

## WIRELESS DOCSIS 3.1 METER

DOCSIS 3.1 meter using Intel® Puma™ 7 OFDM 2x2 with 2x2 5GHz and 2x2 2.4GHz dual band Wi-Fi, LTE, GigE and USB ports

### KEY FEATURES

- DOCSIS 3.1/3.0/2.0/1.1 compliant
- Compatible with Comcast XMeter solutions
- Wi-Fi 2x2 5GHz 802.11ac and 2x2 2.4GHz 802.11n dual band internal antennas
- Wireless connection with smartphone to initiate tests and display results
  - Smartphone App support (iOS / Android)
- 1 x RJ-45 Ethernet port 10/100/1000Mbps
- Two USB 2.0 ports (5V/1A)
- LTE detection
- Battery 8850mAh
- 2 RF connectors (outside & home)
- FAN cooling
- AC detection
- Full frequency spectrum support
- IQ constellation
- Pre-equalizer analysis
- Switchable Upstream 5-42/5-85MHz
- QAM measurements
- Ping and trace route
- Channel plan scan
- System information
- DOCSIS WAN
- DOCSIS logger
- DOCSIS provisioning status
- MoCA power spectrum display
- Downstream OFDM/OFDMA Metrics
- Fast reposting available QAM channel
- Wi-Fi scan capability including channel utilization statistics
- Carrying bag
  - Mini tablet case included
  - Tool pouch included
- Optional
  - Speed test
  - Firmware & APK Upgrade
  - Channel plan customisation
- Optional accessories:
  - Battery charger dock
  - Car charger
  - CSN-01 signal generator



### Empower technicians to troubleshoot the whole home

CGN-DP3 is a powerful troubleshooting tool offering the major tests required to measure both DOCSIS and DVB-C networking environments. Through MSO partnerships, this wireless DOCSIS 3.1 meter was specially tailored to the requirements faced by installers and service technicians in the field.

The CGN-DP3 is a cable/DVB-C probe with 1 Gigabit Ethernet port and 802.11b/g/n/ac wireless LAN access point combined into one device to simplify cable connectivity testing and troubleshooting. The unit contains a DOCSIS 3.1/3.0/2.0/1.1 compliant cable modem to insure interoperability with existing cable systems. Through the use of technicians' smartphones and our specifically-designed app (iOS & Android), Hitron aims to offer the most cost-efficient testing solution containing the major features MSOs require.

The CGN-DP3 also features a speed test function for proofing the customer's premise as well as the outside network. It enables customizable DOCSIS logging functions that allow increased visibility and details.

## SPECIFICATIONS

### Connectivity

- 2 x RF F-type male 75Ω connector
  - 2 x female F-81 Coax Barrels included
- LTE antenna 699~960MHz and 1710~2690MHz
- 1 x RJ-45 Ethernet port 10/100/1000 Mbps (Auto-MDI/MDIX)
- 2 x USB2.0 (5V, 1A)



### Management

- App-based GUI for configuration and management
- Power on self diagnostic
- MIB II/MCNS MIB
- Protocol support: SNMP v1, v2C, v3



### Reception-Demodulation

- DOCSIS 3.1/3.0/2.0/1.1
- DOCSIS 3.1 demodulation: Multi-carrier OFDM 16 to 4096QAM
- DOCSIS 3.1 data rate: Up to 1Gbps with 1 OFDM 192MHz downstream channels +32 QAM
- DOCSIS 3.0 demodulation: 64QAM, 256QAM
- DOCSIS 3.0 data rate: Up to 1.2Gbps with 32 bonded downstream channels
- Frequency (edge-to-edge): 108~1218MHz/54~1218MHz (EuroDOCSIS/DOCSIS) 1350~1675MHz(MoCA2.0)
- Channel bandwidth: 6/8 MHz (DOCSIS 3.0) 100MHz (MoCA2.0)
- Signal level: -15dBmV to 15dBmV
- Input return loss: >6dB

### Transmitter-Modulation

- DOCSIS 3.1/3.0/2.0/1.1
- DOCSIS 3.1 modulation: OFDMA BPSK to 4096QAM
- DOCSIS 3.1 data rate: Up to 700Mbps with OFDMA 96MHz upstream channels
- DOCSIS 3.0 modulation: QPSK, 8QAM, 16QAM, 32QAM, 64QAM, and 128QAM (SCDMA only)
- DOCSIS 3.0 data rate: Up to 320Mbps with 8 bonded upstream channels
- Frequency: switchable 5-85/5-42MHz 1350~1675Mhz(MoCA2.0)
- Upstream transmit signal level: +11 to 65dBmV
- Output return loss: >6dB

### Wireless

- Dual band Wi-Fi 802.11a/b/g/n/ac
- 2T2R 5GHz (5180MHz-5240MHz band 1, 5748-5825MHz band 4) 802.11ac with 400Mbps PHY data rate
- 2T2R 2.4GHz (2412MHz-2462MHz) 802.11n with 150Mbps PHY data rate
- 20/40MHz channel bandwidth
- Up to 4 SSIDs for each frequency
- Security: WPS, WPA, WPA2, WPA-PSK and 64/128-bit WEP encryption
- Wi-Fi output power range (EIRP) for North America & Europe
 

• 2.4G (.11n, HT: 20):	16dBm
• 2.4G (.11g, HT: 20):	17dBm
• 2.4G (.11b, HT: 20):	20dBm
• 5G (.11ac, HT: 20):	10dBm
• 5G (.11ac, HT: 40):	11dBm

### Mechanical

- 7 status LEDs (Power, Wi-Fi, DS, US, Status, Charge, Bat)
- Factory reset button
- Forced power off button
- Power restart button
- Dimensions: 165mm (W) x 210mm (H) x 79mm (D)
- Weight: 1100g ± 10g

### Electrical

- Power adaptor: 100-240VAC, 50/60hz to 12VDC, 5A
- Power input: 12VDC
- Power consumption: 32W (typical), 48W (max)
- Battery: lithium battery cells 8850mAh (~8h of typical operation, ~4.5h full load, ~4h to charge)
- Surge protection: RF input sustains 2KV, Ethernet RJ-45 sustains at least 4KV

### Environmental

- Operating temperature: -14°C (7°F) - 42°C (108°F)
- Operating humidity: 10% - 90% (non-condensing)
- Storage temperature: -40°C (-40°F) - 80°C (176°F)
- Water resistant

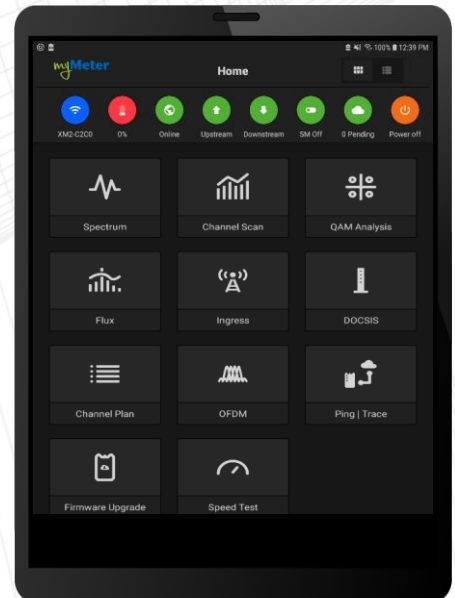
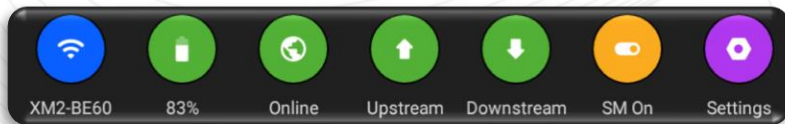
### Compliance Certificates

- FCC, IC, CE, UL
- RoHS compliant

## myMeter Application – iOS / Android

### CGN-DP3 is controlled via smartphone or tablet

- Smartphone app support (iOS/Android)
- App provides a wide selection of tests and analysis
- Measurements are recorded and the information is output to a detailed presentation file
- Pinch and zoom graphs for better view/control
- Easy to understand status bar



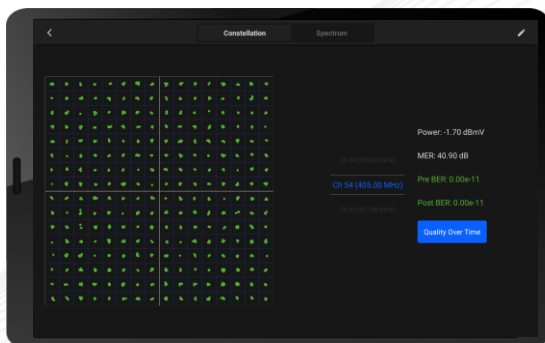
### Spectrum Analysis

- Real-time spectrum
- Spectrum averaging intervals can be selected from 1–16
- High-reliability measurements
- MoCA spectrum
- Automated testing



### Channel Scan

- Downstream receive power (Rx) and MER are collected for each downstream channel
- Individual channel power and MER can be accessed by clicking on each channel bar in the graph



### Constellation

- QAM constellations, power levels, MER, etc, can be confirmed on each DOCSIS channel
- This allows verification without repeated data entry

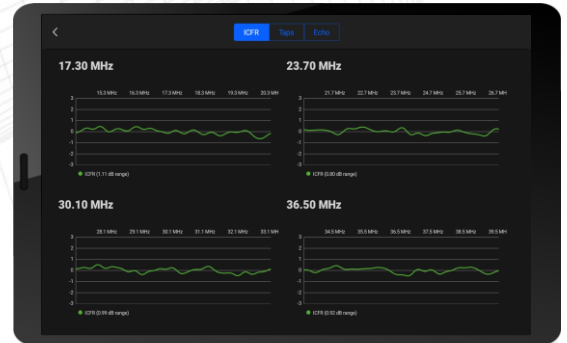
## myMeter Application – iOS / Android

### Flux: Pre-Equalization

- Displays the cable modem adaptive equalizer response and coefficients
- Flux finds “invisible” cable problems
  - Cable damage
  - Loose connectors
  - Water damaged cables

### Flux: ICFR

- Peak-to-valley measurement of frequency response deviations in-channel



### Flux: Taps

- DOCSIS 2.0/3.0 pre-equalization typically employs 24 equalizer taps
  - Taps 1–7 work to counter group delay at or near the diplexer roll near 40~42 MHz
  - Tap 8 IS the primary or main tap that contains the RF payload (FFT)
  - Taps 9–24 exist to overcome any RF echoes due to impedance mismatches encountered in the cable system



### Flux: Echoes

- The echo measurement indicates the cavity width between the two impedance mismatches that make up the impairment
- At 0.87 velocity of propagation, a DOCSIS 2.0/3.0 equalizer tap is equal to approximately 85 feet of cable (26 meters).



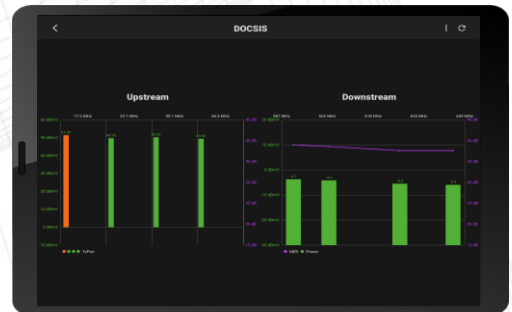
## myMeter Application – iOS / Android

### DOCSIS Measurements

- Signal levels and MER for downstream channels
- Upstream channels
- DOCSIS registration status flow
- DOCSIS registration information
- Re-register feature to restart the cable modem will restart and re-synchronize to the CMTS

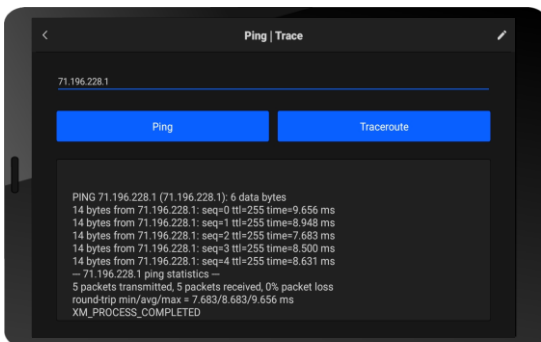
### D3.1 OFDM Measurements

- Downstream OFDM metrics:
  - Frequencies & subcarriers
  - Status indicator
  - Modulation order vs subcarrier, bit loading
- Downstream channel estimate coefficients
- OFDM channel power and MER
- Displays a full spectrum plot of the OFDM carrier
- Measures power levels and error rates for the fundamental components inside the OFDM carrier
  - PLC – Physical Link Channel
  - NCP – Next Codeword Pointer
  - MDC (profiles) – actual modulation profiles in use in the channel
- Minimum and average MER readings for each 6 MHz



### Ping/Trace route

- Ping or Traceroute to IP addresses (and websites) to test for latency and/or packet loss
- Ping count and packet size are configurable
- Enter an IP address or a DNS name for a website



### Ingress

- Find and troubleshoot ingress and noise



## myMeter Extra Features

The below features are offered with a HitronCloud package.

Feature management performed via the MSO Web UI

- Channel Plan creation, import/export and management
- Technician accounts creation and management
- FW upgrade management

Contact your Hitron Sales representative for more details

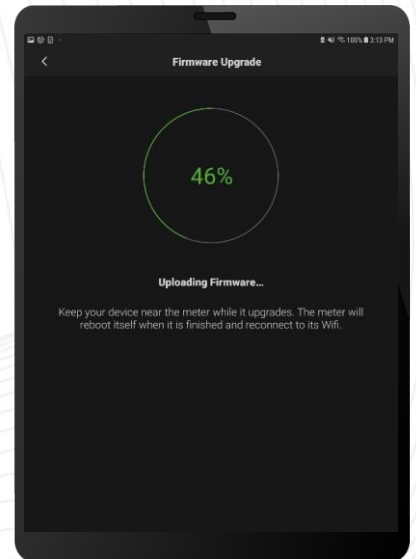
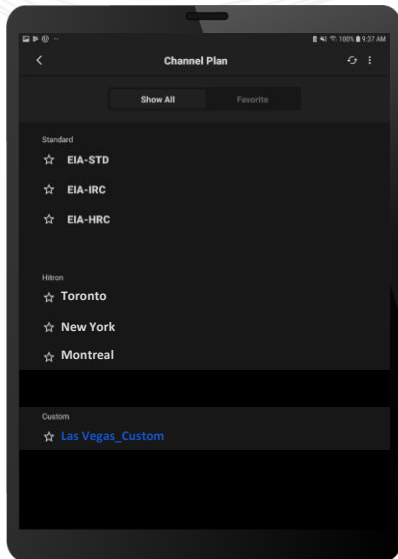


### Channel Plan management

- Managed channel plan via HitronCloud
- Custom channel plan side load (also used as standalone)

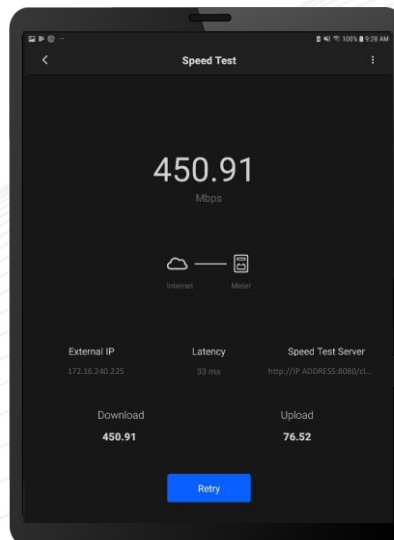
### FW Upgrade management

- Firmware updates are pulled for feature enhancements, updates, and bug fixes



### Speed Test to CMTS

- DL/UL speeds test to CMTS
- Latency
- Speed test server used
- Provisioned speed



## Optional Accessories

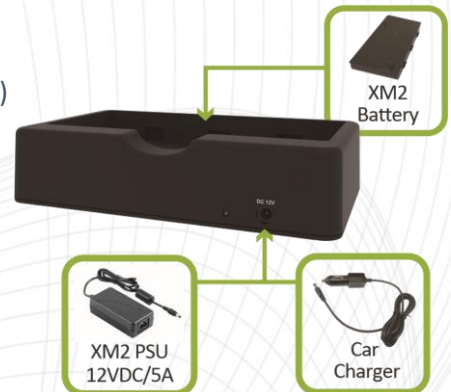
### CSN-01 – The Pressure Tester

- The CSN-01 is a signal generator. Paired with an Hitron wireless DOCSIS meter (CGN-DP2, CGN-DP3), CSN-01 induces signal to the home cabling to detect the bouncing frequencies.
- Requires to be paired with a Hitron's the CGN-DP3 for home pressure testing
- Ask your Hitron representative for full datasheet



### CGN-DP3 Meter Battery Charger Dock


- Battery charger dock is available to charge extra battery
- It comes with the same power supply used on CGN-DP3 (12Vdc, 5A)
- Full charge is obtained in less that 5 hours
- Would also work with the Car Charger Wire (sold separately)
- One LED indicator



Extra/Spare Material can be ordered separately



**Extra/Spare Battery**  
8850mAh  
~8h of typical operation



**Car Charger Wire**  
12Vdc input 3A (RMS) max.  
Cable 1.8m (6')



**Shoulder Bag**



**Antenna**  
for pressure testing