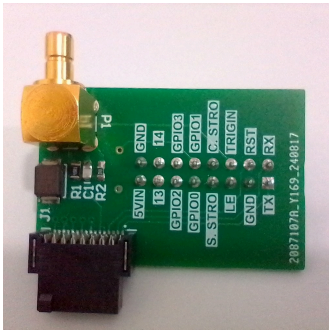
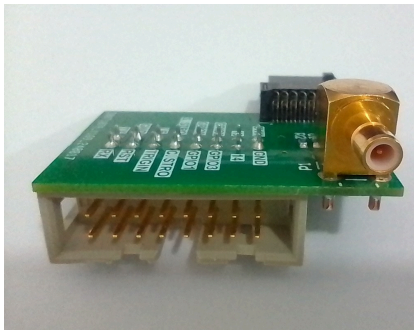
HR-TRIGGER trigger adapter

SMB or BNC trigger input and a 16-pin auxiliary header for Ocean HR, SR and ST series spectrometers.

The HR-TRIGGER plugs directly into the 16-pin accessory connector of the spectrometer and brings the external trigger input to an SMB connector. An SMB to BNC converter is included. It also gives easy access to the other spectrometer signals on a traditional 16-pin flat ribbon header. No soldering or loose wires are needed.



Top: SMB input, spectrometer socket and pin labels

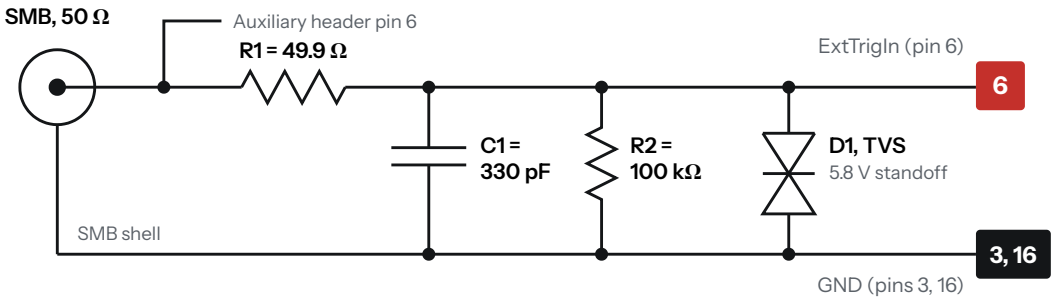


Side: 16-pin flat ribbon header and SMB input

Specifications

Part number	HR-TRIGGER
Compatible spectrometers	Ocean HR, SR and ST series
Spectrometer connector	16-position socket, 1.27 mm pitch
Trigger connector	SMB right-angle, 50 Ω. SMB to BNC converter included.
Auxiliary header	16-pin flat ribbon, 2.54 mm pitch. Pins match the spectrometer one to one, except pin 6, which joins the SMB input ahead of the filter.
Filter	RC low-pass: 49.9 Ω in series, 330 pF to ground (τ = 16.5 ns, $f_c \approx$ 9.7 MHz)
Input protection	Bidirectional TVS, 5.8 V standoff, and 100 kΩ to ground. For momentary overvoltage on the trigger signal only.
Size	Board 25 × 37.5 mm. Overall 35.6 × 37.5 × 18.8 mm with connectors.
Warranty	1 year against manufacturing defects or malfunction

Circuit



Spectrometer pinout

Looking at the connector, with the fiber input to the right. Red: ExtTrigIn. Black: GND.



Pin	Function	Pin	Function
1	Reserved, do not connect	9	GPIO.0
2	Reserved, do not connect	10	GPIO.1
3	GND	11	GPIO.2
4	RSTn, external reset input	12	GPIO.3
5	LampEnable, output	13	Reserved
6	ExtTrigIn, external trigger input	14	Reserved
7	SingleStrobe, output	15	+5VDC, external power supply input
8	ContStrobe, output	16	GND

Pins 4 to 12 are 3.3 V CMOS-compatible inputs or outputs, with ±1 mA drive capability. Some pins change function between series: pins 1 and 2 carry RS-232 on the ST series and have no assigned function on the SR series. Check the manual of your spectrometer.

Trigger input

Signal level	TTL logic levels. Tested by Sepradel with 5 V pulses. Ocean lists this pin as 3.3 V CMOS-compatible, so check the data sheet of your spectrometer. The adapter does not shift the level.
Overvoltage	The TVS absorbs momentary spikes only. It is not a limiter for a sustained signal. Stay below 5.8 V.
Input impedance	About 50 Ω for fast edges, 100 kΩ at DC. It is not a 50 Ω DC termination: a source set for a 50 Ω load delivers about twice its displayed amplitude.

Calculated voltage at the spectrometer pin, 3.3 V pulse

Pulse width	50 Ω source	Low impedance source
20 ns	1.50 V	2.32 V
50 ns	2.58 V	3.14 V
100 ns	3.14 V	3.29 V

Calculated from the RC filter, not measured. Pulses of 500 ns or more reach the full 3.3 V. The filter also delays the edge by roughly 20 to 50 ns. For the minimum pulse width of the spectrometer, see its manual.

> **Auxiliary pin 6:** this pin is the SMB input, ahead of the filter. Use either the SMB connector or pin 6 of the header to feed the trigger, not both.

Pinout taken from Ocean documentation; check the manual of your spectrometer. Ocean Insight, Ocean Optics, HR, SR and ST are trademarks of their owners. Sepradel and its products are not affiliated with, endorsed by, or sponsored by Ocean Insight.