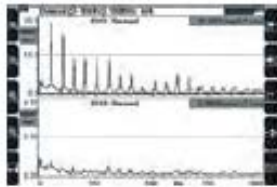


SCOUT140-Ex*

Bently Nevada* Asset Condition Monitoring



Description

The new SCOUT140-Ex data analyzer is a sophisticated and feature-packed instrument, yet it remains intuitive in operation and flexible enough to suit every level of vibration analyst.

The SCOUT140-Ex analyzer offers the power and convenience of four-channel measurement and dual-plane balancing. Its balancing functions enable the quick diagnosis and correction of dynamic unbalance, the most common form of unbalance. The SCOUT140-Ex instrument's combination of accuracy, intuitive operation, ease of use and outstanding storage capacity ensures the SCOUT140-Ex analyzer delivers a premium return on investment.

The SCOUT140-Ex instrument includes the powerful and award-winning Ascent** software in the purchase price. Ascent Level 2 enables you to program the instrument with thousands of separate machine definitions covering a number of route choices. A library of over 300 customizable parameter sets is also available enabling a vast array of measurement options.

Enhanced Instrument Functionality

- Up to 4 channel simultaneous on route recordings
- Simultaneous acquisition — 2 plane balancing with up to 4 sensors
- Unique 6Pack** recording system
- DC coupled sensor support
- Support for acceleration, velocity, displacement, DC-coupled, current and voltage output sensors
- Triax-enabled
- 1GB memory — Virtually unlimited spectra and waveform storage
- 10 hour battery life
- 12 800 lines of resolution
- 80 kHz Fmax
- Modal Impact Testing & Cross Channel Spectrum (ODS)
- Up to 4 channel time-synchronous averaging with tach input
- Full transient analysis, including Coastdown/Runup & Long Time Waveform
- Ability to export data in Universal File Format (UFF) for additional analysis in ODS software such as Vibrant Technology ME'scope
- USB host port for data transfer to external USB memory
- Improved ergonomics for walkaround data collection
- Large, high resolution (HVGA) backlit LCD
- True left- and right-handed operation
- Numeric parameter input via keypad with Ascent trend and alarm capability
- Cable Test feature
- Lightweight, rugged IP65 rated case
- 5 year warranty on the instrument hardware
- ATEX and IECEx Zone 2 Hazardous location certification
- Field-upgradable Proflash system with free firmware updates for 5 years

Ascent Level 2 Software

- Route enabled — Build routes in Ascent software and send to the instrument
- CBDb — Bearing Database with over 30,000 bearings
- Orbit and Bode plots
- Waveform analysis tools — Perfect for the power user
- Statistical alarm creation and adjustment
- Fully automated measurement parameter and alarm setup based on “The Proven Method” from Technical Associates**

A SCOUT140-Ex calibration service is available. Calibration service may be arranged by completing the RMA Request Form or by contacting Technical Support.

SCOUT140-Ex Technical Specifications

This table outlines the technical specifications for the SCOUT140-Ex vibration analyzer.

Specifications	SCOUT140-Ex	Notes
Sensors		
Sensor input	4 channels	Simultaneous sampling
Compatible sensor types	Accelerometer, velocity, displacement, current, voltage output, 4 to 20 mA	
AC coupled range	16 V peak-peak	Allows for ± 8 V sensor output swing (± 80 g)
DC coupled ranges	0 V to 20 V -10 V to 10 V -20 V to 0 V	E.g. for reading prox-probe gap
Connectors	1 x BNC (CH1) 1 x LEMO (CH2/CH3/CH4)	Safety feature — Break-free inline connector
Analog to digital conversion	24-bit ADC	
Sensor excitation current	0 mA or 2.2 mA (configurable) 24 V maximum	2.2 mA required for IEPE/ICP®-type accelerometer
Sensor detection	Warns if short circuit or not connected	
Tachometer		
Sensor	Laser sensor with reflective tape	Sensor triggers on beam reflection
Laser sensor range	10 cm to 2 m nominal	Dependent on size of reflective tape
Other sensor types supported	Contact, TTL pulse, Keyphasor®	Instrument has optically isolated input
Power supply to sensor	5 V, 50 mA	
TTL pulse rating	3.5 V (4 mA) min 28 V (5 mA) max Off-state 0.8 V	
Keyphasor® thresholds	7.7 \pm 0.5 V 13.2 \pm 0.8 V 18.5 \pm 1 V	Nominally 8 V, 13 V, 18 V

Specifications	SCOUT140-Ex	Notes
Speed range	10 to 300 000 RPM (0.2 Hz to 5 kHz)	Pulse width at least 0.1 ms
Accuracy	+/- 0.1%	
Output to drive strobe	Up to 140 Hz (8400 CPM)	Typical. Depends on strobe type. Special cable required.
Parameter indication		
Maximum levels	> 1000 g (10 000 m/s ²) > 1000 in/sec (25 000 mm/s) > 100 in (2500 mm) > 10 000 Amps	Effective limit is sensor sensitivity and output voltage
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 ² or adB in/s or mm/s or vdB mil or mm or μm amps, user-defined	0-peak, peak-peak or RMS Auto-scale by 1000x when required US and SI options for adB and vdB
Magnitude & cursors	Overall RMS value, waveform True pk-pk, dual cursors, harmonics	Digital readouts on chart
Base accuracy	± 1% (approx. 0.1 dB)	For DC level — % of full scale For AC signal — % of reading
High Frequency attenuation	≤ 0.1 dB 100 Hz to 10 kHz ≤ 3 dB >10 kHz to 40 kHz	Attenuation tolerances are in addition to base accuracy
AC coupling attenuation	≤ 0.1 dB 10 Hz to <100 Hz ≤ 3 dB 1 Hz to <10Hz	
Attenuation due to Integration	≤ 0.1 dB 1 Hz to <100 Hz ≤ 1.5 dB 0.2 Hz to <1 Hz ≤ 0.1 dB 10 Hz to <100 Hz ≤ 1.5 dB 1 Hz to <10 Hz	Low freq. mode — When Coupling = DC, Fmax ≤ 100 Hz Normal mode — Applicable in all other cases Values apply to single integration (Accel. to Veloc.) Double the values for double integration (Accel. to Displ.)
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, 12 800 lines	6400 lines max. for dual channel measurements 3200 lines max. for four channel measurements
Frequency scale	Hz, CPM, Orders	Linear scale with zooming
Amplitude scale	Acceleration, velocity, displacement, current, or user-defined	Linear or log scales, auto or manual 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, synchronous	

Specifications	SCOUT140-Ex	Notes
Demodulation bandwidths	23 bandwidth options	From 125 Hz to 1250 Hz Up to 16 kHz to 20 kHz
6Pack	Up to 40 kHz and 3200 lines 1 channel Up to 20 kHz and 1600 lines 3 channel	Spectrum and waveform for Low Freq, High Freq, Demod.
Order tracking	Up to 6 kHz Fmax, orders-based	Tachometer required, mounted on high-speed shaft
Order tracking — Distortion	Less than -65 dB	Within 50% to 200% speed variation during recording
Waveform display		
Number of samples	1024, 2048, 4096, 8192, 16 384, 32 768	
Time scale	10 ms to 512 seconds	Or orders based from 1 to 999 revs
Time synchronous averages	1, 2, 4, 8, 16, 32, 64, 128	Only available when tachometer triggered
Long time waveform Fmax	25 Hz to 80 kHz Fmax	20 kHz dual channel
Long time waveform duration	14.7 million samples — Total over channels	E.g. for Fmax 1 kHz, Fsample = 2.56 kHz and Duration= 1.6 hrs
Logging & analysis		
Output formats	Instrument screen, transfer to Ascent, XML, UFF file export via USB	
Data storage	Dual 1 GB non-volatile flash memories	Database mirror copy on second flash memory
Data storage structure	Folders / machines / points / locations / routes	No limits are applied, 50 character names
Max folder size	10 000 measurement locations	
Modal analysis	CH1 for hammer, up to 3 response channels, ≤ 10 kHz	Coherence and FRF — Accelerance/Mobility/Compliance
Cross channel spectrum	1 Reference and up to 3 other sensors	Coherence and FRF for importing into ODS software

Balancing		
Planes	Up to 2 planes, 4 sensors	
Speed range	30 to 60 000 RPM	
Measurement type	Acceleration, velocity, displacement	
Weight modes	Angle 0° to 360°, fixed position, circumference arc	E.g. weights on fan blades, linear distance around circumference
Remove trial weights	Yes/No	Automatic recalculation
Manual data entry	Yes	Allows re-entry of previous balance jobs
Storage	Against machines in data structure	No limits applied
Display & communication		
Display	Graphic Grayscale LCD	White LED Backlight
Resolution & size	480 x 320 (HVGA), 5.5" (140 mm)	Readable in direct sunlight
Supported Languages	ENG, FRE, SPA, POR, RUS, CHI	Firmware releases in English, translations follow
Communication with PC	USB, Ethernet and Wi-Fi (optional USB dongle)	Use PROFLASH to upgrade instrument firmware
USB host port	USB 2.0, supplying 5V, 250mA	Save folders to USB flash drive
UFF export	Spectra, Coherence, FRF magnitude and phase	Universal File Format for Modal and FRF data
Battery & charger		
Battery type	Custom Lithium Ion pack, 7.4 V, 4500 mAh	
Operating time	10 hours	Backlight on – 60 second timeout
Charger type	Internal charging, automatic control	External Power pack 12 V DC, 3 A output
Charge rate	3 A nominal	3 hours for complete charge
Mechanical		
Size	9.9" W x 5.8" L x 2.4" H (252 x 148x 60 mm)	
Weight	2.7 lb (1.2 kg)	Including battery and strap
Environment		
Operating temperature	14 °F to 122 °F (-10 to 50) °C	
Storage temperature & humidity	-4 °F to 140 °F (-20 to 60) °C, 95% RH	Up to 95F (35 C), 85% RH – If storage exceeds 1 month
EMC	EN61326	
Ruggedness	4' (1.2 m) drop onto concrete, IP65	Procedure – 26 drops following MIL-STD-810F-516.5-IV
Hazardous locations	ATEX and IECEx, Zone 2 Ex ic IIB T4	-10°C < T _a < 50 °C
Certification	CE, C-Tick	

SCOUT140-Ex Portable Instrument Features and Capabilities

Software Included	
Ascent	Level 2
Ascent Reference Guide	✓
Instrument Inputs	
Analog Channels (Simultaneous)	4
Tachometer Input	✓
DC Coupled Inputs	✓
Triax Enabled	✓
Strobe Output	✓
Sensors: Vel, Displ, Keyphasor Tach	✓
Sensors: DC Voltage Output	✓
Sensors: 4-20 mA Output	✓
Processing	
Fmax	80 kHz
Spectral Lines	12 800
Recording Types	
Spectrum/Waveform	✓
Route Enabled	✓
Process Parameter Keypad Entry	✓
Demodulation	✓
6Pack	✓
Bump Test	✓
Coast-down/Run-up	✓
Orbit Plot (with tach triggering)	✓
Order Tracking	✓
Time Synchronous Averaging	✓
X-Channel Phase (Single Frequency)	✓
Modal Impact Testing	✓
Cross Channel Spectrum (ODS)	✓
Long Time Waveform	✓
Balancing Functionality	
Balancing Enabled	✓
Number of Planes/Sensors	2 / 4
Accessories Included	
Instrument Carry Bag	✓
Battery Pack	✓
AC Power Adapter	✓
DC Car Adapter	✓
USB Data Transfer Cable	✓
Shoulder Carry Strap	✓
SensorKeeper	✓
Laser Tachometer	✓
Reflective Tape	✓
Accelerometers (one right-angle, three straight)	4
Accelerometer Magnetic Base	4
Coiled Cables	4
LEMO to Triple BNC Adapter	✓
TTL tachometer/Keyphasor cable	1
BNC-BNC 1m cables	2
Implementation Success Training video on USB stick	✓
Balancing Kit Carry Bag	✓
Tachometer Magnetic Stand	✓
5 Meter Straight Cable	2

Specifications and Ordering Information
Part Number 323330-01
Rev. F (6/14)

Ordering Information

SCOUT140 – AXX – BXX – CXX – DXX

A: Portable

- 00 SCOUT140-Ex Basic Kit
- 01 SCOUT140-Ex Complete Kit

B: Region (Language Support)

- 05 Multi-language

C: Power Plug Style

- 00 USA / Canada
- 01 South Africa / India
- 02 Australia / New Zealand / China
- 03 Hong Kong /UK
- 04 Euro

D: Hazardous Area Approvals

- 02 ATEX / IEC Zone 2

B Option - Region (Language Support)

English – English
Americas -English, Spanish (Lat.), French (Can.),
Portuguese
Euro – English, Spanish (Lat.), French (Can.),
Portuguese, Hungarian
China – English, Chinese (simplified)
Russian – Russian

C Option - Power Plug Style

USA /Canada – Category A Plug (PLUS0230)
South Africa / India – Category D Plug (PLSA0241)
Australia / New Zealand / China – Category M Plug
(PLAU0228)
Hong Kong / UK – Category G Plug (PLHK0245)
Euro – Category C Plug (PLEU0229)

What is included when ordering:

SCOUT140-Ex Complete Kit

Qty 1 SCOUT140-Ex Basic Kit Contents, plus:
Qty 1 Triple BNC Cable (CBTB0278)
Qty 1 Ascent Software License (SBL20523)
Qty 1 Four-Channel Balancing Kit (KTBL0318)

SCOUT140-Ex Basic Kit

Qty 1 SCOUT140-Ex Four Channel Portable Data
Collector
Qty 1 Reference Guide (MBNS0541)
Qty 1 Software & Training Video on USB stick (USBB0570)
Qty 1 Instrument Carry Bag (CBVB0032)
Qty 1 Quick Start Guide (QSG0540)
Qty 1 DC Car Adapter (DCCA0041)
Qty 3 Straight Accelerometers (ACCL0547)
Qty 1 Right Angled Accelerometer (ACCL0561)
Qty 4 Coiled Cables (CBCC0027)
Qty 4 Accelerometer Magnetic Bases (MAGF0104)
Qty 1 USB Data Transfer Cable (CABU0213)
Qty 1 AC Power Adapter (ADAP0546)
Qty 1 Neck Strap with Sensor Keeper (NSSK0275)
Qty 1 LEMO-BNC TTL tach/Keyphasor cable (TTL70259)
Qty 2 BNC-to-BNC Cables, 1m (CABB0560)

Four-Channel Balancing Kit (KTBL0318)

Qty 1 Reflective Tape (RTAP0094)
Qty 1 Laser (LASA0315)
Qty 1 Laser Cable (CBL50216)
Qty 1 Laser Magnetic Stand (MAGA0063)
Qty 2 Sensor Cable, 5m, Green (CB5G0024)
Qty 2 Sensor Cable, 5m, Red (CB5R0025)
Qty 1 Balancing Kit Carry Bag (CBBL0026)

Impact Hammer Kit

Impact_Hammer_Kit - AXX-BXX-CXX-DXX-EXX-FXX

A: 500lbf pk, 10mV/lbf, 0.3lbm (285570-01)

- 00 None
- 01 Hammer Included

B: 1000lbf pk, 5mV/lbf, 0.3lbm (285570-02)

- 00 None
- 01 Hammer Included

C: 5000lbf pk, 1mV/lbf, 2.4lbm (285570-03)

- 00 None
- 01 Hammer Included

D: NA

- 00 None

E: NA

- 00 None

F: NA

- 00 None

Additional Accessories

Ascent Software and Related Items

DGLU0219 Dongle for Software Seat/License mobility. Must supply original software license number when ordering.

USBB0570 Ascent Software & Training Video on USB stick

SBNW0530 Ascent Software Upgrade to Network Version. Applies to all seats at a customer's site. Must supply original software license number when ordering.

CLK20524 Additional Software License. Must supply existing software license number when ordering.

SBL20523 Software License for an initial software order

Balancing Kits

KTBL0317 2 ch Balancing Kit for SCOUT100-Ex

KTBL0318 4 ch Balancing Kit for SCOUT140-Ex

SCOUT Portable Replacement Kit Items

MBNS0541 Reference Guide

CBVB0032 Instrument Carry Bag

DCCA0041 DC Car Adapter

ACCL0547 Multipurpose Accelerometer, 100mV/g +/- 5%, mid-sized, top (straight) exit, Class 1 Div 2

ACCL0561 Multipurpose Accelerometer, 100mV/g +/- 5%, mid-sized, side (right-angle) exit, Class 1 Div 2

CBCC0027 Coiled Accelerometer Cable, 3meter with 90 degree swivel connection at instrument

MAGF0104 Accelerometer Magnetic Base, female connection

CABU0213 USB Data Transfer Cable

ADAP0546 AC Power Adapter, 12VDC, 3A

NSSK0275 Neck Strap with sensor keepers

CBTB0278 Triple BNC Cable

KEY70258 Keyphasor Cable

CABB0560 BNC-to-BNC Cable, 1m

SCOUT Balancing Kit Replacement Items

RTAP0094 Reflective Tape

LASA0315 Laser Tachometer and Block

CBL50216 Laser Cable, 5 meter with LEMO connector attachment at instrument

MAGA0063 Magnetic Base with standard/extension arm for Laser Tach/Block

CB5G0024 Straight Sensor Cable, Green, 5 meter length

CB5R0025 Straight Sensor Cable, Red, 5 meter length

CBBL0026 Carry Bag for balancing kit items

Power Supply Plug Items

PLUS0230 P/S Plug Category A (USA/Canada)

PLHK0245 P/S Plug Category G (Hong Kong/UK)

PLSA0241 P/S Plug Category D (South Africa/India)

PLEU0229 P/S Plug Category C (Euro)

PLAU0228 P/S Plug Category M (Australia/NZ/China)

Accelerometers

AS3100S2-Z2	General Purpose Accelerometer, 100mV/g +/- 5%, side (right angle) exit, 80g peak acceleration range, ¼-28 mounting thread, 0.92 inch base, Class 1 Div 2
AM3100T2-Z2	General Purpose Accelerometer, 100mV/g +/- 5%, top (straight) exit, 80g peak acceleration range, ¼-28 mounting thread, Class 1 Div 2
AP3500T2-Z1	Low Frequency Accelerometer, 500mV/g +/- 5%, top (straight) exit, 10g peak acceleration range, Class 1 Div 1
AP3500S2-Z1	Low Frequency Accelerometer, 500mV/g +/- 5%, side (right angle) exit, 10g peak acceleration range, Class 1 Div 1
KTTC0331	Triaxial Accelerometer Kit, Includes +/- 20% accelerometer, magnet, and 6-foot coiled cable with breakaway connector, Class 1 Div 2

Additional Miscellaneous Items

MAGM0064	Accelerometer Magnetic Base. male connection
TTL70259	Generic TTL Tach/Keyphasor Cable, LEMO® to BNC
BATT0206	Battery Pack
BLSV0207	Listening Amplifier, includes headphones
CABS0406	Strobe Cable
DTC70262	Neoprene Dust Cover
KEY70258	Keyphasor Cable, BNC to LEMO
VBMR0222	Stainless Safety Rings (1 pair)
MVBS0077	Ascent Software Manual
CALV0238	Calibration for Portable Data Collector
PELC0563	SCOUT140-Ex Hard Case
DGWF0591	USB Wi-Fi dongle (compatible with instrument SN 45000 or higher)

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