

## FEATURES

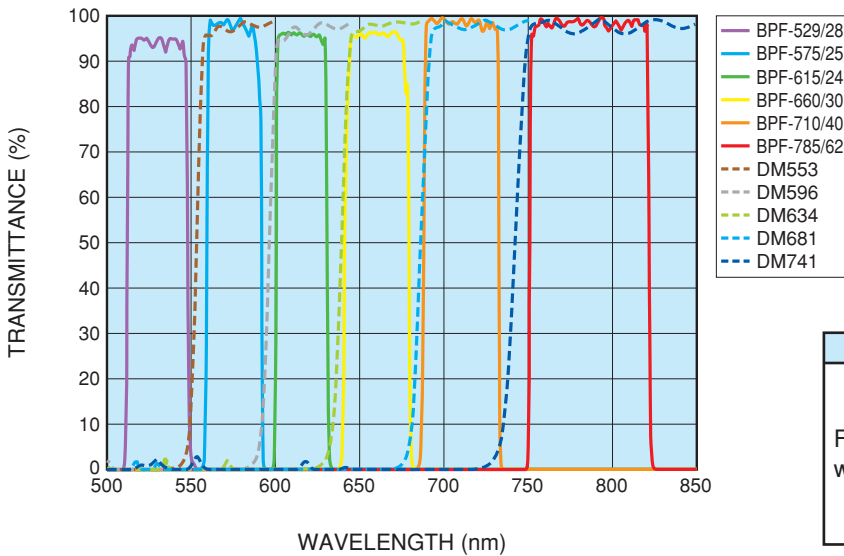
- 6-color measurement with one PMT module
- High efficiency filter optics
- Palm size
- Fiber optics input : SMA connector  
(NA: less than 0.2, Core diameter: less than 1000  $\mu\text{m}$ )

## APPLICATIONS

- Biomedical fluorescence measurement
- Flow cytometer

## CHARACTERISTICS

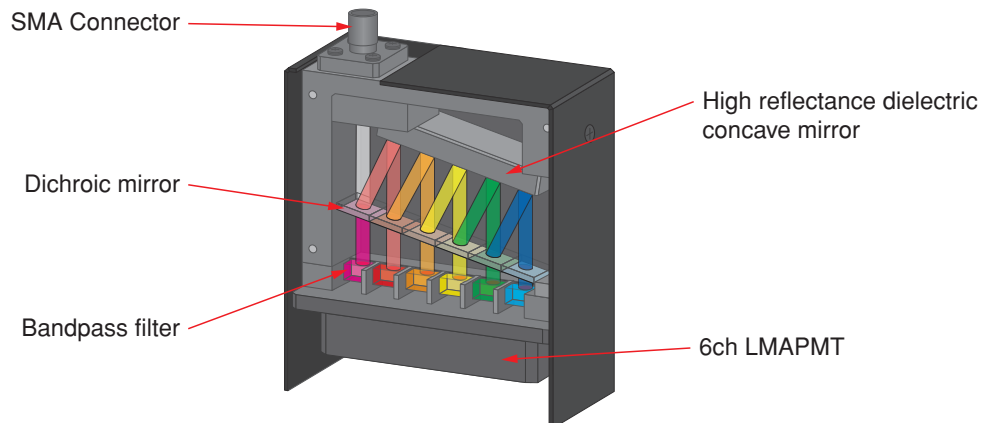
Figure 1: Standard bandpass filters and dichroic mirrors



Parameter	H15441-20	Unit
Filter center wavelength / width (FWHM)	CH1	785 (62)
	CH2	710 (40)
	CH3	660 (30)
	CH4	615 (24)
	CH5	575 (25)
	CH6	529 (28)

### Choice of bandpass filters and dichroic mirrors for optical assembly

Besides the above standard setup of the optical system, we have a variety of bandpass filters and dichroic mirrors available in stock. Select the desired bandpass filters and dichroic mirrors needed to configure a PMT module with the optical assembly most ideal for your application. Moreover, if you provide us with your band pass filters, we can use it to configure an optical system that matches your request. Please consult us for details.



# SPECTRUM DETECTOR MODULE H15441-20

## SPECIFICATIONS

Parameter		Value	Unit	
Maximum ratings <sup>①</sup>	Input voltage	HVPS	+5.5	
		AMP	±5.5	
	-HV control voltage	+0.9	V	
	Individual gain adjustment voltage	+4.2	V	
	Output signal voltage <sup>②</sup>	DC output / ch	+0.5	V
		Pulse output / ch	+3.0	
Operating ambient temperature <sup>③</sup>		+5 to +50	°C	
Storage temperature <sup>③</sup>		-20 to +50	°C	
General specifications	Input voltage range	HVPS	+4.5 to +5.5	
		AMP	±4.5 to ±5.5	
	Recommended -HV control voltage range	+0.5 to +0.8	V	
	Individual gain adjustment voltage range	0 to +4.0	V	
	Gain adjustment range	1 to 0.01	/ch	
	Reference voltage output	-HV control	+1.25	V
		Individual gain adjustment	+4.5	
Overall dimensions		104 × 78 × 30	mm	
Weight		Typ. 281	g	
Photomultiplier tube specification	Wavelength range		300 to 920	
	Peak sensitivity wavelength		630	
	Cathode luminous sensitivity	Typ.	500	
	Anode luminous sensitivity <sup>④</sup>	Typ.	500	
	Anode dark current / ch <sup>④</sup> (after 30 min storage in darkness)	Typ.	5	
	Gain <sup>④</sup>	Typ.	1 × 10 <sup>6</sup>	
Module/Amp specifications	Supply current <sup>⑤</sup>	HVPS	+80	
		AMP	±30	
	Frequency bandwidth	Min.	DC to 1 MHz	
	Current-to-voltage conversion factor <sup>②</sup>		0.02	
	Gain temperature drift	Typ.	0.5	
	Ripple noise (p-p) <sup>⑥</sup>	Max.	1	
Offset voltage	Max.	±3		

**NOTE:** ① Stresses above the maximum ratings may cause permanent damage to the device.  
Exposure to maximum conditions for extended periods may reduce device reliability.

② at 10 kΩ load

③ No condensation

④ at -800 V

⑤ ±5 V input

⑥ -HV control voltage = +0.8 V

Figure 2: Individual gain adjustment voltage

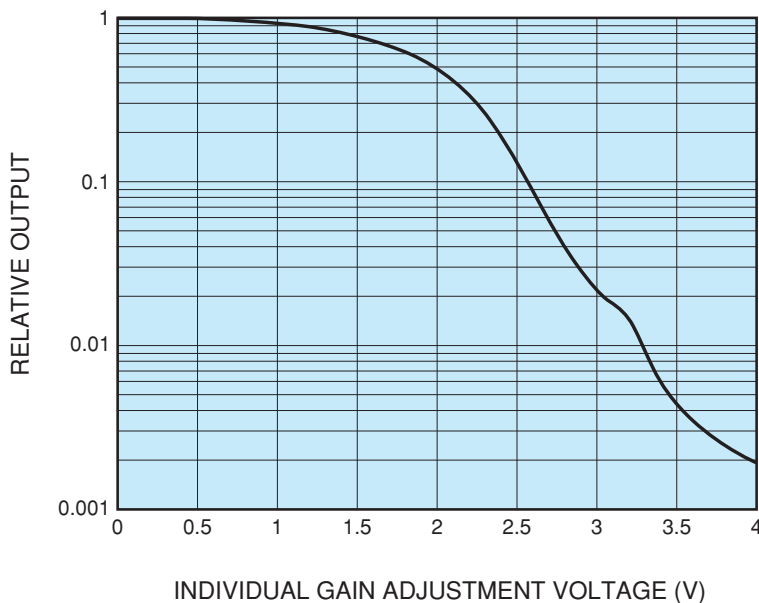
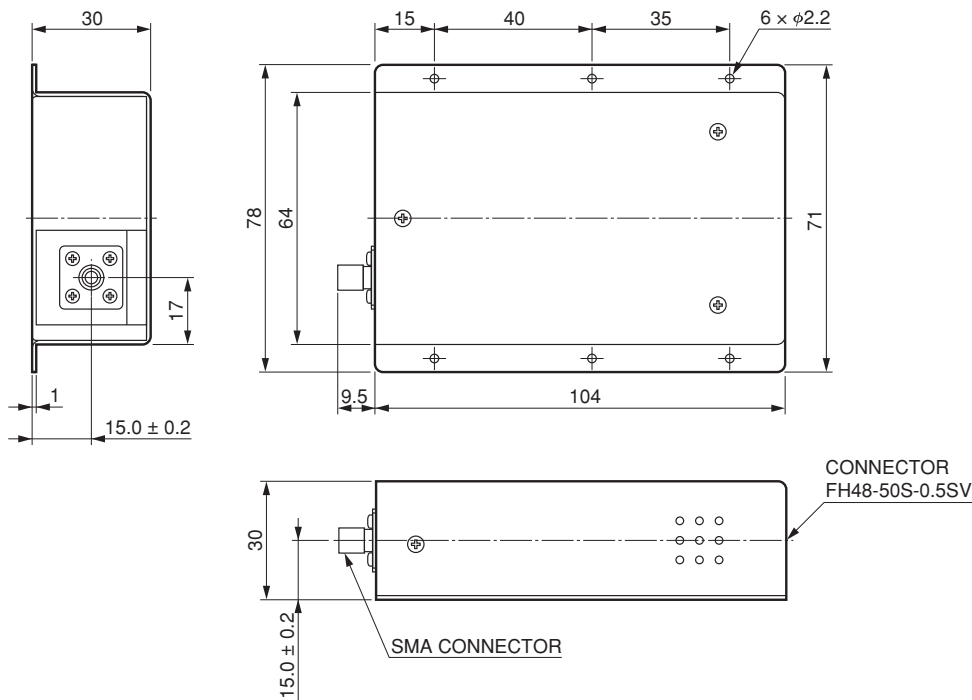


Figure 3: Dimensional outline (Unit: mm)



**Flexible flat cable (Supplied)**

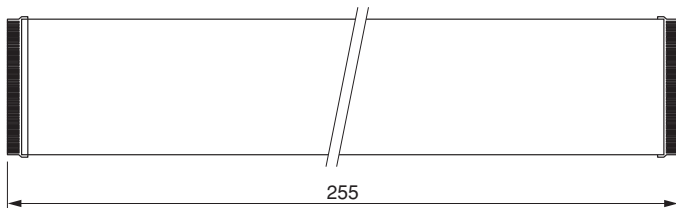
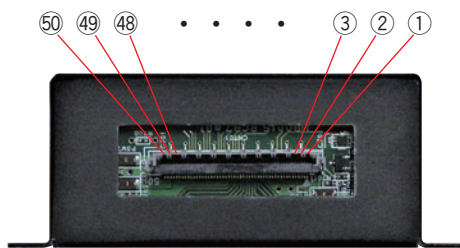


Figure 4: Pin assignment



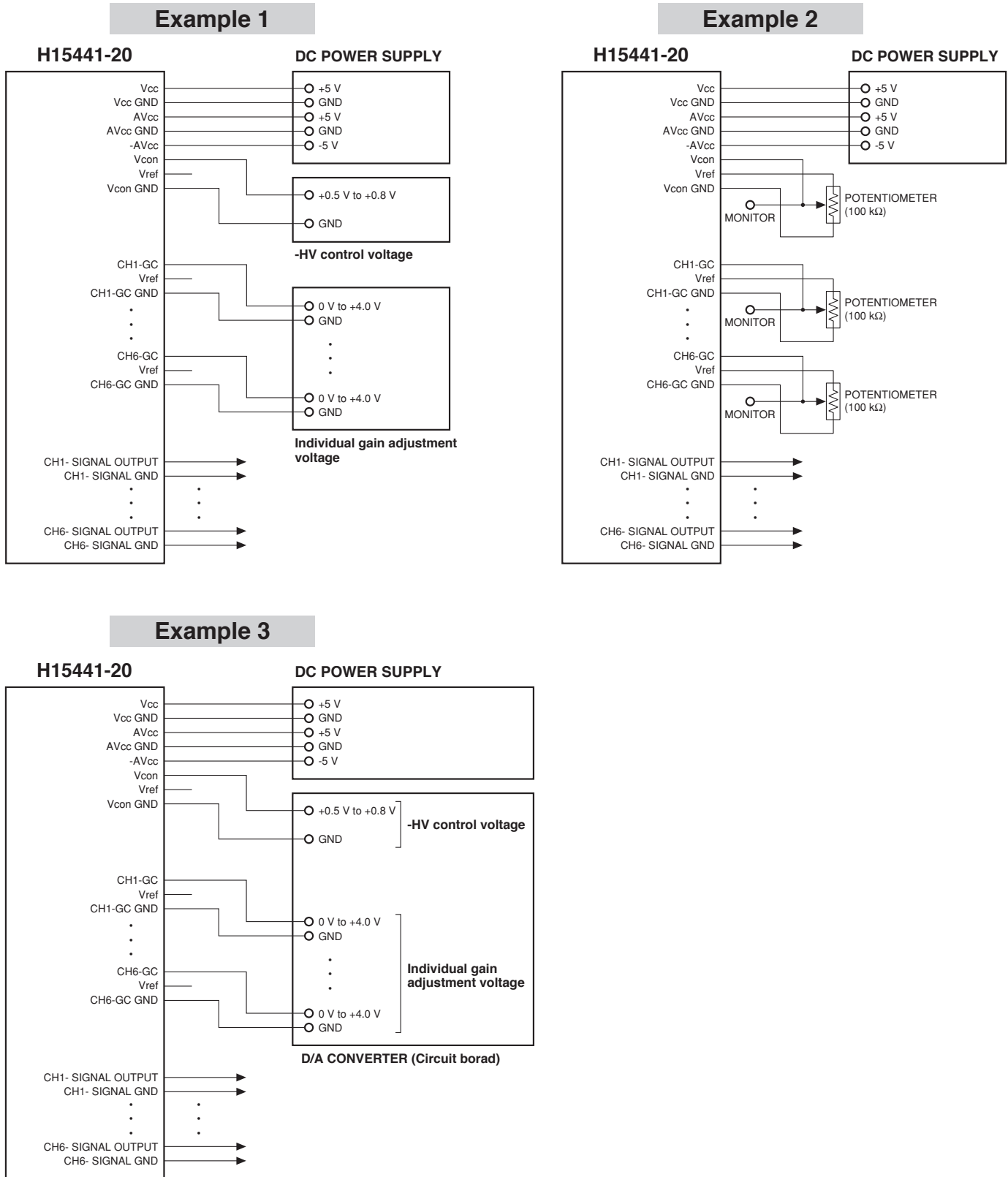
High voltage	-HV control voltage (Vcon)
-500 V	+0.5 V
-600 V	+0.6 V
-700 V	+0.7 V
-800 V	+0.8 V

No.	NAME	No.	NAME	No.	NAME
1	Vcc (+5 V INPUT)	18	CH6- SIGNAL GND	35	CH4-GC GND
2	Vcc (+5 V INPUT)	19	CH5- SIGNAL OUTPUT	36	CH3-GC (0 to +4.0 V INPUT)
3	Vcc GND	20	CH5- SIGNAL GND	37	CH3-GC GND
4	Vcc GND	21	CH4- SIGNAL OUTPUT	38	CH2-GC (0 to +4.0 V INPUT)
5	Vcon (+0.5 V to +0.8 V INPUT)	22	CH4- SIGNAL GND	39	CH2-GC GND
6	Vcon GND	23	CH3- SIGNAL OUTPUT	40	CH1-GC (0 to +4.0 V INPUT)
7	Vref (+1.25 V OUTPUT)	24	CH3- SIGNAL GND	41	CH1-GC GND
8	Vref GND	25	CH2- SIGNAL OUTPUT	42	AVcc (+5 V INPUT)
9	Vref (+4.5 V OUTPUT)	26	CH2- SIGNAL GND	43	AVcc (+5 V INPUT)
10	Vref GND	27	CH1- SIGNAL OUTPUT	44	AVcc (+5 V INPUT)
11	Do not use	28	CH1- SIGNAL GND	45	AVcc GND
12	GND	29	GND	46	AVcc GND
13	Do not use	30	CH6-GC (0 to +4.0 V INPUT)	47	AVcc GND
14	Do not use	31	CH6-GC GND	48	-AVcc (-5 V INPUT)
15	GND	32	CH5-GC (0 to +4.0 V INPUT)	49	-AVcc (-5 V INPUT)
16	GND	33	CH5-GC GND	50	-AVcc (-5 V INPUT)
17	CH6- SIGNAL OUTPUT	34	CH4-GC (0 to +4.0 V INPUT)		

# SPECTRUM DETECTOR MODULE

## H15441-20

Figure 5: Sensitive adjustment method



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**Electron Tube Division**

**314-5, Shimokanzo, Iwata City, Shizuoka Pref., 438-0193, Japan, Telephone: (81)539/62-5248, Fax: (81)539/62-2205**

**U.S.A.:** HAMAMATSU CORPORATION: 360 Foothill Road, Bridgewater, NJ 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 E-mail: [usa@hamamatsu.com](mailto:usa@hamamatsu.com)  
**Germany:** HAMAMATSU PHOTONICS DEUTSCHLAND GMBH.: Arzbergerstr. 10, 82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-265-8 E-mail: [info@hamamatsu.de](mailto:info@hamamatsu.de)  
**France:** HAMAMATSU PHOTONICS FRANCE S.A.R.L.: 19 Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10 E-mail: [infos@hamamatsu.fr](mailto:infos@hamamatsu.fr)  
**United Kingdom:** HAMAMATSU PHOTONICS UK LIMITED: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire, AL7 1BW, UK, Telephone: (44)1707-294888, Fax: (44)1707-325777 E-mail: [info@hamamatsu.co.uk](mailto:info@hamamatsu.co.uk)  
**North Europe:** HAMAMATSU PHOTONICS NORDEN AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46)8-509 031 00, Fax: (46)8-509 031 01 E-mail: [info@hamamatsu.se](mailto:info@hamamatsu.se)  
**Italy:** HAMAMATSU PHOTONICS ITALIA S.R.L.: Strada della Moia, 1 int. 6, 20044 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41 E-mail: [info@hamamatsu.it](mailto:info@hamamatsu.it)  
**China:** HAMAMATSU PHOTONICS (CHINA) CO., LTD.: 1201 Tower B, Jiaming Center, 27 Dongsanhuan Bellu, Chaoyang District, 100020 Beijing, P.R. China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: [hpc@hamamatsu.com.cn](mailto:hpc@hamamatsu.com.cn)  
**Taiwan:** HAMAMATSU PHOTONICS TAIWAN CO., LTD.: 8F-3, No.158, Section 2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)3-659-0080, Fax: (886)3-659-0081 E-mail: [info@hamamatsu.com.tw](mailto:info@hamamatsu.com.tw)