



**417 Detection Electronics  
Base Unit**

# 417 Detection Electronics Base Unit



**417T unit**

The modular 400 Series comprises all the detection electronics elements required for the operation and automation of a light measurement system: photo-detector signal recovery and digitisation, high voltage supply, optical chopper control, detector thermo-electric cooler control and relay unit, constituting an 'all-in-one' optical detection system, equally at home as part of one of our spectroradiometer systems or as a general purpose laboratory instrument.

The series includes high quality, fully programmable, DC, AC and lock-in amplifiers having current/voltage inputs to suit all photo-detectors.

A list of available modules is given below.

The selection of relevant modules for a given application are housed in the 3U high 19 inch rack 417 base unit, providing a stabilised power supply, shielding, output display and a computer interface via USB 2.0.

The 400 Series modules are either single or dual width, of which the 417 can accommodate up to eight single width modules. Where fewer modules are required, the compact 417T will accommodate five single-width units.

Module	Purpose	Unit Widths
487	Programmable DC amplifier with integrating ADC used as main detection electronic in DC systems using current generating photo-detectors	2
497	Programmable AC & DC amplifier with integrating ADC used as main detection electronic in DC systems and pre-amplifier in AC systems using current generating photo-detectors	2
477	Programmable AC pre-amplifier for use with current generating photo-detectors in chopped light systems	1
418M	Optical Chopper with modular control electronics	1
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496	DSP lock-in amplifier for use in chopped light systems	2
474	Fixed gain voltage amplifier for transformer used in PVE300 chopped light systems	1
415	High voltage power supply for use with photomultipliers, lead sulphide and lead selenide detectors	1
475	Ultra Low Noise Pre-amplifier for use with mercury cadmium telluride detectors	1
CPS1M/2CPS1M	Single/Dual Detector Peltier cooler controller for all solid state detectors	2
CPS20M	Peltier cooler controller for side window PMT	
DH-Py	Power supply for DH-Py detector	1
462	Programmable relay module	1

# Specifications

Electrical	
Mains Input Voltage	220/240V or 110V AC
Mains Frequency	50/60 Hz
Fuse Rating	315mA anti-surge (220 V)/ 630mA anti-surge (110 V)
Gain Ranges	10 <sup>10</sup> -10 <sup>5</sup> V/A
Maximum Current Input	100µA
Frequency Response	DC to 30Hz
Gain Accuracy	+1%
Gain Stability	200ppm/°C
Output Stability	5ppm/°C to 500ppm/°C depending on sensitivity
Linearity	< 0.025% departure from linearity from zero to full scale
ADC Resolution	4½ digit BCD (0 to 19999) i.e. > 14 bit resolution
ADC Integration Time	100ms
Auxiliary input range	0- 9.8V
Picoammeter Input Impedance	Virtual earth
Auxiliary input impedance	1 MΩ

Interface and Mechanical	
Interface	USB 2.0/ I <sup>2</sup> C between modules
Dimensions, LxWxH	417: 450mm x 310mm x 130mm 417T: 350mm x 310mm x 130mm
Mounting	Stand-alone format and 19" rack mounting kit available

Ordering Information	
417	Standard 417 (8-unit width)
417T	Compact 417 (5-unit width)

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