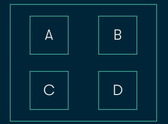
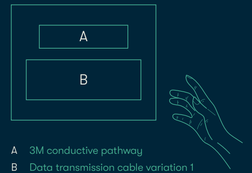
Layer 1



A Mechanical connector
B Snap on connector
C USB-A connectors
D USB-C connectors

Layer 2



A 3M conductive pathway
B Data transmission cable variation 1
Data transmission cable variation 2

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Data Transmission Toolbox

Prototyping Development Kit

Softmatter

Welcome to your quick starter pack!

Why use our Data Transmission Prototyping Development Kit ?

Explore moving beyond traditional cabling; replace rigid copper core cabling with fabric connectors. This box contains a variety of cables, including high speed data cables.

Disclaimers:

• Please do not exceed the current limit of 3A and the Voltage limit of 40 V for all the connectors including the USB and JST connectors which may result in injury.

• Please do not exceed the current limit of 3A and the Voltage limit of 40 V for all the conductive pathways which may result in injury.

• The high-speed data cable is rated 30 V (AC), hence do not exceed this limit which may result in injury.

What's Included:

Components	Qty
• High Speed data cable	2
• 3m conductive pathway with JST connectors	1
• Mechanical connectors.	2
• Snap connectors	2
• USB A connector (male & female)	1
• USB C connector (male & female)	1

Operating Instructions

High Speed Data Cable

Use the high speed data cable to transfer data such as an analog signal or digital signal through the system (i.e., Network analyzer). optimal data transfer is at 4Gb/s. This can be validated using a Network analyzer.

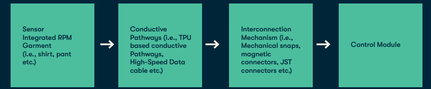

Figure 1: Data Transmission Block Diagram

3m 2-Wire TPU based conductive pathway

Use the conductive pathway and connectors to transfer power and data such as an analog signal or digital signal through the system (i.e., Power supply, Network analyzer, etc.). Please note max current is at 3A and max voltage at 40 V. The electrical connection between the components of the system and the conductive pathways can be made by soldering. Increasing the number of wires to 3 and 4 for further data transmission is also possible with this technology.

Technical Specifications and Test Instructions of the Components

[1] Connectors

Tech Specifications:

Type	Application
Mechanical Snap/ Magnetic connector	To transfer power, digital, and analog data signals. E.g. 1. Transfer power from detachable battery modules to heating elements embedded in wearable garments (7.4v, ~3A) 2. Transfer analog raw ECG signals from electrodes to detachable processing modules. 3. Transfer digital data signals with protocols such as I2C to detachable modules.
JST Connectors	To transfer power and data within soft goods as well as to external accessories. E.g. 1. Connect multiple sensors to brain node.
USB Connectors	To transfer digital data through USB protocols and power (5v, 2A). E.g. 1. Transfer power to USB powered heating panels. 2. Transfer data from digital sensors to external accessories.

[2] Conductive Pathways

Tech Specifications:

Both TPU based and Elastic based conductive pathways are knitted and laid down according to a modified sinewave pattern to withstand mechanical forces.

Conductive filaments	Non- Conductive filament	Insulation	Resistance
19 x 0.05	150D Nylon	FEP	0.4Ω/m

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• Please do not exceed the current limit of 3A and the Voltage limit of 40 V for all the conductive pathways which may result in injury.

• The high-speed data cable is rated 30 V (AC), hence do not exceed this limit which may result in injury.