

# COMMTEST220 & COMMTEST240

## Product Datasheet

### Bently Nevada\* Asset Condition Monitoring

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## Description

COMMTEST220 and COMMTEST240 are portable data collector solutions that cater to non-hazardous environments. You can use these small form-factor, rugged devices to take vibration recordings and upload the collected data for detailed analysis in System 1\*.

The data collectors work in tandem with the S1 Collector app which runs on an industrial smartphone hand-held device. You can collect vibration data, take pictures, send text messages, check your email, make phone calls and run other apps all on the same hand-held device.

The data collectors use Bluetooth to communicate with the hand-held device. The S1 Collector app exchanges data with System 1\* using Wi-Fi, a cellular network, or a USB cable.

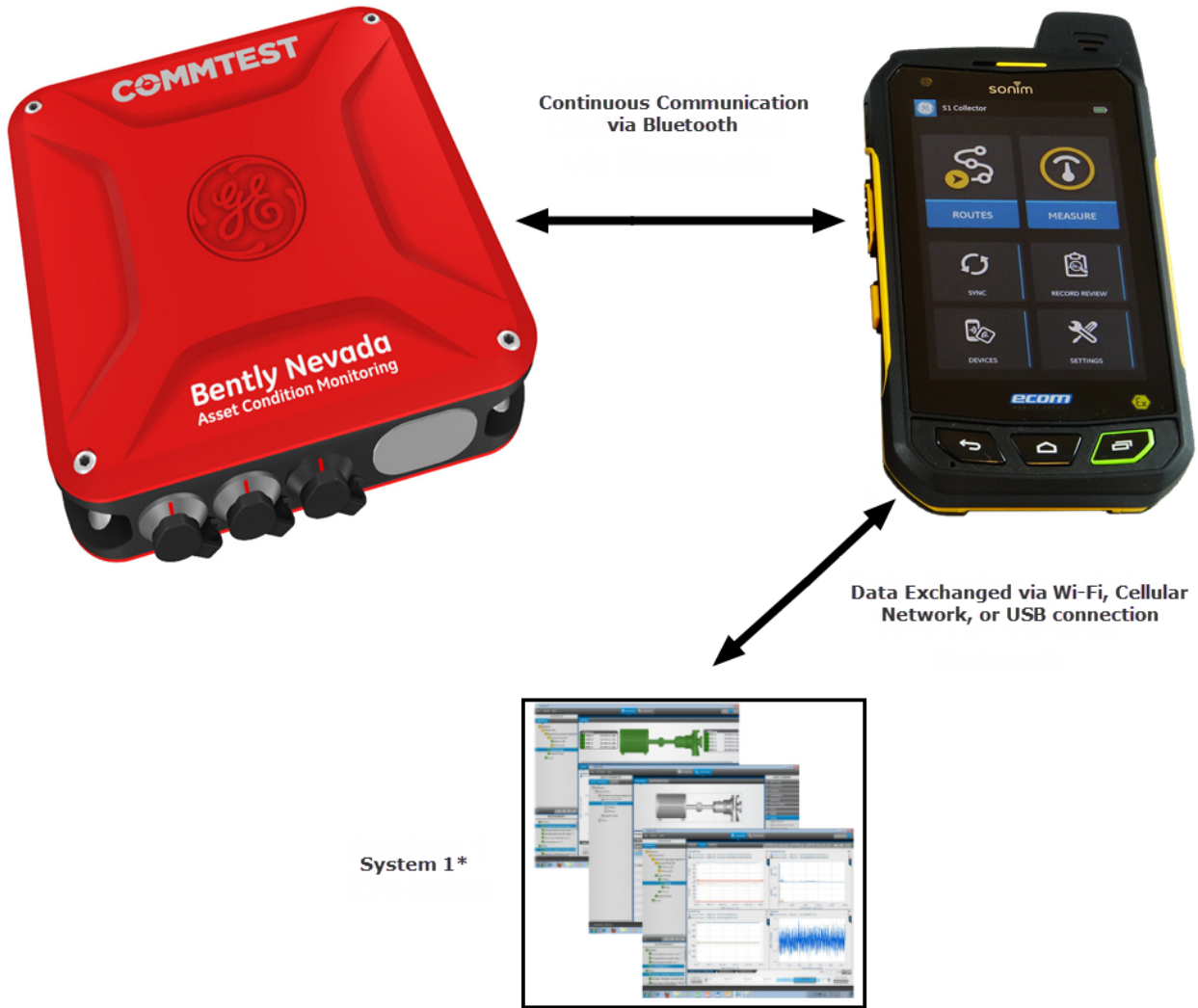
You can set up your routes in System 1\* and sync up the data with the app using remote communication servers.

The industrial hand-held device eliminates the need for a PC or other software packages at the data collection site. It is the only device you need to receive routes and send collected data from the field.

You can take recordings from a predefined route as well as off-route recordings that are not part of a route sequence. Off-route recordings may be necessary if a machine's vibration pattern does not meet your expectations.

The data collectors have a neck strap with Sensor Keeper which restrains your sensor while you walk or climb to reach other machines. The neck strap also has detachable safety breakaways to protect you in case the cables are caught in rotating machinery.





# Data Collector Specifications

## Sensors

Sensor input Simultaneous sampling	COMMTEST220: 2 channels COMMTEST240: 4 channels
Compatible sensor types	Accelerometer, Velocity & displacement
AC coupled range	16 V peak-peak Allows for $\pm 8$ V sensor output swing ( $\pm 80$ g)
DC coupled ranges	0 to 20 V, -10 to 10 V, -20 to 0 V
Connectors	2 x LEMO connectors for CH1 & CH2+ 1 X LEMO connector for Tach/Keyphasor  COMMTEST240 includes a CH 2.4 breakout cable.
Analog to digital conversion	24-bit ADC
Sensor excitation current	0 mA or 2.2 mA (configurable), 24 V maximum  2.2 mA powers IEPE/ICP-type sensors
Sensor detection	Measures sensor bias voltage Warns if short circuit or not connected

## Tachometer

Optional laser Tach	Laser sensor powered by SCOUT220-IS & SCOUT240-IS  Triggers when beam on reflective tape Range 10cm to 2 meters Speed 6 to 250K rpm
Other sensor types supported	Contact, TTL Pulse, Keyphasor*
Power supply to sensor	5 V, 40 mA
Input Impedance & max values	100 K $\Omega$ $\pm 28$ V max
Waveform display	$\pm 20$ V range
Threshold	$\pm 20$ V range $\pm 0.4$ V accuracy
Auto-threshold mode	3 V pk-pk minimum signal 15 s max settling time
Hysteresis	0.2 V to 2.5 V user configurable
Speed range	Minimum: 60 rpm (1 Hz)

	Maximum: 1200,000 rpm (20 kHz)
Signal pulse width	10 $\mu$ s minimum 2% duty cycle (for auto-threshold)
Accuracy	$\pm (0.1 \% + 1 \text{ cpm})$ for speeds up to 5 kHz (300 kcpm) $\pm (0.3 \%)$ for speeds above 5 kHz (300 kcpm)

## Parameter Indication

Dynamic signal range	> 95 dB typical at 400 line resolution
Harmonic distortion	Less than -70 dB typical Other distortions and noise are lower
Units	g or m/s <sup>2</sup> in/s or mm/s mil or mm or $\mu$ m 0-peak, peak-peak or RMS Auto-scale by 1000x when required
Magnitude & cursors	Overall value: RMS, derived pk, derived pk-pk Dual cursors Digital readouts on chart
Base accuracy	For AC signal: $\pm 1\%$ of readings For DC level: $\pm 1\%$ of full scale (1% is approximately 0.1dB)
High frequency attenuation	$\leq 0.1$ dB >100 Hz to 10 kHz $\leq 3$ dB >10 kHz to 40 kHz Attenuation tolerances are in addition to base accuracy.
AC coupling attenuation	$\leq 0.1$ dB 10 Hz to <100 Hz $\leq 3$ dB 1 Hz to <10Hz
Attenuation due to Integration	$\leq 0.1$ dB 10 Hz to <100 Hz $\leq 1.5$ dB 1 Hz to <10 Hz  Values apply to single integration (Acceleration to velocity) Double the values for double integration (Acceleration to displacement)

## Spectrum Display

Fmax ranges	25, 50, 100, 125, 150, 200, 300, 400, 500, 600, 800, 1000, 1200, 1600, 2000, 2500, 3000, 4000, 5000, 6000, 8000, 10,000, 15,000, 20,000, 30,000, 40,000, 60,000, 80,000 Hz		
	Or equivalent CPM values Or orders-based from 1X to 999X		
Fmin possible range	0 to Fmax Instrument zeroes all spectral lines below Fmin.		
Resolution	400, 800, 1600, 3200, 6400, 12800 lines		
	Channels	220 max lines	240 max lines
	1	6400	12,800
	2	3200	6400
	3 or 4	N/A	3200
Frequency scale	Hz, CPM, Orders Linear scale with zooming		
Amplitude scale	Acceleration, velocity, displacement Linear auto scaling		
Window shapes	Hanning Rectangular		
Overlap	(0, 12.5, 25, 37.5, 50, 62.5, 75, 87.5) % Dependent on Fmax and number of lines		
Number of averages	1, 2, 4, 8, 16, 32, 64, 128 Increases sampling time proportionally		
Averaging types	Linear, exponential, peak hold		
Demodulation bandwidths	23 bandwidth options From 125 Hz to 1250 Hz <b>up to</b> 16 kHz to 20 kHz		
6Pack	Up to 40 kHz & 3200 lines (1 channel) Up to 20 kHz & 1600 lines (2-3 channels)  Spectrum and waveform for each of low-frequency, high-frequency, demodulation		

## Waveform Display

Number of samples	1024, 2048, 4096, 8192, 16,384, 32,768		
	Channels	220 max samples	240 max samples
	1	16,384	32,768
	2	8192	16,384
	3 or 4	N/A	8192
Time scale	10 ms to 256 seconds		

or orders based from 1 to 999 revs

## Communication

Bluetooth	BT 4.0 Classic, not Bluetooth low energy
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## Battery & Charger

Battery type	Custom Lithium Ion pack, 7.4 V, 4000 mAh Not user accessible but factory replaceable
Operating time	10 hours Typical on-route data collection
Charger type	Internal charging, automatic control External power pack 12 V DC, 3 A output
Charge rate	2 A nominal 3 hours for complete charge

## Mechanical

Size	5.1" W x 5.1" L x 1.4" H 130 x 130 x 35 mm
Weight	1.3 lb ≈ 590g

## Environmental Limits

Operating temperature	-4 °F to 140 °F (-20 to 60) °C
Ambient temperature for charging battery	0°C to 25 °C
Storage temperature & humidity	-4 °F to 140 °F (-20 to 60 °C), 95% RH If storage exceeds 1 month: Up to 95 F (35 °C), 85% RH
Ruggedness drop & sealing	Drop spec MIL-STD-810F-516.5-IV 26 drops at 4' (1.2 m) onto concrete IP67 (Certificate pending)

## Compliance & Certifications

For a detailed list of country and product-specific approvals, refer to the *Approvals Quick Reference Guide* (108M1756) at [GEmeasurement.com](http://GEmeasurement.com).

RED/EMC	EN 61000-6-2 EN 61000-6-4 EN 300 328 EN 301 489-1 EN 301 489-17 EN 61326-1  <b>European Community Directives:</b> RED Directive 2014/53/EU EMC Directive 2014/30/EU
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## Handheld Specifications

ecom® Smart-Ex 201-A Part Number 111M5756 ecom® Smart-Ex 201-E Part Number 109M8034	
Display	4" Gorilla Glass 2 Glove touch
Mobile	4G/LTE Quad Band UMTS and GSM
WiFi	802.11 a/b/g/n Dual band WiFi Direct WiFi Hotspot
BlueTooth	4.0 and LE
Cameras	8MP back 1MP front
Light	Camera flash LED torch
Sensors	GPS NFC
OS	Android 5.1
CPU	Quad core 1.2 GHz
Memory	1 GB RAM 16 GB internal storage
Battery	Li-Ion 4800 mAh Up to 40 hr talk time
Size	137 x 72 x 21 mm 290 g
Ruggedness	IP68 -20 to 55 °C

For the latest specifications and ratings of these industrial hand-held devices, visit [www.ecom-ex.com](http://www.ecom-ex.com).



## Cybersecurity

The COMMTEST220 and COMMTEST240 solutions include an industrial hand-held device that runs the Android operating system and uses USB, cellular, Bluetooth and Wi-Fi for communication. These solutions have features that reduce but do not eliminate cybersecurity risks.

We strongly recommend implementing additional cybersecurity protections such as the following:

- Controlling user access
- Scanning for viruses
- Applying timely updates
- Encrypting data
- Using mobile device management software

The recommended measures are at your discretion and responsibility. Some residual risk may remain.

For more information on cybersecurity, see *SCOUT200 Series Installation and Operation Manual* (109M1269-01).

## Ordering Information

For a detailed list of country and product-specific approvals, refer to the *Approvals Quick Reference Guide* (108M1756) at [GMeasurement.com](http://GMeasurement.com).

### COMMTEST220-AXX-BXX

#### A: Handheld Options

- 00 None
- 01 ecom Smart-Ex 201-A (North America)
- 02 ecom Smart-Ex 201-E (Europe)
- 03 Tab Active tablet

#### B: Data Collector Approval Options

- 00 None



**The overall hazardous system rating is defined by the minimum rating of the data collector, industrial handheld and accessories.**

Metrology certification is available with your order.

### Basic Kit

We offer COMMTEST220 in a basic kit with the option to purchase the System 1\* software and license separately. Additional accessories are also available.

Part Number	Description	Quantity
	S1 Collector app	1
	COMMTEST220 Data Collector	1
<b>Either Smartphone</b>		
	ecom® Smart-Ex 201-A (North America)	1
109M8034	ecom® Smart-Ex 201-E (Europe)	
<b>OR Tablet</b>		
113M9353-01	Tab Active Tablet	
108M4044	AC power adapter	1
109M2382	DC car adapter	1
PLUS0230	Category A power plug, USA / Canada	1
PLSA0241	Category D power plug, South Africa / India	1
PLAU0228	Category M power plug, Australia / New Zealand / China	1

PLHK0245	Category G power plug, Hong Kong / UK	1
PLEU0229	Category C power plug, Europe	1
109M2381	Top exit accelerometer	1
ACCL0561	Side exit accelerometer	1
109M2383	Coiled cable with breakaways LEMO.	2
113M5585	Accelerometer magnetic base	2
109M2385-012	BNC to silver-LEMO cable. (Connects rack-buffered outputs to CH1/CH2 inputs.)	2
110M8172-012	BNC to black-LEMO cable. (Connects-rack buffered Keyphasor to Tach input.)	1
117M1446	Belt clip	1
109M2384-02	Neck strap with Sensor Keeper	1
112M4551	Hard carrying case	1
109M1269-01	<i>Installation and Operation Manual</i>	1
110M9997-01	<i>Quick Start Guide</i>	1
Bently_ Manuals	Bently Nevada product manuals on DVD contains the datasheet (109M0792), <i>Installation and Operation Manual</i> (109M1269-01), and the <i>Quick Start Guide</i> (110M9997-01). You can also download these from <a href="http://GMeasurement.com">GMeasurement.com</a> .	1

## COMMTEST240-AXX-BXX

### A: Handheld Options

- 00 None
- 01 ecom Smart-Ex 201-A (North America)
- 02 ecom Smart-Ex 201-E (Europe)
- 03 Tab Active tablet

### B: Data Collector Approval Options

- 00 None



The overall hazardous system rating is defined by the minimum rating of the data collector, industrial handheld and accessories.

Metrology certification is available with your order.

## Basic Kit

We offer COMMTEST220 in a basic kit with the option to purchase the System 1\* software and license separately. Additional accessories are also available.

Part Number	Description	Quantity
	S1 Collector app	1
	COMMTEST220 Data Collector	1
<b>Either Smartphone</b>		
	ecom <sup>®</sup> Smart-Ex 201-A (North America)	1
109M8034	ecom <sup>®</sup> Smart-Ex 201-E (Europe)	
<b>OR Tablet</b>		
113M9353-01	Tab Active Tablet	
108M4044	AC power adapter	1
109M2382	DC car adapter	1
PLUS0230	Category A power plug, USA / Canada	1
PLSA0241	Category D power plug, South Africa / India	1
PLAU0228	Category M power plug, Australia / New Zealand / China	1
PLHK0245	Category G power plug, Hong Kong / UK	1
PLEU0229	Category C Power plug, Europe	1
109M2381	Top exit accelerometer	3
ACCL0561	Side exit accelerometer	1
109M2383	Coiled cable with breakaway LEMO.	4

113M5585	Accelerometer magnetic base	4
109M2385-012	BNC to silver-LEMO cable. (Connects rack-buffered outputs to CH1/CH2 inputs.)	2
110M8172-012	BNC to black-LEMO cable (Connects rack buffered Keyphasor to Tach input.)	1
113M9350	Channel 2-4 breakout cable	1
117M1446	Belt clip	1
109M2384-02	Neck strap with Sensor Keeper	1
112M4551	Hard carrying case	1
109M1269-01	<i>Installation and Operation Manual</i>	1
110M9997-01	<i>Quick Start Guide</i>	1
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## Language Specific Warning Labels

110M9913	Magnet base label
110M9914	Sensor keeper side label
110M9915	Sensor keeper front label
111M7144	Hard carrying case label

## Optional Accessories

3071/01	System 1* software and license
109M2387	Handheld, battery-powered laser <b>Tach</b> for IS Zone 1 This item does not include a cable. You must order part number 109M2389.
109M2389	1.2-meter laser Tach <b>cable</b> for 109M2387
109M2391	Laser <b>Tach</b> powered by SCOUT220-IS & SCOUT240-IS
CBL50216	5-meter laser Tach <b>cable</b> for 109M2391
113M5529-01	Reflective tape One roll, 60 cm (23.7 in)
111M5756	ecom <sup>®</sup> Smart-Ex 01-A
109M8034	ecom <sup>®</sup> Smart-Ex 01-E
113M9352-01	ecom <sup>®</sup> TAB- EX US/EU
113M9352-02	ecom <sup>®</sup> TAB- EX AS/NZ
113M9353-01	Tab Active tablet

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