Summary

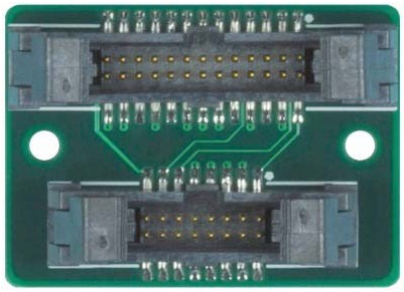
Features

- Connects AB4 signals to SiPMIM16 interface module Row 4 inputs
- Mounting holes for #2 hardware
- 0.050” signal connectors use low-profile micro IDC cable assemblies for versatile placement
- AB4 cable assembly

  Samtec FFSD-08-D-XX.XX-01-N
  (XX.XX – Length in inches)

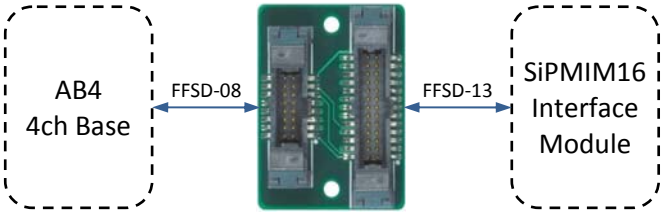
- SiPMIM16 cable assembly

  Samtec FFSD-13-D-XX.XX-01-N
  (XX.XX – Length in inches)



CA4216R4 Circuit Board

System Connection



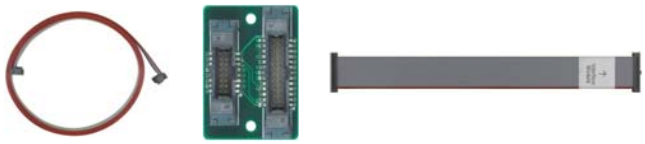
Adapter Board and Cable Kit

AB4216R4-3606 adapter kit contains:

1 each CA4216R4

1 each 36” FFSD-08 cable assembly
Model: FFSD-08-D-36.00-01-N

1 each 6” FFSD-13 cable assembly
Model: FFSD-13-D-06.00-01-N



FFSD-08 CA4216R4 FFSD-13

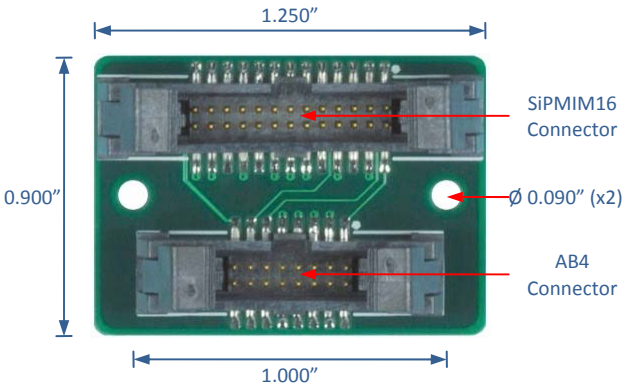
AB4 to SiPMIM16 Pin Map

Function	AB4 Pin	SiPMIM16	
		Pin	4x4 Map
Temperature	1	2	--
X-	3	13	B4
X+	5	19	A4
-VA	7	12	--
+VA	9	16	--
Y-	11	1	D4
Y+	13	7	C4
+Bias	15	25	--

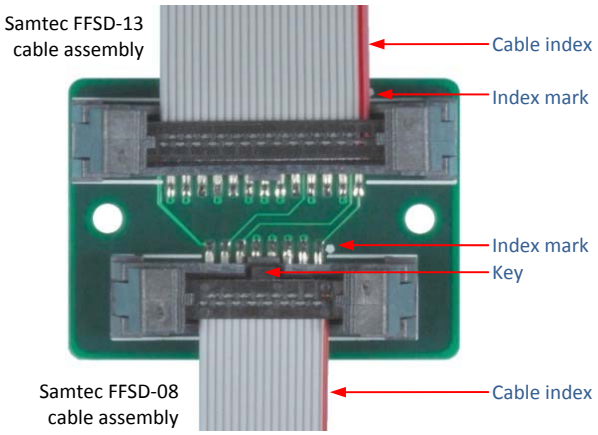
*Unlisted pins are connected to ground

Mechanical

Circuit Board Top View

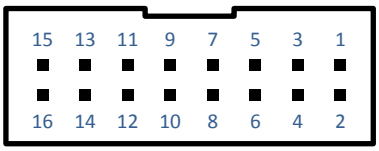


Micro-Pitch Cables Installed



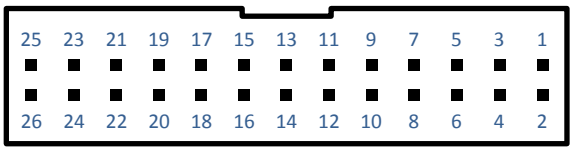
Connectors

AB4 Connector



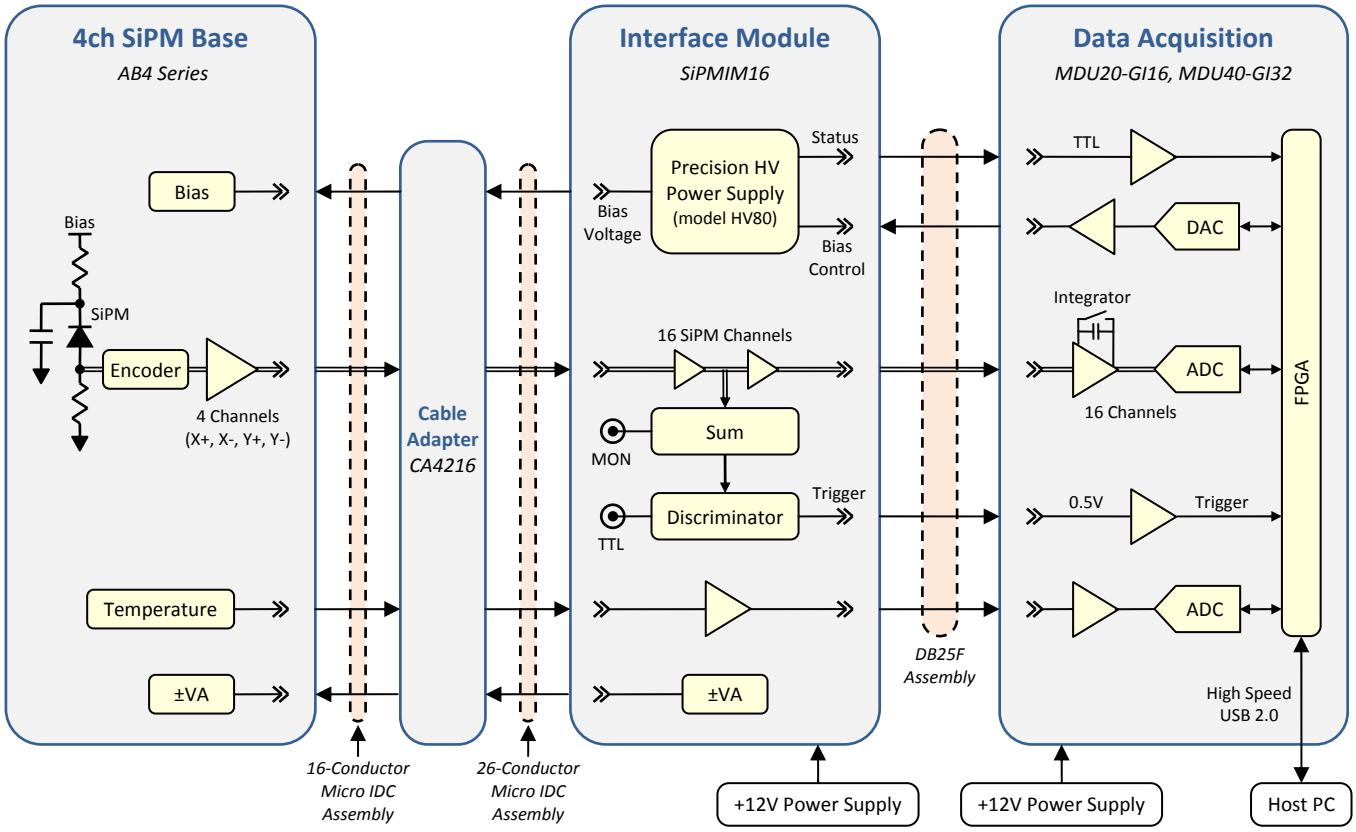
Pin	Function	Pin	Function
1	Temperature	2	GND
3	X-	4	GND
5	X+	6	GND
7	-VA	8	GND
9	+VA	10	GND
11	Y-	12	GND
13	Y+	14	GND
15	+Bias	16	GND

SiPMIM16 Connector



Pin	Function	Pin	Function
1	Y-	2	Temperature
3	GND	4	GND
5	GND	6	GND
7	Y+	8	GND
9	GND	10	GND
11	GND	12	-VA
13	X-	14	GND
15	GND	16	+VA
17	GND	18	GND
19	X+	20	GND
21	GND	22	GND
23	GND	24	GND
25	+Bias	26	GND

AB4 Series 4-Channel SiPM Readout System



Summary

A 4-channel SiPM array readout system consists of an AB4 series 4-channel SiPM Base, a SiPMIM16 ("IM16") Interface Module, and a 16/32-channel simultaneous sampling USB gated integrator model MDU20-GI16 or MDU40-GI32. A cable adapter is required to connect the AB4 to the IM16.

SiPM Base and Interface Module

The AB4 Base connects to the IM16 through a micro-pitch ribbon cable that permits versatile placement of the Base. The IM16 powers the Base, buffers SiPM signals, and forms a trigger from the discriminated analog sum of all SiPM signals.

MDU20-GI16 and MDU40-GI32

The MDU20-GI16 has 16 simultaneous gated integrators followed by 16 simultaneous sampling ADCs. Each integrator is preceded by a 100ns analog delay to compensate for trigger latency. A 16-bit DAC controls SiPM bias and a 16-bit ADC monitors SiPM temperature. The IM16 connects to the MDU20-GI16 through a DB25F cable assembly. The MDU40-GI32 is a dual version of the MDU20-GI16 capable of controlling two IM16s.

Safety Information

WARNING – High Voltage

- High voltage may be present during operation
- High voltage stored on capacitors may be present after power is removed
- Improper handling may result in personnel injury or equipment damage

This high-voltage device must be used only by personnel trained and qualified in safe handling, installation, and operation of high-voltage equipment.

CAUTION – Electrostatic Discharge (ESD) Sensitivity

The circuit board can be damaged by electrostatic discharge. Observe precautions for handling electrostatic sensitive devices. Handle only at static-safe workstations.

High-Gain Photodetectors

High-gain photodetectors such as silicon photomultipliers may conduct damaging currents if exposed to high optical signal levels while the bias voltage is applied, or if the bias voltage exceeds the recommended operating range. These devices must be operated only in low-light conditions, and only within the manufacturer's recommended bias voltage range.

Handling and Disassembly

This product may be provided with or without a protective enclosure. Disassembled enclosure components and circuit boards may contain sharp edges. Take appropriate safety precautions while assembling or disassembling the enclosure and handling disassembled components.

Indoor Use Only

Do not operate this product in a wet/damp environment. Do not operate in an explosive atmosphere.

Use of this product, and AiT Instruments' liability related to use of this product, is further governed by AiT Instruments' standard terms and conditions of sale, which were provided upon purchase of this product.