

SPECIFICATIONS

SHDB62M-DB62M-LL

Low Leakage Cable for SMU

These specifications apply to the 1 m and 2 m SHDB62M-DB62M-LL. The SHDB62M-DB62M-LL is a 62 D-sub male to 62 D-sub male low-leakage cable intended for use with PXIe-4162/4163 Source Measure Units.



Caution The protection provided by the SHDB62M-DB62M-LL can be impaired if it is used in a manner not described in the user documentation.



Caution Do not exceed the operating specifications for the module connected to the SHDB62M-DB62M-LL. Refer to the *Safety, Environmental, and Regulatory Information* for the module for the maximum operating temperature, additional environmental requirements, and safety and EMC guidelines and standards.



Notice Clean the hardware with a soft, nonmetallic brush. Make sure that the hardware is completely dry and free from contaminants before returning it to service. Avoid direct handling of connector ends to prevent contaminant buildup on sensitive conductors.

Definitions

Warranted specifications describe the performance of a model under stated operating conditions and are covered by the model warranty.

The following characteristic specifications describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- *Typical* specifications describe the performance met by a majority of models.
- *Nominal* specifications describe an attribute that is based on design, conformance testing, or supplemental testing.

Specifications are *Nominal* unless otherwise noted.

Conditions

Specifications are valid at an ambient temperature¹ of 23 °C ± 5 °C unless otherwise noted.

¹ The ambient temperature of a PXI system is defined as the temperature at the chassis fan inlet (air intake).

Maximum Voltage and Current

| | |
|---|--------|
| Maximum voltage (channel to earth ground) | 60 VDC |
| Maximum current per channel | 100 mA |

Insulation Resistance

| | |
|--|---------------------------|
| Guarded insulation resistance ² | $3 \times 10^{12} \Omega$ |
| Non-guarded insulation resistance | $1 \times 10^{12} \Omega$ |

Physical

Weight

| | |
|-----------|-----------------|
| 1 m cable | 386 g (13.6 oz) |
| 2 m cable | 590 g (20.8 oz) |

Cable Cross-Section

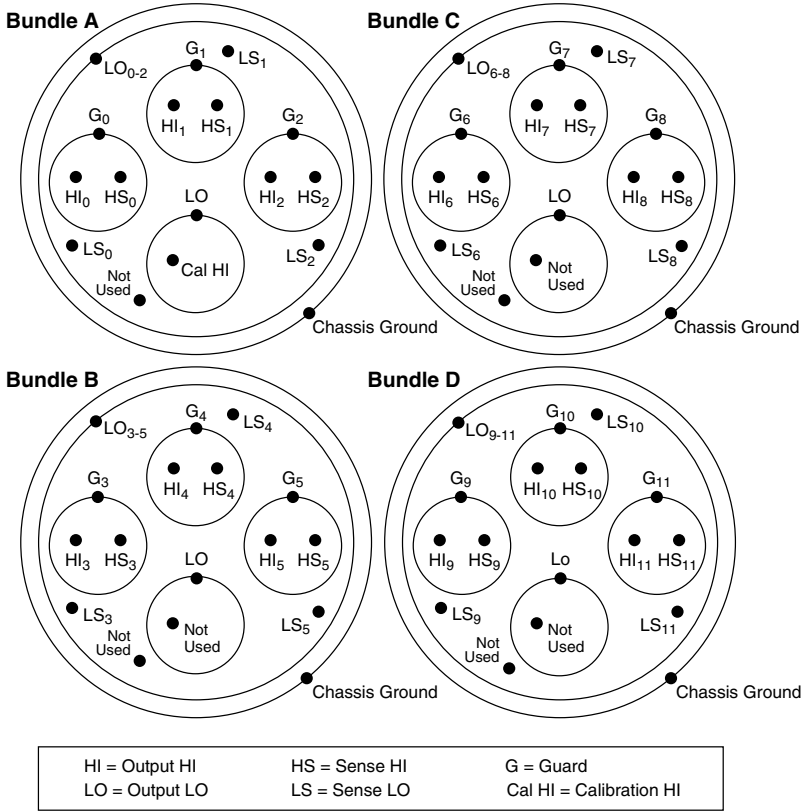
The outer shield of the SHDB62M-DB62M-LL consists of braided wire that is tied to chassis ground through the shell of the PXIe-4162/4163 front panel connector.

The inner shield, located within the outer shield, provides an additional layer of foil insulation tied to the Output LO pin (pin 10).

The following diagram shows a cross-section of the SHDB62M-DB62M-LL when used with a PXIe-4162.

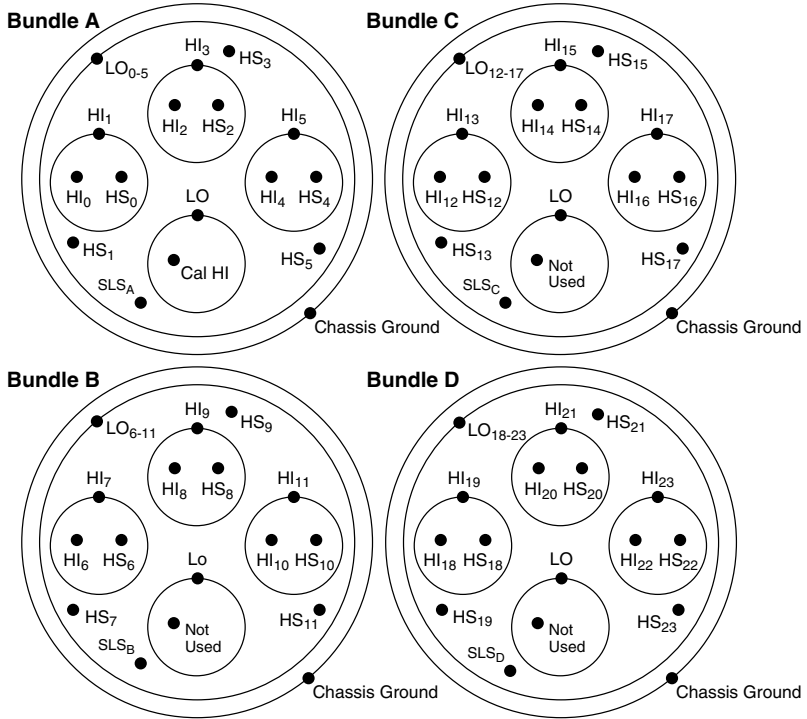
² Guarded insulation resistance only applies with the use of a PXIe-4162, which supports guarding.

Figure 1. Cable Cross-Section with a PXIe-4162



The following diagram shows a cross-section of the SHDB62M-DB62M-LL when used with a PXIe-4163.

Figure 2. Cable Cross-Section with a PXIe-4163



| | | |
|----------------|-----------------------|-------------------------|
| HI = Output HI | HS = Sense HI | Cal HI = Calibration HI |
| LO = Output LO | SLS = Shared Sense LO | |

Related Information

[Pinouts for Associated Source Measure Units](#) on page 4

Pinouts for Associated Source Measure Units

PXIe-4162/4163 channels are grouped into four separate bundles of cable with an outer shield surrounding each bundle.

PXIe-4162 Pinout

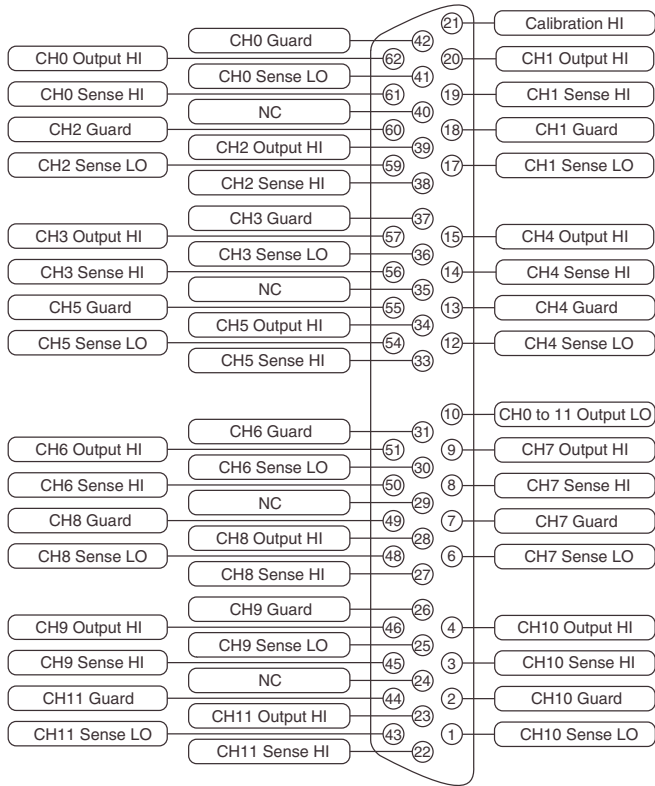


Table 1. PXIe-4162 Signal Descriptions and SHDB62M-DB62M-LL Wires

| Bundle | Channel | Pin | Signal Description | Grouping | |
|---------------|----------------|------------|---------------------------|--------------------------|--------------------------|
| A | 0 | 41 | Sense LO | Unshielded Single Wire 0 | |
| | | 42 | Guard ³ | Shielded Pair 1 | |
| | | 61 | Sense HI | Shielded Pair 0 | |
| | | 62 | Output HI | | |
| | 1 | 1 | 17 | Sense LO | Unshielded Single Wire 1 |
| | | | 18 | Guard ³ | Shielded Pair 1 |
| | | | 19 | Sense HI | |
| | | | 20 | Output HI | |
| | 2 | 2 | 38 | Sense HI | Shielded Pair 2 |
| | | | 39 | Output HI | |
| | | 2 | 59 | Sense LO | Unshielded Single Wire 2 |
| | | | 60 | Guard ³ | Shielded Pair 2 |
| | — | — | 21 | Calibration HI | Shielded Single Wire 0 |
| | | | 40 | Not used | Unshielded Single Wire 3 |

³ Guard terminals are not supported in the highest current ranges: 60 mA or 100 mA.

Table 1. PXIe-4162 Signal Descriptions and SHDB62M-DB62M-LL Wires (Continued)

| Bundle | Channel | Pin | Signal Description | Grouping |
|---------------|----------------|------------|---------------------------|--------------------------|
| B | 3 | 36 | Sense LO | Unshielded Single Wire 0 |
| | | 37 | Guard ³ | Shielded Pair 0 |
| | | 56 | Sense HI | |
| | | 57 | Output HI | |
| | 4 | 12 | Sense LO | Unshielded Single Wire 0 |
| | | 13 | Guard ³ | Shielded Pair 1 |
| | | 14 | Sense HI | |
| | | 15 | Output HI | |
| | 5 | 33 | Sense HI | Shielded Pair 2 |
| | | 34 | Output HI | |
| | | 54 | Sense LO | Unshielded Single Wire 2 |
| | | 55 | Guard ³ | Shielded Pair 2 |
| | — | 35 | Not used | Unshielded Single Wire 3 |

Table 1. PXle-4162 Signal Descriptions and SHDB62M-DB62M-LL Wires (Continued)

| Bundle | Channel | Pin | Signal Description | Grouping |
|---------------|----------------|------------|---------------------------|--------------------------|
| C | 6 | 30 | Sense LO | Unshielded Single Wire 0 |
| | | 31 | Guard ³ | Shielded Pair 0 |
| | | 50 | Sense HI | |
| | | 51 | Output HI | |
| | 7 | 6 | Sense LO | Unshielded Single Wire 1 |
| | | 7 | Guard ³ | Shielded Pair 1 |
| | | 8 | Sense HI | |
| | | 9 | Output HI | |
| | 8 | 27 | Sense HI | Shielded Pair 2 |
| | | 28 | Output HI | |
| | | 48 | Sense LO | Unshielded Single Wire 2 |
| | | 49 | Guard ³ | Shielded Pair 2 |
| | — | 29 | Not used | Unshielded Single Wire 3 |

Table 1. PXIe-4162 Signal Descriptions and SHDB62M-DB62M-LL Wires (Continued)

| Bundle | Channel | Pin | Signal Description | Grouping | |
|---------------|----------------|------------|---------------------------|--------------------------------------|--------------------------|
| D | 9 | 25 | Sense LO | Unshielded Single Wire 0 | |
| | | 26 | Guard ³ | Shielded Pair 0 | |
| | | 45 | Sense HI | | |
| | | 46 | Output HI | | |
| | 10 | 10 | 1 | Sense LO | Unshielded Single Wire 1 |
| | | | 2 | Guard ³ | Shielded Pair 1 |
| | | | 3 | Sense HI | |
| | | | 4 | Output HI | |
| | 11 | 11 | 22 | Sense HI | Shielded Pair 2 |
| | | | 23 | Output HI | |
| | | 11 | 43 | Sense LO | Unshielded Single Wire 2 |
| | | | 44 | Guard ³ | Shielded Pair 2 |
| | — | — | 24 | Not used | Unshielded Single Wire 3 |
| A, B, C, D | 0 to 11 | 10 | Output LO | Shielded Single Wire 0, Inner Shield | |
| — | — | 5 | Void | — | |
| | | 11 | | | |
| | | 16 | | | |
| | | 32 | | | |
| | | 47 | | | |
| | | 52 | | | |
| | | 53 | | | |
| | | 58 | | | |

Table 2. PXIe-4163 Signal Descriptions and SHDB62M-DB62M-LL Wires

| Bundle | Channel | Pin | Signal Description | Grouping |
|---------------|----------------|------------|---------------------------|--------------------------|
| A | 0 | 61 | Sense HI | Shielded Pair 0 |
| | | 62 | Output HI | |
| | 1 | 41 | Sense HI | Unshielded Single Wire 0 |
| | | 42 | Output HI | Shielded Pair 0 |
| | 2 | 19 | Sense HI | Shielded Pair 1 |
| | | 20 | Output HI | |
| | 3 | 17 | Sense HI | Unshielded Single Wire 1 |
| | | 18 | Output HI | Shielded Pair 1 |
| | 4 | 38 | Sense HI | Shielded Pair 2 |
| | | 39 | Output HI | |
| | 5 | 59 | Sense HI | Unshielded Single Wire 2 |
| | | 60 | Output HI | Shielded Pair 2 |
| | 0 to 5 | 40 | Sense LO | Unshielded Single Wire 3 |
| | — | 21 | Calibration HI | Shielded Single Wire 0 |

Table 2. PXIe-4163 Signal Descriptions and SHDB62M-DB62M-LL Wires (Continued)

| Bundle | Channel | Pin | Signal Description | Grouping |
|---------------|----------------|------------|---------------------------|--------------------------|
| B | 6 | 56 | Sense HI | Shielded Pair 0 |
| | | 57 | Output HI | |
| | 7 | 36 | Sense HI | Unshielded Single Wire 0 |
| | | 37 | Output HI | Shielded Pair 0 |
| | 8 | 14 | Sense HI | Shielded Pair 1 |
| | | 15 | Output HI | |
| | 9 | 12 | Sense HI | Unshielded Single Wire 1 |
| | | 13 | Output HI | Shielded Pair 1 |
| | 10 | 33 | Sense HI | Shielded Pair 2 |
| | | 34 | Output HI | |
| | 11 | 54 | Sense HI | Unshielded Single Wire 2 |
| | | 55 | Output HI | Shielded Pair 2 |
| | 6 to 11 | 35 | Sense LO | Unshielded Single Wire 3 |

Table 2. PXIe-4163 Signal Descriptions and SHDB62M-DB62M-LL Wires (Continued)

| Bundle | Channel | Pin | Signal Description | Grouping |
|---------------|----------------|------------|---------------------------|--------------------------|
| C | 12 | 50 | Sense HI | Shielded Pair 0 |
| | | 51 | Output HI | |
| | 13 | 30 | Sense HI | Unshielded Single Wire 0 |
| | | 31 | Output HI | Shielded Pair 1 |
| | 14 | 8 | Sense HI | |
| | | 9 | Output HI | |
| | 15 | 6 | Sense HI | Unshielded Single Wire 1 |
| | | 7 | Output HI | Shielded Pair 1 |
| | 16 | 27 | Sense HI | Shielded Pair 2 |
| | | 28 | Output HI | |
| | 17 | 48 | Sense HI | Unshielded Single Wire 2 |
| | | 49 | Output HI | Shielded Pair 2 |
| | 12 to 17 | 29 | Sense LO | Unshielded Single Wire 3 |

Table 2. PXIe-4163 Signal Descriptions and SHDB62M-DB62M-LL Wires (Continued)

| Bundle | Channel | Pin | Signal Description | Grouping |
|---------------|----------------|------------|---------------------------|--------------------------|
| D | 18 | 45 | Sense HI | Shielded Pair 0 |
| | | 46 | Output HI | |
| | 19 | 25 | Sense HI | Unshielded Single Wire 0 |
| | | 26 | Output HI | Shielded Pair 0 |
| | 20 | 3 | Sense HI | Shielded Pair 1 |
| | | 4 | Output HI | |
| | 21 | 1 | Sense HI | Unshielded Single Wire 1 |
| | | 2 | Output HI | Shielded Pair 1 |
| | 22 | 22 | Sense HI | Shielded Pair 2 |
| | | 23 | Output HI | |
| | 23 | 43 | Sense HI | Unshielded Single Wire 2 |
| | | 44 | Output HI | Shielded Pair 2 |
| | 18 to 23 | 24 | Sense LO | Unshielded Single Wire 3 |
| | A, B, C, D | 0 to 23 | 10 | Output LO |
| — | — | 5 | Void | — |
| | | 11 | | |
| | | 16 | | |
| | | 32 | | |
| | | 47 | | |
| | | 52 | | |
| | | 53 | | |
| | | 58 | | |

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