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

**FEATURES:**
- 8 channels — Type 5966L
- 4 channels — Type 5968L
- Amplitude- and phase-matched channels
- Internal rechargeable battery for portability
- Tacho input channel supporting Brüel & Kjær Photoelectric Probe MM 0024
- 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

**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 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 PC204/208A 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 & Kjaer 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 tacho pulses to be digitally recorded on the DAT machine.

The Types 5966L/68L and DAT recorder use the same type of rechargeable 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 kΩ
**INPUT IMPUT LEVEL:** 5 V rms
**GAIN:**
- Maximum: 40 dB
- Minimum: 0 dB
**OUTPUT IMPEDANCE:** 30 Ω
**FREQUENCY RESPONSE (Lin., –2 dB):**
- >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 NOISE** (full bandwidth):
- Gain: 0 dB, 20 dB, 40 dB
- A-weighting: <45 µV, <55 µV, <300 µV
- Linear: <45 µV, <80 µV, <550 µV
**INTERNAL NOISE** (bandwidth limited, 22.4 kHz to 22.4 kHz):
- Gain: 0 dB, 20 dB, 40 dB
- A-weighting: <15 µV, <40 µV, <300 µV
- Linear: <13 µV, <50 µV, <400 µV

**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)

**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 (WQ 1129)
- 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

**EMC**

**SUSCEPTIBILITY TO DISTURBANCES SPESIFIED IN EN 50082–2:**
- Measured using Microphone Cable AO 0419 with Ferrite Cable Clamp LK 0013 mounted on cable and on external DC cable.
- At magnetic field 30 A/m input noise can increase to 600 µV
- At magnetic field 80 A/m input noise can increase to 1.6 mV

**CONDUCTED RF:** (3 to 10 V/m, 80% AM, 1 kHz)
- * Measured with input short-circuited

**RA DIATED RF:** (3 to 10 V, 80% AM, 1 kHz)
- Conducted RF

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

**COMPLIANCE WITH STANDARDS:**

| CE-mark indicates compliance with: EMCE Directive. |
| --- | --- |
| **Safety** | EN 61010–1 and IEC 1010–1: Safety requirements for electrical equipment for measurement, control and laboratory use. |
| **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/s², 10–500 Hz IEC 68–2–27: Shock: 1000 m/s² IEC 68–2–29: Bump: 1000 bumps at 250 m/s² |
**Ordering Information**

<table>
<thead>
<tr>
<th>Type 5966L</th>
<th>Acoustic Front End (8 ch.)</th>
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<tbody>
<tr>
<td>Type 5968L</td>
<td>Acoustic Front End (4 ch.)</td>
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<tr>
<td>Include the following accessories:</td>
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<tr>
<td>WB 1375:</td>
<td>Mains adaptor, 100 to 127 VAC</td>
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<tr>
<td>or WB 1376:</td>
<td>Mains adaptor, 200 to 240 VAC</td>
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<td>WU 0484:</td>
<td>Right and left hand guard frame set</td>
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<td>DH 0541:</td>
<td>Carrying strap</td>
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<tr>
<td>8 × WL 1157:</td>
<td>Tachometer data interface cable, 0.2 m BNC to BNC cables (5968L)</td>
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<tr>
<td>or 4 × WL 1157:</td>
<td>0.2 m BNC to BNC cables (5968L)</td>
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<tr>
<td>2 × LK 0013:</td>
<td>Ferrite cable clamp for ext. DC and microphone cable</td>
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To make a combined Acoustic Front End/DAT recorder package, you should additionally order a SONY PC204/208 DAT recorder. This must be done via a SONY agent.

**Optional Accessories**

- **AO 0488:** Brüel & Kjaer microphone to LEMO adaptor cable
- **MM 0024:** Photoelectric Probe
- **WQ 1126:** SONY 4-cell battery charger
- **WQ 1129:** SONY rechargeable battery pack (NP-1B)

**Brüel & Kjaer** reserves the right to change specifications and accessories without notice.