

SPECIFICATIONS

SHDB62M-BW-LL

Low Leakage Cable for SMU

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



Caution The protection provided by the SHDB62M-BW-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-BW-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	299 g (10.5 oz)
2 m cable	516 g (18.2 oz)

Cable Cross-Section

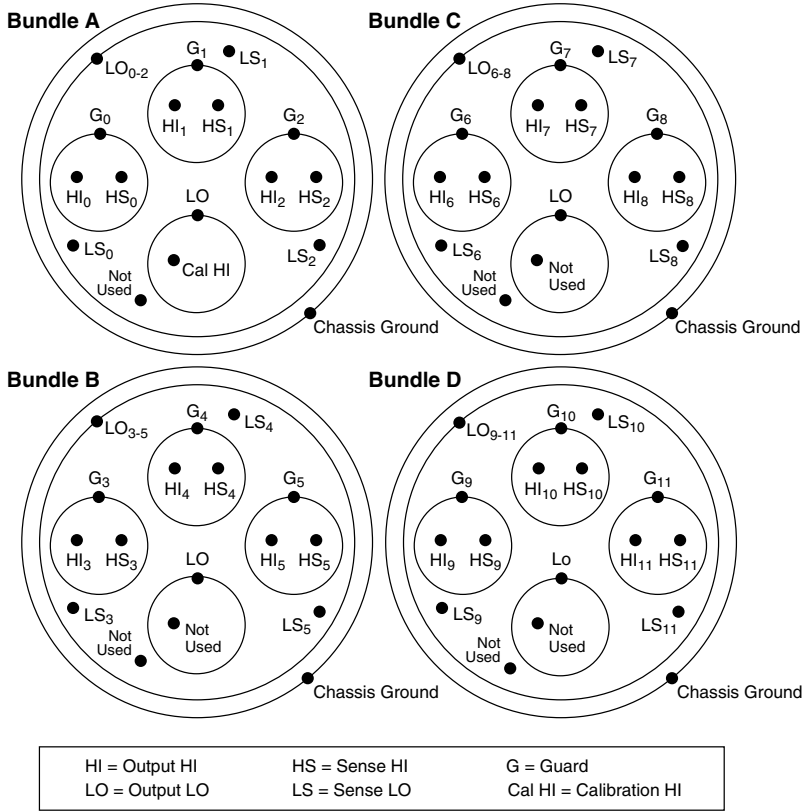
The outer shield of the SHDB62M-BW-LL consists of braided wire that is tied to chassis ground through the shell of the PXIe-4162/4163 front panel connector.

The inner shield, located within the outer shield, provides an additional layer of foil insulation tied to the Output LO pin (pin 10). The Output LO pin is also tied to shield drain wire 3 within each of the four bundles.

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

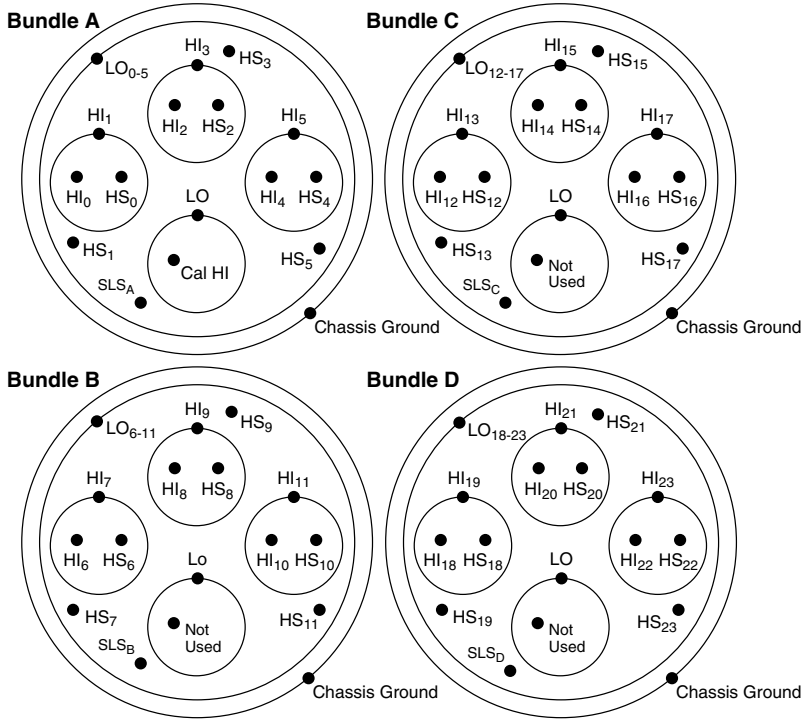
² Guarded insulation resistance only applies with the use of a PXIe-4162, which supports guarding.

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



The following diagram shows a cross-section of the SHDB62M-BW-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	



Note Using the SHDB62M-BW-LL, you can customize cabling connections to any device under test. When doing so, it is not necessary to connect the Output LO signal from shield drain wire 3. Connecting shield drain wire 4 from the inner shield will provide the necessary path for return current for your measurements.

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

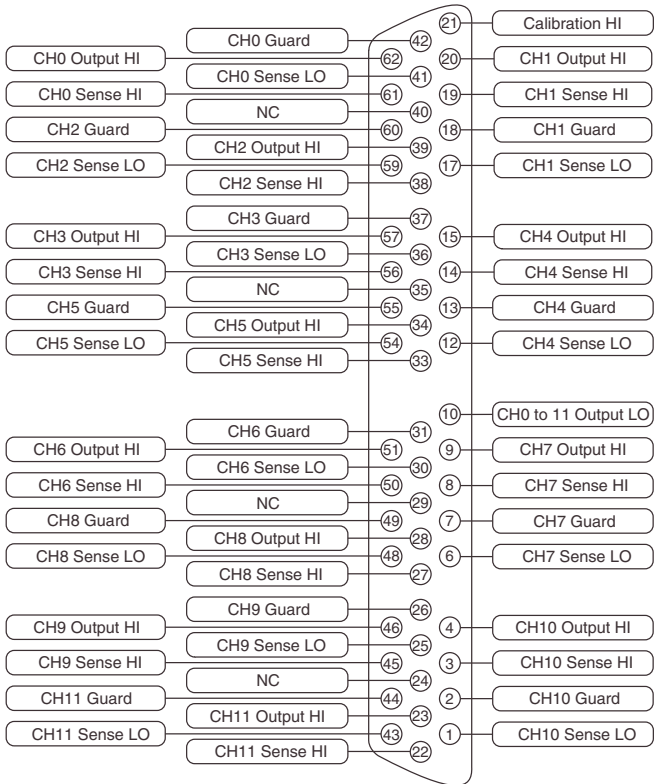


Table 1. PXle-4162 Signal Descriptions and SHDB62M-BW-LL Wire Descriptions

Bundle	Channel	Pin	Signal Description	Appearance	Grouping
A	0	41	Sense LO	Yellow	Unshielded Single Wire 0
		42	Guard ³	Shield Drain Wire 0	Shielded Pair 1
		61	Sense HI	White	Shielded Pair 0
		62	Output HI	Red	
	1	17	Sense LO	Black	Unshielded Single Wire 1
		18	Guard ³	Shield Drain Wire 1	Shielded Pair 1
		19	Sense HI	Pink	
		20	Output HI	Green	
	2	38	Sense HI	Gray	Shielded Pair 2
		39	Output HI	Blue	
		59	Sense LO	Orange	Unshielded Single Wire 2
		60	Guard ³	Shield Drain Wire 2	Shielded Pair 2
	—	21	Calibration HI	Brown	Shielded Single Wire 0
		40	Not used	Violet	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-BW-LL Wire Descriptions (Continued)

Bundle	Channel	Pin	Signal Description	Appearance	Grouping
B	3	36	Sense LO	Yellow	Unshielded Single Wire 0
		37	Guard ³	Shield Drain Wire 0	Shielded Pair 0
		56	Sense HI	White	
		57	Output HI	Red	
	4	12	Sense LO	Black	Unshielded Single Wire 0
		13	Guard ³	Shield Drain Wire 1	Shielded Pair 1
		14	Sense HI	Pink	
		15	Output HI	Green	
	5	33	Sense HI	Gray	Shielded Pair 2
		34	Output HI	Blue	
		54	Sense LO	Orange	Unshielded Single Wire 2
		55	Guard ³	Shield Drain Wire 2	Shielded Pair 2
	—	35	Not used	Violet	Unshielded Single Wire 3

Table 1. PXIe-4162 Signal Descriptions and SHDB62M-BW-LL Wire Descriptions (Continued)

Bundle	Channel	Pin	Signal Description	Appearance	Grouping
C	6	30	Sense LO	Yellow	Unshielded Single Wire 0
		31	Guard ³	Shield Drain Wire 0	Shielded Pair 0
		50	Sense HI	White	
		51	Output HI	Red	
	7	6	Sense LO	Black	Unshielded Single Wire 1
		7	Guard ³	Shield Drain Wire 1	Shielded Pair 1
		8	Sense HI	Pink	
		9	Output HI	Green	
	8	27	Sense HI	Gray	Shielded Pair 2
		28	Output HI	Blue	
		48	Sense LO	Orange	Unshielded Single Wire 2
		49	Guard ³	Shield Drain Wire 2	Shielded Pair 2
	—	29	Not used	Violet	Unshielded Single Wire 3

Table 1. PXIe-4162 Signal Descriptions and SHDB62M-BW-LL Wire Descriptions (Continued)

Bundle	Channel	Pin	Signal Description	Appearance	Grouping	
D	9	25	Sense LO	Yellow	Unshielded Single Wire 0	
		26	Guard ³	Shield Drain Wire 0	Shielded Pair 0	
		45	Sense HI	White		
		46	Output HI	Red		
	10	10	1	Sense LO	Black	Unshielded Single Wire 1
			2	Guard ³	Shield Drain Wire 1	Shielded Pair 1
			3	Sense HI	Pink	
			4	Output HI	Green	
	11	11	22	Sense HI	Gray	Shielded Pair 2
			23	Output HI	Blue	
		11	43	Sense LO	Orange	Unshielded Single Wire 2
			44	Guard ³	Shield Drain Wire 2	Shielded Pair 2
	—	—	24	Not used	Violet	Unshielded Single Wire 3
A, B, C, D	0 to 11	10	Output LO	Shield Drain Wire 3, Shielded Drain Wire 4	Shielded Single Wire 0, Inner Shield	

Table 1. PXIe-4162 Signal Descriptions and SHDB62M-BW-LL Wire Descriptions (Continued)

Bundle	Channel	Pin	Signal Description	Appearance	Grouping
—	—	5	Void	—	—
		11			
		16			
		32			
		47			
		52			
		53			
		58			

PXIe-4163 Pinout

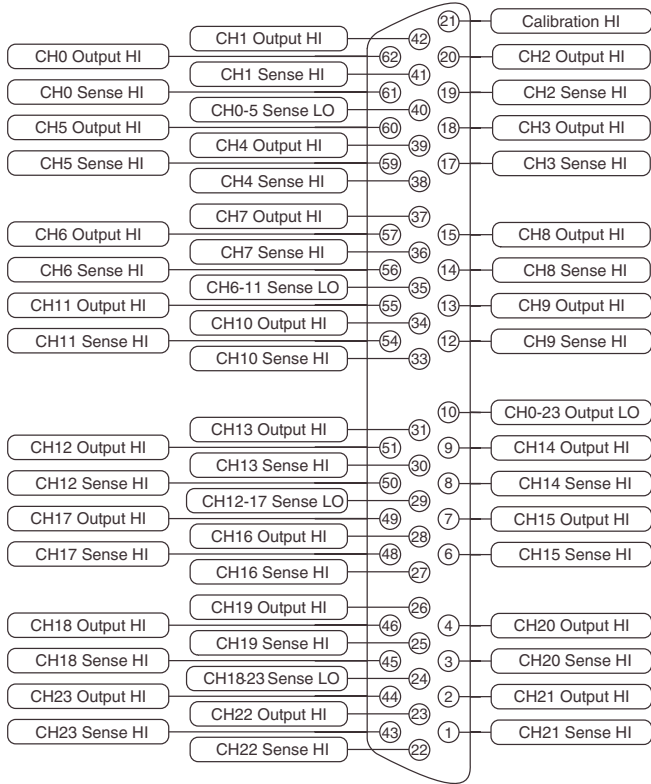


Table 2. PXle-4163 Signal Descriptions and SHDB62M-BW-LL Wire Descriptions

Bundle	Channel	Pin	Signal Description	Appearance	Grouping
A	0	61	Sense HI	White	Shielded Pair 0
		62	Output HI	Red	
	1	41	Sense HI	Yellow	Unshielded Single Wire 0
		42	Output HI	Shield Drain Wire 0	Shielded Pair 0
	2	19	Sense HI	Pink	Shielded Pair 1
		20	Output HI	Green	
	3	17	Sense HI	Black	Unshielded Single Wire 1
		18	Output HI	Shield Drain Wire 1	Shielded Pair 1
	4	38	Sense HI	Gray	Shielded Pair 2
		39	Output HI	Blue	
	5	59	Sense HI	Orange	Unshielded Single Wire 2
		60	Output HI	Shield Drain Wire 2	Shielded Pair 2
	0 to 5	40	Sense LO	Violet	Unshielded Single Wire 3
	—	21	Calibration HI	Brown	Shielded Single Wire 0

Table 2. PXIe-4163 Signal Descriptions and SHDB62M-BW-LL Wire Descriptions (Continued)

Bundle	Channel	Pin	Signal Description	Appearance	Grouping
B	6	56	Sense HI	White	Shielded Pair 0
		57	Output HI	Red	
	7	36	Sense HI	Yellow	Unshielded Single Wire 0
		37	Output HI	Shield Drain Wire 0	Shielded Pair 0
	8	14	Sense HI	Pink	Shielded Pair 1
		15	Output HI	Green	
	9	12	Sense HI	Black	Unshielded Single Wire 1
		13	Output HI	Shield Drain Wire 1	Shielded Pair 1
	10	33	Sense HI	Gray	Shielded Pair 2
		34	Output HI	Blue	
	11	54	Sense HI	Orange	Unshielded Single Wire 2
		55	Output HI	Shield Drain Wire 2	Shielded Pair 2
	6 to 11	35	Sense LO	Violet	Unshielded Single Wire 3

Table 2. PXIe-4163 Signal Descriptions and SHDB62M-BW-LL Wire Descriptions (Continued)

Bundle	Channel	Pin	Signal Description	Appearance	Grouping
C	12	50	Sense HI	White	Shielded Pair 0
		51	Output HI	Red	
	13	30	Sense HI	Yellow	Unshielded Single Wire 0
		31	Output HI	Shield Drain Wire 0	Shielded Pair 1
	14	8	Sense HI	Pink	
		9	Output HI	Green	
	15	6	Sense HI	Black	Unshielded Single Wire 1
		7	Output HI	Shield Drain Wire 1	Shielded Pair 1
	16	27	Sense HI	Gray	Shielded Pair 2
		28	Output HI	Blue	
	17	48	Sense HI	Orange	Unshielded Single Wire 2
		49	Output HI	Shield Drain Wire 2	Shielded Pair 2
	12 to 17	29	Sense LO	Violet	Unshielded Single Wire 3

Table 2. PXIe-4163 Signal Descriptions and SHDB62M-BW-LL Wire Descriptions (Continued)

Bundle	Channel	Pin	Signal Description	Appearance	Grouping
D	18	45	Sense HI	White	Shielded Pair 0
		46	Output HI	Red	
	19	25	Sense HI	Yellow	Unshielded Single Wire 0
		26	Output HI	Shield Drain Wire 0	Shielded Pair 0
	20	3	Sense HI	Pink	Shielded Pair 1
		4	Output HI	Green	
	21	1	Sense HI	Black	Unshielded Single Wire 1
		2	Output HI	Shield Drain Wire 1	Shielded Pair 1
	22	22	Sense HI	Gray	Shielded Pair 2
		23	Output HI	Blue	
	23	43	Sense HI	Orange	Unshielded Single Wire 2
		44	Output HI	Shield Drain Wire 2	Shielded Pair 2
	18 to 23	24	Sense LO	Violet	Unshielded Single Wire 3
	A, B, C, D	0 to 23	10	Output LO	Shield Drain Wire 3, Shield Drain Wire 4

Table 2. PXIe-4163 Signal Descriptions and SHDB62M-BW-LL Wire Descriptions (Continued)

Bundle	Channel	Pin	Signal Description	Appearance	Grouping
—		5	Void	—	—
		11			
		16			
		32			
		47			
		52			
		53			
		58			

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