

Lake Shore M81 to OptiCool Connection

The Lake Shore® M81 Synchronous Source Measurement unit's flexible measurement capabilities combined with the highly customizable Quantum Design OptiCool® allows for a variety of electrical measurements under optical excitation at low temperatures and high magnetic fields.

The M81 uses BNC connections to interface with the Lake Shore BNC Breakout box, which then connects to the OptiCool's Standard Sample Wiring via a 16-pin Fischer to DB-25 sample cable (3318-404-01). **Table 1** lists the pinout connections. Additionally, one can use the OptiCool Wired Sample Mount to easily make connections from the Standard Sample Wiring to a sample sitting on a nanopositioner stack.

Note, due to the stray fields from the OptiCool, it is recommended that the M81 main controller and source and measurement modules are at least 1 meter away from the OptiCool sample space. Any closer and the measurements may be compromised due to the field affecting the electronics.

Required Materials

- Lake Shore M81 Synchronous Source Measurement unit and desired source and measurement modules
- Lake Shore BNC Breakout Box to DB-25
- OptiCool with X300 Standard Sample Wiring
- 16-pin Fischer to DB-25 sample cable (3318-404-01)
- Optional:* Wired Sample Mount Kit (X150)

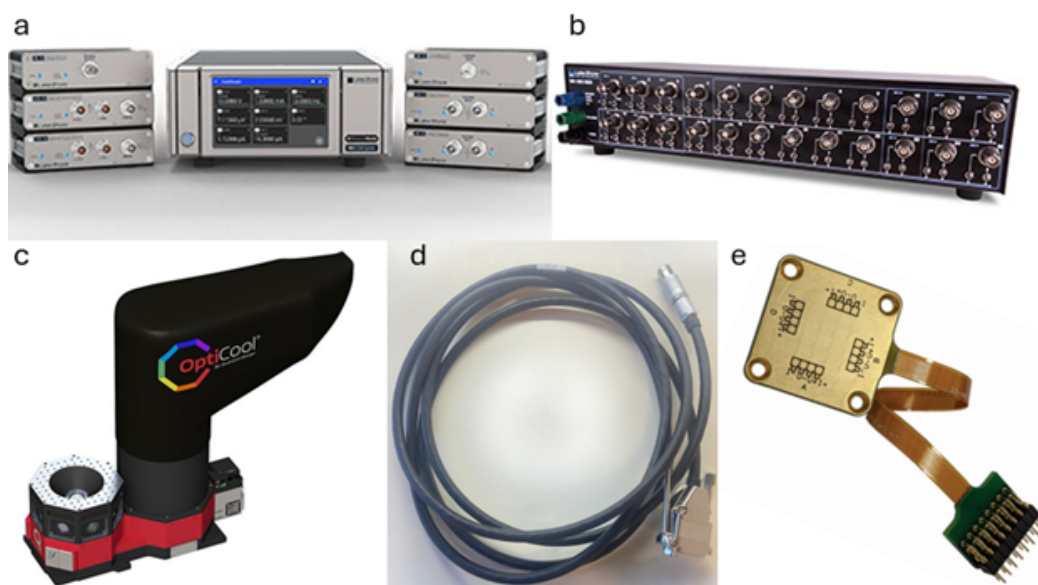


Figure 1: (a) Lake Shore M81 Synchronous Source Measurement unit and desired source and measurement modules, (b) Lake Shore BNC Breakout Box to DB-25, (c) OptiCool with X300 Standard Sample Wiring, (d) 16-pin Fischer to DB-25 sample cable (3318-404-01), and (e) optional Wired Sample Mount Kit (X150).

Lake Shore Breakout Box	Fischer Connector	Twisted Pairing	D-Shell Connector	Example Four Probe Function
5	1	P	5	Channel 1 I+
18	2		18	Channel 1 I-
6	3	P	6	Channel 1 V+
19	4		19	Channel 1 V-
7	5	P	7	Channel 2 I+
20	6		20	Channel 2 I-
8	7	P	8	Channel 2 V+
21	8		21	Channel 2 V-
9	9	P	9	Channel 3 I+
22	10		22	Channel 3 I-
10	11	P	10	Channel 3 V+
23	12		23	Channel 3 V-
11	13	P	11	Channel 4 I+
24	14		24	Channel 4 I-
12	15	P	12	Channel 4 V+
25	16		25	Channel 4 V-
	None		13	Cable Shield

Table 1: Pinouts from Lake Shore Breakout Box to OptiCool Standard Sample Wiring.