PRODUCT DATA

4-ch. Input/HS-Tacho + 8-ch. Aux. Module LAN-XI 51.2 kHz Type 3056-A-040

Auxiliary Input Module Type 3056-A-040 is aimed at applications where you need to monitor low-frequency voltage signals along with the sound and vibration signals.

The module offers a combination of four 51.2 kHz input channels with eight simultaneously sampled low-frequency auxiliary channels.

Unique to Type 3056 is the support of high-speed tacho signals on channels 1 – 4, which allows you to record signals needed to perform angle domain analysis.

The interchangeable front panels give the flexibility to use the module with a wide range of transducers. The module works equally well both as a single-module system or as part of a large LAN-XI measurement system, making it one of the most flexible data acquisition modules available on the market.

Option: UA-2110

110585

Uses and Features

Uses

- General sound and vibration measurements
- Angle domain analysis
- QC testing
- Record and monitor low-frequency auxiliary data along with sound and vibration data
- Engine test cells
- Data acquisition front-end module for PULSE measurement and analysis software
- Front-end for PC-based PULSE Data Recorder Type 7708
- Single-module measurements
- Multi-module measurement/distributed system
- Stand-alone recording (no PC) using LAN-XI Notar

Features

- Four input channels with high-speed tacho signal support
- DC to 51.2 kHz input frequency range
- 131 ksamples/s sampling rate
- Eight auxiliary input channels
- Four programmable DC output channels
- All input channels have Dyn-X technology
- Req-X technology
- Supports IEEE 1451.4 capable transducers with TEDS
- Interchangeable front panels
- Provides module status information on self-test and error conditions
- Input voltage up to 10 V_{peak} and extended range to 31.6 V_{peak}
- Absolute maximum input 60 V_{peak} without damage
- Automatic DC offset compensation
- Extremely low noise floor
- Selectable floating or grounded outputs
- Low out-of-band spurious noise
- Overload indicator indicates overload, incorrect conditioning and cable breaks on connected transducers
- Overload detection including out-of-band frequencies
- Full phase match among all inputs in a system, including IDA^e hardware

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High-Speed Tacho/Input Channels

These multipurpose, Dyn-X input channels can be used in combination with the module's interchangeable front panels to connect and condition all relevant sound and vibration transducers including:

- Microphone preamplifier with 0 or 200 V microphone polarization voltage
- DeltaTron microphones
- Proximity probes
- Accelerometers
- DeltaTron accelerometers
- DC accelerometers (diff. input)
- Charge transducers (via DeltaTron converter)
- AC/DC
- Tachometers (power supply not available)
- High-speed tacho signals from angle encoders

Independent Channels

The input channels on a module can be set up independently. You can set up the high-pass filters and input gain separately and attach different types of transducer to different channels.

When used with externally polarized microphones, the polarization voltage can be switched on for individual channels.

IEEE 1451.4 Transducers

All input modules support TEDS transducers. This allows automatic front-end and analyzer setup based on TEDS information stored in the transducer, for example, sensitivity, serial number, manufacturer and calibration date. The individual frequency response of a transducer can be corrected for using PULSE's Transducer Response Equalisation, REq-X, to achieve higher accuracy over extended frequency ranges.

Overload

Constant Current Line Drive (CCLD) conditioning monitors the supply voltage used by CCLD-compatible transducers. Available CCLD transducers include:

- Accelerometers
- Charge amplifiers
- Microphone preamplifiers
- Tacho probes

If conditioning errors, such as a broken cable, are detected, an error is indicated as an overload on the specific channel connector (using a ring-LED around the connector) and in the PC software.

Overload indications for input channels include (see Specifications for details):

- Signal overload with adjustable detection level
- CCLD overload: detection of cable break, short-circuit or CCLD transducer working point fault
- Microphone preamplifier overload: detection of microphone preamplifier current consumption too high or too low
- Common mode voltage overload – relevant when input coupling is floating

Ground-loop Noise Suppression

The module's floating/grounded, differential input design and the fact that all external connections (LAN, power supply) are galvanically isolated in the module provide optimal ground-loop noise suppression.

Protection

If the signal input level to a module significantly exceeds the measuring range, the input will go into protection mode for at least 0.5 s until the signal falls again. While protected, the input is partly switched off and the input impedance is greatly increased. (The measured value will be strongly attenuated but still detectable.)

High-speed Tacho

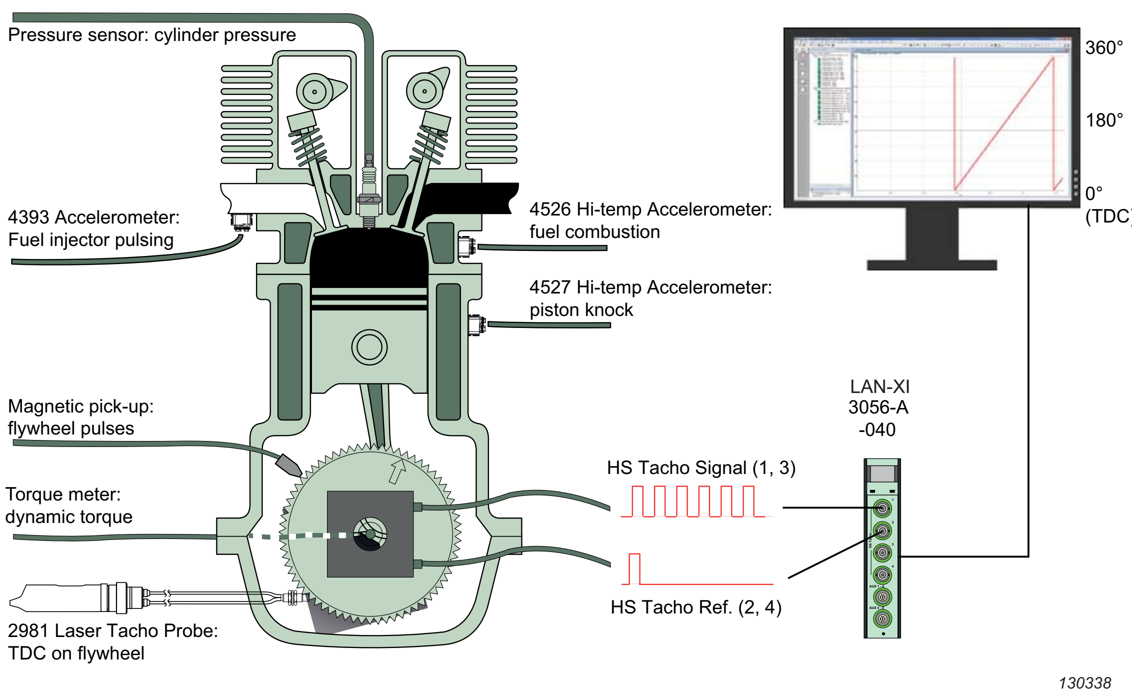
Of the four input channels on Type 3056, channels 1 and 3 can be independently configured to support high-speed tacho signals needed to perform high-precision angle domain analysis on fast-rotating machinery and combustion engines. Channels 2 and 4 can be independently configured for tacho reference signals. The high-speed tacho signals are typically supplied from angle encoders.

Note that PULSE Time Data Recorder Type 7708 supports only two high-speed tacho channels (one tacho channel and one tacho [angle] reference channel). For full support of four high-speed tacho channels, use PULSE LabShop.

	PULSE LabShop	PULSE Time Data Recorder Type 7708
Ch. 1	High-speed tacho signal or normal input	High-speed tacho signal or normal input
Ch. 2	High-speed tacho ref or normal input	High-speed tacho ref or normal input
Ch. 3	High-speed tacho signal or normal input	Normal input
Ch. 4	High-speed tacho ref or normal input	Normal input

PULSE Reflex Angle Domain Analysis Type 8740 (BP 2433) uses angle profile and key phasor information from high-speed tachometer and tachometer reference signals for angle calculation and subsequent cycle extraction for applications such as crank angle analysis.

Fig. 1
Angle profile (high-speed tacho signal) and key phasor (tacho reference signal) are used for cycle extraction with PULSE Reflex Angle Domain Analysis Type 8740



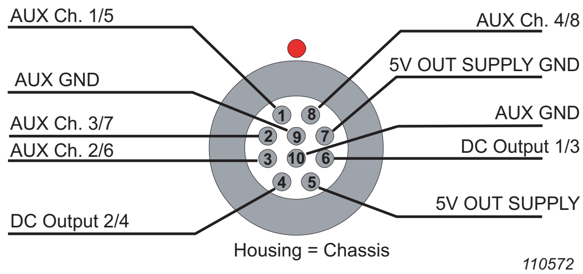
Auxiliary Channels

The auxiliary channels can be used for measurement of auxiliary, pseudo-DC parameters with up to eight low-frequency (16 Hz sample rate) input channels that can be recorded along with the dynamic channels and used as logging or multi-buffer tags. Auxiliary channel settings and data are accessed via OLE2 automation interface.

Typical applications include:

- Automotive – intake pressure, thermocouples, throttle position, vehicle acceleration/braking,
- Industrial – process parameters (temperature, pressure, control position, etc.)
- Production Line Testing – PLC control parameters, environmental conditions (temperature, barometric pressure)
- Pass-by Testing – environmental parameters
- Auxiliary data like temperature and wind speed available as time data or as z-axis tags
- Integration of auxiliary parameters with dynamic data such as FFT, Order and CPB spectra

Fig. 2
10-pin LEMO Aux. connector



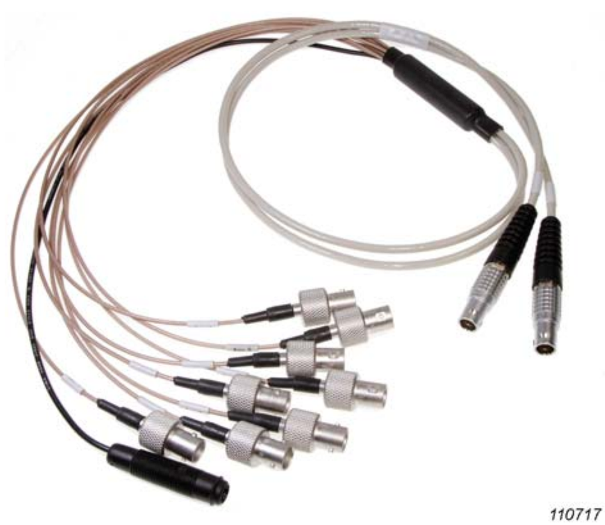
The eight auxiliary input channels are present on two 10-pole connectors, each of which is sampled 16 times per second. The channels are single-ended and have a single 10 V input range.

The four programmable DC outputs are open-drain outputs that are able to sink 100 mA from an external supply of up to 24 V, sufficient for a relay. DC output without an external supply is 5 V, max. 50 mA.

Fig. 3
Break-out Box ZH-0699

Break-out Box ZH-0699, with 2 × 10-pin LEMO* (M) connectors, is available as an accessory and provides BNC connectors for the eight auxiliary signals and four DC outputs.

Fig. 4
Auxiliary cable AO-0738-D-010



Auxiliary cable AO-0738-D-010, 2 × 10-pin LEMO* (M) to 8 × BNC (F) plus ground, is available as an accessory (inputs only). DC outputs require a custom cable or Break-out Box ZH-0699.

* LEMO FGG.1B.310.CLAZ31.

Compliance with Standards

	CE-mark indicates compliance with: EMC Directive and Low Voltage Directive RCM mark indicates compliance with applicable ACMA technical standards – that is, for telecommunications, radiocommunications, EMC and EME China RoHS mark indicates compliance with administrative measures on the control of pollution caused by electronic information products according to the Ministry of Information Industries of the People's Republic of China WEEE mark indicates compliance with the EU WEEE Directive
Safety	EN/IEC 61010–1 and ANSI/UL 61010–1: Safety requirements for electrical equipment for measurement, control and laboratory use
EMC Emission	EN/IEC 61000–6–3: Generic emission standard for residential, commercial, and light-industrial environments CISPR 22: Radio disturbance characteristics of information technology equipment. Class B Limits
EMC Immunity	EN/IEC 61000–6–1: Generic standards – Immunity for residential, commercial and light industrial environments EN/IEC 61000–6–2: Generic standards – Immunity for industrial environments EN/IEC 61326: Electrical equipment for measurement, control and laboratory use – EMC requirements **Note:** The above is only guaranteed using accessories listed in this Product Data
Temperature	IEC 60068–2–1 & IEC 60068–2–2: Environmental Testing. Cold and Dry Heat Ambient Operating Temperature: –10 to +55°C (14 to 131°F) Storage Temperature: –25 to +70°C (–13 to +158°F)
Humidity	IEC 60068–2–78: Damp Heat: 93% RH (non-condensing at 40°C (104°F))
Mechanical (Non-operating)	IEC 60068–2–6: Vibration: 0.3 mm, 2 g, 10 – 500 Hz IEC 60068–2–27: Shock: 100 g IEC 60068–2–29: Bump: 1000 bumps at: 40 g
Enclosure	IEC 60529: Protection provided by enclosures: IP 31

EFFECT OF RADIATED AND CONDUCTED RF, MAGNETIC FIELD AND VIBRATION

Radiated RF: 80–2700 MHz, 80% AM 1 kHz, 10 V/m
Conducted RF: 0.15–80 MHz, 80% AM 1 kHz, 10 V
Magnetic Field: 80 A/m, 50 Hz
Vibration: 5–500 Hz, 12.7 mm, 15 m/s^2

Input measured with terminated input. All values are RMS. Conducted RF immunity on all channels is only guaranteed using an external connection from measuring ground to chassis terminal

Input	Radiated RF	Conducted RF	Magnetic Field	Vibration
Direct/CCLD	<250 µV	<300 µV	<4 µV	<80 µV
Preamplifier	<250 µV	<50 µV	<8 µV	<80 µV

Specifications – LAN Interface

CONNECTOR

RJ 45 (10baseT/100baseTX) connector complying with IEEE-802.3 100baseX
Types 3660-C and -D permit the use of a ruggedized RJ45 data connector (Neutrik NE8MC-1) to screw the cable to the frame
Types 3660-C and -D communicate at 1000 Mbits/s – shielded cables of type "CAT 5e" or better should be used
Individual modules communicate at 100 Mbits/s
All LAN connectors support MDIX, which means that cables may be "crossed" or not
For stand-alone modules, PoE is also supported (IEEE 802.3af). PoE requires screened shielded twisted pair (S/STP or S/FTP) CAT6 LAN cables

PROTOCOL

The following standard protocols are used:
- TCP
- DHCP (incl. Auto-IP)
- DNS (on top of UDP)
- IEEE 1588–2002 (on top of UDP)
- IP
- Ethernet

ACQUISITION PERFORMANCE

Each LAN-XI module generates data at almost 20 Mbit/s when measuring six channels at 51.2 kHz bandwidth. The modules are capable of handling their own maximum traffic while the built-in switch in the frame's backplane has more than sufficient capacity. This means that bottlenecks can only occur outside these, for example in:
- External switches
- PC

For convenience, it is possible to daisy-chain LAN-XI frames. However, it is not recommended to daisy-chain more than two frames. For larger configurations, a star configuration with a central switch is recommended. This must have a switch capacity well beyond N × 20 Mbit/s, where N is the total number of modules

PTP PERFORMANCE

PTP Synchronisation (with 1 Gigabit LAN Switch):
Typical sample synchronisation better that 200 ns
(approx. ±0.07° @ 1 kHz, ±2° @ 25.6 kHz)
Tested with:
- Cisco® SG300-10MP, 10-port 10/100/1000 Managed Gigabit Switch with Maximum PoE (8 ports)
- Netgear® 5-port Gigabit Switch GS105

Better performance can be expected with a dedicated PTP switch:
- UL-0265: 10-port Gigabit Managed Switch with PTPv2 and PoE (8 ports).
  This is a dedicated PTP switch, preconfigured for optimal use with LAN-XI

HIGH-SPEED TACHOMETER CHANNELS

Available on channels 1 to 4:

	PULSE LabShop	PULSE Time Data Recorder Type 7708
Ch. 1	High-speed tacho signal or normal input	High-speed tacho signal or normal input
Ch. 2	High-speed tacho ref or normal input	High-speed tacho ref or normal input
Ch. 3	High-speed tacho signal or normal input	Normal input
Ch. 4	High-speed tacho ref or normal input	Normal input

Analog Bandwidth: > 1 MHz @ 5 V_{peak} (TTL level)
Tacho Resolution: 15 ns
Max. Tacho Input Voltage: 10 V_{peak}
Absolute Max. Input Voltage: ±60 V_{peak}
Trigger Level: 0.2 V to 7 V
Default Trigger Level: 1.5 V
Triggering on rising or falling edge

Upper RPM Limit	Max. Pulses/Revolution	Angular Resolution (°)
1000	60000	0.0000025
6000	10000	0.000015
20000	3000	0.00005
150000	400	0.00375

AUXILIARY INPUT CHANNELS (simultaneously sampled)

Number of Channels: 8 DC channels in 2 × 10-pole LEMO connectors
Input Connector: 2 × 10-pole LEMO
Sampling Rate: 16 Hz
Input Connection: Single-ended
Input Voltage Range: ±10 V in one range
Input Protection: 50 V
Input Impedance: 1 MΩ || 300pF
Precision: ±0.1% of reading ±1 mV offset (after warm up time)
Noise: < 3 µV (10 mHz – 8 Hz) measured without temperature drift and DC offset
Noise-free Dynamic Range: 120 dB (typical)
Noise-free Resolution: 19 to 20 bits (typical)
Temperature Coefficient: <15 µV/ºC (typical)
Distortion: 90 dB @1 Hz 10 V_{peak} (typical)
Programmable DC Output Channels: 4 open-drain outputs (2 per connector) able to sink 100 mA from an external supply of typically 24 V, which allow simple relay control (on/off, pass/fail, etc.) via OLE2 automation interface
DC Output without External Supply: 5 V, max. 50 mA
DC Output Protection: 40 V
DC Out Supply: 5 V out, max. 100 mA total for module

INPUT CHANNELS

Frequency Range		DC to 51.2 kHz Lower frequency range can be set in PULSE software
Sampling Rate		131 ksamples/s
A/D Conversion		2 × 24 bit
Data Transfer		24 bit
Input Voltage Range		10 V_{peak} Extended range: 31.6 V_{peak}
Input Signal Coupling	**Differential**	Signal ground is “floating” (1 MΩ re: chassis)
	Single-Ended	Signal ground is connected to chassis (“Grounded”)
Input Impedance		Direct, Microphone: 1 MΩ || <300 pF
		CCLD: >100 kΩ || <300 pF
Absolute Maximum Input		±60 V_{peak} without damage

High-pass Filters * Defined as the lower frequency, f_L, for guaranteed fulfilment of −0.1 dB accuracy in 10 V_{peak} range ** Defined as the nominal −10%/3 dB filter frequency		**– 0.1 dB** *	**–10% @** **	**–3 dB @** **	**Slope**
	0.1 Hz −10% analog high-pass filter 0.7 Hz −0.1 dB digital high-pass filter	0.5 Hz 0.7 Hz	0.1 Hz 0.15 Hz	0.05 Hz 0.073 Hz	−20 dB/dec.
	1 Hz −10% digital high-pass filter 7 Hz −0.1 dB digital high-pass filter	5 Hz 7 Hz	1.0 Hz 1.45 Hz	0.5 Hz 0.707 Hz	−20 dB/dec.
	22.4 Hz −0.1 dB analog high-pass filter	22.4 Hz	15.8 Hz	12.5Hz	−60 dB/dec.
	Intensity filter (analog)	115 Hz	23.00 Hz	11.5 Hz	−20 dB/dec.

Absolute Amplitude Precision, 1 kHz, 1 V_{input}		±0.05 dB, typ. ±0.01 dB
Amplitude Linearity (linearity in one range)	0 to 80 dB below full scale	±0.05 dB, typ. ±0.01 dB
	80 to 100 dB below full scale	±0.2 dB, typ. ±0.02 dB
	100 to 120 dB below full scale	typ. ±0.02 dB
	120 to 140 dB below full scale	typ. ±0.02 dB
	140 to 160 dB below full scale	typ. ±1 dB
Overall Frequency Response re 1 kHz, from lower limit f_L to upper limit f_U f_L is defined as the lower frequency for guaranteed fulfilment of −0.1 dB accuracy in 10 V_{peak} range (see under High-pass Filters) f_u is defined as the chosen frequency span. DC (f_L = 0)		±0.1 dB ±0.3 dB in 31.6 V range

INPUT CHANNELS (CONTINUED)

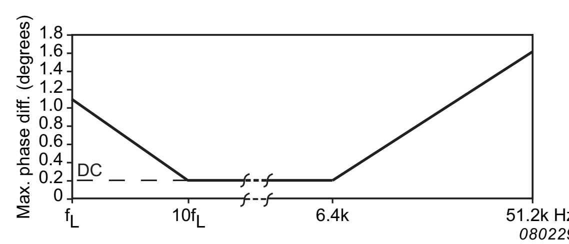
Noise		Input Range	Guaranteed Lin*	Guaranteed 1 kHz	Typical Lin*	Typical 1 kHz
* Measured lin. 10 Hz to 25.6 kHz or lin. 10 Hz to 51.2 kHz:	**Signal level <316 mV$_{peak}$** 10 Hz to 25.6 kHz 10 Hz to 51.2 kHz	10 V$_{peak}$	<4 μV$_{\mathbf{rms}}$ <13 μV$_{\mathbf{rms}}$	<25 nV$_{rms}$/√Hz	<3 μV$_{\mathbf{rms}}$ <10 μV$_{\mathbf{rms}}$	<19 nV$_{rms}$/√Hz
(Input terminated by 50 Ω or less)	**Signal level >316 mV$_{peak}$** 10 Hz to 25.6 kHz 10 Hz to 51.2 kHz	10 V$_{peak}$	<60 μV$_{\mathbf{rms}}$ <350 μV$_{rms}$	<375 nV$_{rms}$/√Hz	<50 μV$_{\mathbf{rms}}$ <250 μV$_{rms}$	<313 nV$_{rms}$/√Hz
	Signal level <1 V$_{peak}$ 10 Hz to 25.6 kHz 10 Hz to 51.2 kHz	31.6 V$_{peak}$	<20 μV$_{\mathbf{rms}}$ <45 μV$_{rms}$	<125 nV$_{rms}$/√Hz	<15 μV$_{\mathbf{rms}}$ <35 μV$_{rms}$	<95 nV$_{rms}$/√Hz
	Signal level >1V$_{peak}$ 10 Hz to 25.6 kHz 10 Hz to 51.2 kHz	31.6 V$_{peak}$	<200 μV$_{\mathbf{rms}}$ <1200 μV$_{\mathbf{rms}}$	<1250 nV$_{rms}$/√Hz	<150 μV$_{\mathbf{rms}}$ <800 μV$_{\mathbf{rms}}$	<950 nV$_{rms}$/√Hz

Spurious-free Dynamic Range re Full-scale Input (Input terminated by 50 Ω or less)	**Input Range**	**Typical**
Spurious-free Dynamic Range is defined as the ratio of the rms full-scale amplitude to the rms value of the largest spurious spectral component (non-harmonic)	10 V$_{peak}$	160 dB
	31.6 V$_{peak}$	140 dB

DC Offset re Full Scale	**Guaranteed**	**Typical**
Measured after automatic DC compensation at current temperature when changing from AC to DC coupling or changing input range when DC coupled	<–90 dB	–100 dB

Harmonic Distortion (all harmonics)	**Guaranteed**	**Typical**
	–80 dB (–60 dB in 31.6 V range)	–100 dB @ 1 kHz (–80 dB @ 1 kHz in 31.6 V range)

Crosstalk: Between any two channels of a module or between any two channels in different modules	**Frequency Range**	**Guaranteed**	**Typical**
	0 to 51.2 kHz	–100 dB	–140 dB

Channel-to-Channel Match		**Guaranteed**	**Typical**
(10 V$_{peak}$ input range)	Maximum Gain Difference f_L is defined as the –0.1 dB frequency of the high-pass filter	0.2 dB from lower frequency limit, f_L, to 51.2 kHz (0.4 dB at –10% filter frequency)	±0.05 dB
	Maximum Phase Difference (within one frame) f_L is defined as the –0.1 dB frequency of the high-pass filter		
	Additional PTP sync. error (phase difference) between modules/frames (using a single standard gigabit switch)	**Typical:** <200 ns (approx. ±0.07° @ 1 kHz, ±2° @ 25.6 kHz)	

Channel-to-Channel Match (31.6 V$_{peak}$ input range)		
	Maximum Gain Difference	0.6 dB from lower frequency limit, f_L, to 51.2 kHz (1 dB at –10% filter frequency)
	Maximum Phase Difference (within one frame)	4° from lower frequency limit, f_L, to 51.2 kHz

Sound Intensity Phase Match (only for using intensity filter and in 10 V$_{peak}$ input range)	**Frequency Range**	**Guaranteed Phase Match**	**Typical Phase Match**
	50 to 250 Hz	±0.017°	±0.005°
	250 Hz to 2.5 kHz	0.017° × (f/250)	±0.005°
All channels matched	2.5 to 6.4 kHz	±0.17°	±0.08°

Common Mode Rejection in 10 V$_{peak}$ input range		**Guaranteed**	**Typical**
Values for 31.6 V$_{peak}$ range are 10 dB lower.	0 to 120 Hz	70 dB	80 dB
	120 Hz to 1 kHz	55 dB	60 dB
	1 to 51.2 kHz	30 dB	40 dB

Absolute Max. Common Mode Voltage	
	±5 V$_{peak}$ without damage
	±4 V$_{peak}$ without clipping
	If common mode voltage exceeds the max. value, care must be taken to limit the signal ground current in order to prevent damage. Max. is 100 mA. The instrument will limit the voltage to the stated max. "without damage" common mode value

Anti-aliasing Filter		
At least 90 dB attenuation of those frequencies which can cause aliasing	Filter Type	3rd order Butterworth
	–0.1 dB @	51.2 kHz
	–3 dB @	128 kHz
	Slope	–18 dB/octave

INPUT CHANNELS (CONTINUED)

Supply for Microphone Preamplifiers	±14.0 V, max. 100 mA per channel (max. 100 mA total/module)
Supply for Microphone Polarization	200 V ±1 V, or 0 V (Set per channel)
Supply for CCLD (for example: DeltaTron or ICP®)	4 to 5 mA from 24 V source, option to DC-couple CCLD power supply
Tacho Supply	CCLD for MM-0360 (Power supply for legacy Types MM-0012 and MM-0024 not available)
Analog Special Functions	**Microphone Charge Injection Calibration:** All modules with 7-pin LEMO support CIC via dedicated application software and OLE interface **Transducers:** Supports IEEE 1451.4-capable transducers with standardised TEDS (up to 100 m (328 ft) cable length)
Overload Detection	**Signal Overload:** Adjustable detection level ±1 V_{peak} to ±10 V_{peak}. Default level ±10 V_{peak} (CCLD mode ±7 V_{peak}) (31.6 V range: ±31.6 V) can be set in PULSE Transducer Database **CCLD Overload:** Detection of cable break or short-circuit + detection of CCLD transducer working point fault. Detection level: +2 V/20 V **Microphone Preamplifier Overload:** Detection of microphone preamplifier current consumption too high or too low. Detection level default 10 mA/1 mA Adjustable detection level 1 to 20 mA or 100 mA if disabled **Common Mode Voltage Overload:** Detection level: ±3.0 V
Protection	If signal input level exceeds the measuring range significantly, the input will go into protection mode until the signal goes below the detection level again for at least 0.5 s. While in protection mode, the input is partly switched off and the input impedance is greatly increased. (The measured value will be strongly attenuated but still detectable) In DC mode –10 V_{peak} range, the detection limit is ±12 V. In all other measuring modes (except CCLD) the limit is ±50 V_{peak} including DC component or ±12 V_{peak} AC In CCLD mode the limit is +50/–2 V_{peak} including DC component or ±12 V_{peak} AC In the 31.6 V range, the limit is ±50 V_{peak}

POWER REQUIREMENTS

DC Input: 10 to 32 V DC
Connector: LEMO coax., FFA.00.113, ground on shield
Power Consumption:
DC Input: <15 W
Supply via PoE: According to IEEE 802.3af, Max. cable length 50 m

Temperature Protection:
Temperature sensor limits module's internal temperature to 80ºC (176ºF). If temperature exceeds limit, system will automatically enable fan in LAN-XI frame or shut down module outside frame

DIMENSIONS AND WEIGHT

Height: 132.6 mm (5.22″)
Width: 27.5 mm (1.08″)
Depth: 250 mm (9.84″)
Weight: 750 g (1.65 lb)

Ordering Information

Type 3056-A-040 4-ch. Input/HS-Tacho + 8-ch. Aux. Module LAN-XI 51.2 kHz (Mic, CCLD, V)
includes the following accessories
- UA-2111-040: Detachable front panel with 4 BNC input connectors and 2 LEMO auxiliary connectors

OPTIONAL ACCESSORIES

UA-2110-040	Detachable front panel with 4 LEMO input connectors and 2 LEMO auxiliary connectors
AO-0090	7-pin LEMO to BNC male (1.2 m) for floating ground
AO-0091	7-pin LEMO to BNC female (1.2 m) for floating ground
AO-0526	4-pin Microtech to 3 × BNC Cable
AO-0546	DC Power Cable, Car Utility Socket to 1 module
AO-0548	DC Power Cable, Source to 4 modules
AO-0738-D-010	Cable, for Type 3056, 2 × 10-pin LEMO (M) to 8 × BNC (F) 1.0 m (3.3 ft.), max. 70°C (158°F)
AO-1450	Shielded CAT 6 LAN Cable with RJ45 (2 m)
JJ-0081	BNC Adaptor, female to female
JJ-0152	BNC T-connector
JP-0145	BNC to 10–32 UNF Plug Adaptor
UL-0265	10-port Gigabit Managed Switch with PTP and PoE (8 ports)
WB-1497	20 dB Attenuator
ZH-0699	Break-out Box

SOFTWARE

Please refer to the System Data for PULSE Software (BU 0229)

SERVICE PRODUCTS

3056-CAI	Type 3056 Initial Accredited Calibration
3056-CAF	Type 3056 Accredited Calibration
3056-CTF	Type 3056 Traceable Calibration
3056-TCF	Type 3056 LAN-XI Conformance Test with Certificate

A wide range of Brüel & Kjær accelerometers, microphones, preamplifiers and sound intensity probes is available for use with a LAN-XI system. The system supports IEEE 1451.4-capable transducers with standardised TEDS. Please see www.bksv.com

BP 2422 – 13 2013-09

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