

Product Data

Acoustic Front End — Types 5966L and 5968L

USES:

- Multichannel microphone preamplifier power supply
- Input module for SONY PC 204/208 A DAT instrumentation cassette recorder
- In high-quality audio frequency field-measurements
- Amplitude- and phase-matched channels
- Internal rechargeable battery for portability
- Tacho input channel supporting Brüel & Kjær Photoelectric Probe MM 0024

FEATURES:

- 8 channels — Type 5966L
- 4 channels — Type 5968L
- 200 V, 28 V or 0 V microphone polarization voltage
- Selectable linear or A-weighted frequency response for each channel
- 0 dB, 20 dB or 40 dB selectable channel gain
- Dynamic and frequency ranges optimised for SONY PC 204/208 A DAT recorders

Type 5966L and Type 5968L Acoustic Front Ends are power supplies and conditioning amplifiers for microphones and microphone preamplifiers. The Type 5966L is an 8-channel version of the 4-channel Type 5968L.

Both units are primarily for use with a SONY PC 204/208 A DAT cassette instrumentation recorder, being housed in similar cases and powered by the same type of battery or power source. Portability is a key feature, allowing high quality recording of measurement microphone and accelerometer signals in the field for subsequent replay and analysis in a laboratory environment.

Product Overview

The Acoustic Front Ends Types 5966L and 5968L have two main functions. Firstly, these units supply the necessary power to attached microphone/preamplifier assemblies, including microphone polarization voltages. Secondly, active circuitry makes it possible to amplify the output of the preamplifiers or accelerometers by up to 40 dB and to apply an A-weighting filter network.

The audio channels operate entirely independently, but are electrically



Fig 1 Type 5966L front panel (Type 5968L has every second channel missing)

identical, giving excellent phase characteristics and minimal cross-channel differential gain. The active circuitry conforms to the same high specification expected of digital recording systems and will not unduly degrade analogue signals before conversion to digital format.

Preamplifiers types 2669L, 2670 and 2673 can be connected directly to the front panel LEMO sockets. Preamplifiers with Brüel & Kjær preamplifier connectors can be connected with adaptor cable AO 0488. Microphone Preamplifier Type 2660 cannot be used with Types 5966L and 5968L. The front ends provide all the polarization voltages (0 V, 28 V and 200 V) necessary for Brüel & Kjær microphones, via the LEMO sockets.

The signals are output via BNC connectors on the side panel. The outputs are all very low impedance and electronically semi-balanced.

Applications

The small size of Types 5966L/68L makes them suitable for a wide variety of portable applications where many inputs are to be simultaneously gathered for measurement. In general, the unit would be connected to a DAT recorder, though the Types 5966L/68L can be used in their own right as multichannel preamplifier power supplies and conditioning amplifiers.

Attaching calibrated microphones allows high quality acoustic measurements under non-laboratory conditions, for example measurements made on vehicles in the field.

Tachometer pulses can also be recorded on an independent digital channel so that, for example, engine speed can be directly related to the measured parameters.

Recording on DAT

The Types 5966L/68L are primarily for use with SONY PC204/208 A DAT cassette recorders. For this reason the case size and connector positioning are set to match that of the DAT recorder. By adding side frames, the two units are incorporated into one portable system, Brüel & Kjær Type 9666 (8-ch.) and Type 9668 (4-ch.) (see Fig. 2). When the units are connected to a DAT cassette recorder, they act as a buffer amplifier for the DAT recording inputs. Input levels to the DAT recorder can be amplified by 20 dB or 40 dB and A-weighting applied. There is also circuitry that allows tachometer pulses to be digitally recorded on the DAT machine.

The Types 5966L/68L and DAT recorder use the same type of recharge-



Fig. 1 Type 5966L and DAT cassette recorder as one package, the Type 9666

able battery or external power source (e.g. 12 V vehicle battery), thus avoiding the need to have different power systems for both units. The internal battery can be trickle charged via the

external supply. The maximum full recharge time is 14 hours.

Specifications 5966L and 5968L

Amplifier Stages

INPUT IMPEDANCE: 200 k Ω
MAXIMUM INPUT LEVEL: 5 V rms
GAIN:
 Maximum: 40 dB
 Minimum: 0 dB
OUTPUT IMPEDANCE: 30 Ω
MAXIMUM CHANNEL OUTPUT:
 Level: 5 V rms
 Current: 15 mA
 Power: 20 mW
FREQUENCY RESPONSE (Lin., -2 dB):
 0.5 Hz to 20 kHz
A-WEIGHTING FILTERS:
 In accordance with IEC 6651 Type 0
CHANNEL SEPARATION:
 >85 dB at 1 kHz
 >65 dB at 20 kHz
GAIN ERROR:
 <0.1 dB at 20 dB gain
 <0.2 dB at 40 dB gain

INTERNAL NOISE¹ (full bandwidth):

Gain	0 dB	20 dB	40 dB
A-weighting	<45 μ V	<55 μ V	<300 μ V
Linear	<45 μ V	<80 μ V	<550 μ V

INTERNAL NOISE¹ (bandwidth limited, 22.4Hz to 22.4kHz):

Gain	0 dB	20 dB	40 dB
A-weighting	<15 μ V	<40 μ V	<300 μ V
Linear	<13 μ V	<50 μ V	<400 μ V

¹Noise measured with input short-circuited

PHASE BETWEEN CHANNELS (Lin):

<17 millidegrees at 50 Hz
 <66 millidegrees at 1 kHz
 <420 millidegrees at 6.3 kHz

Tachometer

MAXIMUM PULSE FREQUENCY: 96 kHz
MAXIMUM PULSE AMPLITUDE: 10 V
THRESHOLD LEVELS:
 Positive-going: 1.9 V
 Negative-going: 0.9 V

Power Supply

BATTERY:
 Type: NP-1B rechargeable (WQ1129)
 Life: 4 hours continuous operation (Type 5966L)
 or 8 hours continuous operation (Type 5968L)
 Charge: Approx. 14 hours via external supply
EXTERNAL SUPPLY: 12 V to 20 V DC

SUPPLY CURRENT:

400 mA at 12 V (450 mA when preamplifiers are connected and 550 mA when preamplifiers and tacho probe are connected)
 550 mA at 18 V and charging battery
PREAMPLIFIER SUPPLY VOLTAGE: +27 V DC
POLARIZATION VOLTAGES: 0 V, 28 V, 200 V

Connectors

PREAMPLIFIER INPUT: LEMO 7-pin socket
SIGNAL AND REGENERATED TACHO OUTPUT: BNC
TACHO INPUT: BNT
TACHO DATA OUTPUT: 9-pin D-type socket
EXTERNAL SUPPLY INPUT: 2-pin

Dimensions

Height: 70 mm (2.8")
Width: 297 mm (11.7")
Depth: 220 mm (8.7")
Weight: 3 kg (6 lb 10 oz) (without battery)

EMC

SUSCEPTIBILITY TO DISTURBANCES SPECIFIED IN EN 50082-2:

Measured using Microphone Cable AO 0419 with Ferrite Cable Clamp LK0013 mounted on cable and on external DC cable.

At magnetic field 30 A/m input noise can increase to 600 μ V

At magnetic field 80 A/m input noise can increase to 1.6 mV


RADIATED RF: (3 to 10 V/m, 80% AM, 1 kHz)
CONDUCTED RF: (3 to 10 V, 80% AM, 1 kHz)

Input	Radiated	Conducted
Microphone*	<700 mV	<35 mV

* Measured with input short-circuited

Note: All values are typical at 25°C (77°F), unless measurement uncertainty or tolerance field is specified. All uncertainty values are specified at 2 σ (i.e. expanded uncertainty using a coverage factor of 2)

COMPLIANCE WITH STANDARDS:

	CE-mark indicates compliance with: EMC Directive.
Safety	EN 61010-1 and IEC 1010-1: Safety requirements for electrical equipment for measurement, control and laboratory use.
EMC Emission	EN 50081-1: Generic emission standard. Part 1: Residential, commercial and light industry. EN 50081-2: Generic emission standard. Part 2: Industrial environment. CISPR 22: Radio disturbance characteristics of information technology equipment. Class B Limits. FCC Rules, Part 15: Complies with the limits for a Class B digital device.
EMC Immunity	EN 50082-1: Generic immunity standard. Part 1: Residential, commercial and light industry. EN 50082-2: Generic immunity standard. Part 2: Industrial environment. Note 1: The above is guaranteed using accessories listed in this Product Data sheet only. Note 2: See "EMC"
Temperature	IEC 68-2-1 & IEC 68-2-2: Environmental Testing. Cold and Dry Heat. Operating Temperature: 0 to +50°C Storage Temperature: -25 to +70°C
Humidity	IEC 68-2-3: 90% RH (non-condensing at 40°C)
Enclosure	IEC 529: IP 20
Mechanical	Non-operating: IEC 68-2-6: Vibration: 0.3 mm, 20 m/s ² , 10-500 Hz IEC 68-2-27: Shock: 1000 m/s ² IEC 68-2-29: Bump: 1000 bumps at 250 m/s ²

Ordering Information

<p>Type 5966L Acoustic Front End (8 ch.) Type 5968L Acoustic Front End (4 ch.) Include the following accessories: WB 1375: Mains adaptor, 100 to 127 VAC or WB 1376: Mains adaptor, 200 to 240 VAC WU 0484: Right and left hand guard frame set DH 0541: Carrying strap WL 1141: Tachometer data interface cable 8×WL 1157: 0.2 m BNC to BNC cables (5966L)</p>	<p>or 4×WL 1157: 0.2 m BNC to BNC cables (5968L) 2×LK 0013: Ferrite cable clamp for ext. DC and microphone cable</p> <p>To make a combined Acoustic Front End/DAT recorder package, you should additionally order a SONY PC 204/208 A DAT recorder. This must be done via a SONY agent.</p>	<p>Optional Accessories</p> <p>AO 0488: Brüel & Kjær microphone to LEMO adaptor cable MM 0024: Photoelectric Probe WQ 1128: SONY 4-cell battery charger WQ 1129: SONY rechargeable battery pack (NP-1B)</p>
--	---	--

Brüel & Kjær reserves the right to change specifications and accessories without notice



WORLD HEADQUARTERS:

DK-2850 Naerum · Denmark · Telephone: +45 45 80 05 00 · Fax: +45 45 80 14 05 · Internet: <http://www.bk.dk> · e-mail: info@bk.dk
Australia (02) 9450-2066 · Austria 00 43-1-865 74 00 · Belgium 016/44 92 25 · Brazil (011) 246-8166 · Canada: (514) 695-8225 · China 10 6841 9625 / 10 6843 7426
Czech Republic 02-67 021100 · Finland 90-229 3021 · France (01) 69 90 69 00 · Germany 0610 3/908-5 · Holland (0)30 6039994 · Hong Kong 254 8 7486
Hungary (1) 215 83 05 · Italy (02) 57 60 4141 · Japan 03-3779-8671 · Republic of Korea (02) 3473-0605 · Norway 66 90 4410 · Poland (0-22) 40 93 92 · Portugal (1) 47114 53
Singapore (65) 275-8816 · Slovak Republic 07-37 6181 · Spain (91) 36810 00 · Sweden (08) 71127 30 · Switzerland 01/94 0 09 09 · Taiwan (02) 713 9303
United Kingdom and Ireland (0181) 954-236 6 · USA 1 - 800 - 332 - 2040
Local representatives and service organisations worldwide
BP 1336 - 15