.54
Save/Reboot
Runtime Parameters
Q330 ESN
036000D4923350A7
Q330 Auth Code
0
Ring Server Size MB
0
Q330CD/SSI Startup
Enable
Apply
PSU Parameters
DCOn Volts
8.000
DCOff Volts
7.000
APOn Volts
11.000
APOff Volts
9.000
Suggest
Apply

Q330M+[5]


Digitizer
SSI
System
Logout
Status
Status
Commands
Configuration
Waveform
Summary
Q360 Property Tag 6642
Station Time 2018-03-19 13:03:26
Sensor A Mass 0 0 0
Sensor B Mass 0 0 0
Clock Quality 100%
Clock Phase: 0
Digitizer Information
Serial Number 0360000462BAC046
Configuration Name Q360 6 channels (v25) Factory Default
Seismo 1 Serial Number 0000000000000000
Seismo 2 Serial Number 0000000000000000
QAPCHP 1 Serial Number 4971343
QAPCHP 2 Serial Number 4971341
Back-End Software Version 0.124
Web Server Software Version 0.28
Core Processor Version 0.174
Calibrator Type QCAL335
Calibrator/Master FE Version 0.99
Slave FE Version 0.99
Clock Type u-blox 8
Clock Version ROM CORE 3.01 (107888), FWVER=SPG 3.01, PROTVER=18.00
Time of Last Boot 2018-03-19 03:25:48
Total Number of Boots 56
Channel 1 uv per count 0.2980

Q330M+ 6


Digitizer
SSI
System
Logout
Authentication
CARD PIN: 1234
CARD TYPE: spyrus
AUTH CARD SLOT: 1
COMMON NAME: WS01-PL2
LOCALITY NAME: PL2
UNIT1 NAME: Data Authenticators
UNIT2 NAME: IMS
ORGANIZATION NAME: CTBTO
UPDATE | UNDO | DEFAULT | ADVANCED | HELP
CONFIG
GENERIC PARAMETERS
AUTHENTICATION
DIGITIZER
CHANNELS
CD SENDER
READ CONFIG
WRITE CONFIG
VIEW CONFIG
RESET CONFIG
KEY MGMT
HELP
Legend:
Untouched
Visited
Save Failed
Saved

Resources

- support@kmi.com
- wiki.kmi.com
  - visitor, worldcup
- unitdata.kmi.com
  - Instrument and sensor data sheets

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Product Type: Etna2

Serial Number 1:

Serial Number 2:

Serial Number 3:

E-mail Address:

Submit

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Office in Japan

Office in Abu Dhabi
Network Operation, Abu Dhabi
Network Operation, Saudi Arabia

Network of over 60
representatives worldwide

THANK YOU

KINEMETRICS

Address
Kinemetrics
222 Vista Avenue
Pasadena, CA 91107

Phone & Fax
Direct Line: +1-626-795-2220
Fax: +1-626-795-0868
sales@kmi.com

Social Media
facebook.com/osskinemetrics
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