

# cooled housings

## FACT50/LCT50 data sheet

### 1 description

Two thermoelectrically operated cooled housings are available. The FACT50 is air cooled by an integral fan and will achieve temperatures down to  $-30^{\circ}\text{C}$  for an ambient temperature of  $+20^{\circ}\text{C}$ .

The LCT50 is a water cooled version of the FACT50 but is slightly more compact and achieves temperatures down to  $-35^{\circ}\text{C}$  for a circulating water temperature of  $+15^{\circ}\text{C}$ .

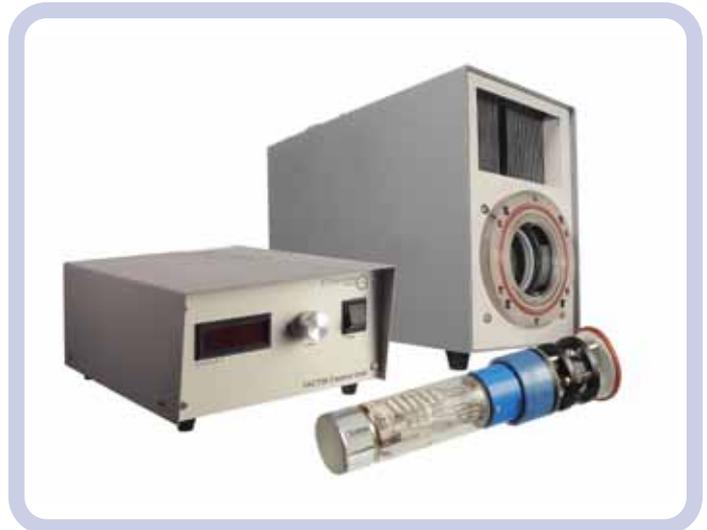
The socket and voltage divider in these housing are chosen to suit the particular pmt being used, which must be specified when ordering. Unless otherwise stated, or requested, the voltage divider will have the standard configuration indicated in the corresponding pmt data sheet, and the value of 'R' will be  $330\text{k}\Omega$

The units have integral magnetic and electrostatic shielding and are supplied complete with a power supply/controller and interface cables. A double walled insulated Pyrex (fused silica version optional) window is fitted as standard to minimise condensation.

### 2 characteristics

#### housing FACT50 & LCT50

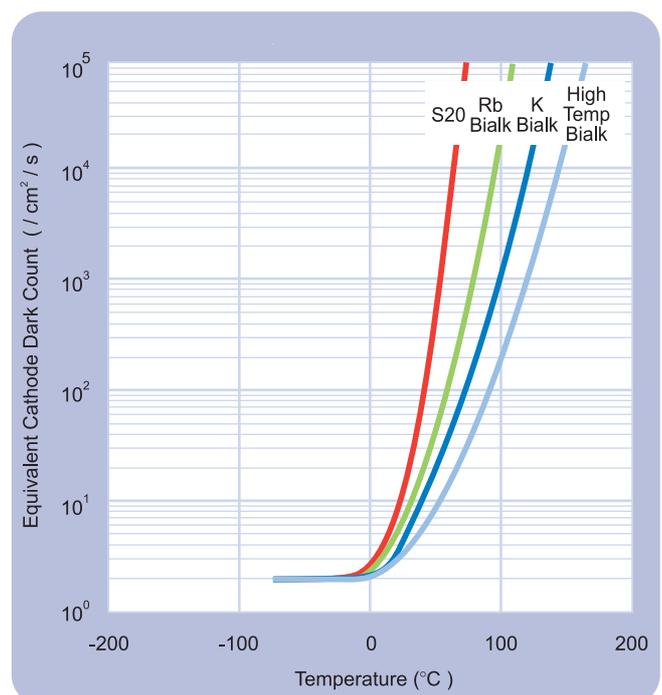
cooling	thermoelectric
heat exchange medium	
FACT50	air
LCT50	water
cool down time	typically 1.5 hours
temperature differential	typically $50^{\circ}\text{C}$
input window	Pyrex glass as standard quartz glass to special order
power input	150W
power connection (ac)	switchcraft D3M fixed plug
power connection (dc)	switchcraft D4M fixed plug
photomultiplier connections	$50\Omega$ BNC signal (TNC optional) MHV high voltage (SHV optional)
magnetic shielding	1mm thick mu-metal shield
case dimensions	
FACT50	210mm x 130mm x 305mm
LCT50	165mm x 130mm x 305mm
weight	
FACT50	7.5kg
LCT50	5.9kg
<b>power supply PS806</b>	
input power	120/240V (+5%, -10%) 50/60 Hz 220VA
input protection	1.5A fuse on 240V; 3A fuse on 120V
output power	12V dc @ 10A
output protection	10A fuse
output connection (ac)	switchcraft D3F fixed socket
output connection (dc)	switchcraft D4F fixed socket
temperature controller and display	front panel adjustment $+20^{\circ}\text{C}$ to $-25^{\circ}\text{C}$ maintaining PMT temp to $0.1^{\circ}\text{C}$ for $5^{\circ}\text{C}$ change in ambient temperature
<b>general</b>	
interconnecting cables	
FACT50	1.5m long



### 3 options

The default HV polarity is negative, so that the output is suitable for analogue or pulsed signal applications. However, for applications where the lowest noise is important it is recommended that positive HV be used. In this latter case, an internal  $100\text{k}\Omega$  anode load resistor is incorporated and the signal taken out via a coupling capacitor. This configuration is only suitable for pulsed applications, such as photon counting.

Although the housing are supplied configured for a particular pmt type, different pmt types of the same size but with different pin connections can be accommodated by ordering an additional base assembly.



### 3 FACT50 features

- compact, forced-air cooled thermoelectric housing
- housing temperature is displayed to within 0.1 °C
- capable of cooling to 50 °C below ambient (typically 20 °C)

### 4 FACT50 specification

performance regulation	50 °C cooling below ambient of 20 °C ±0.1 °C for ±5 °C change in ambient of 20 °C
cool-down time	90 minutes
window material	double walled Pyrex (quartz optional)
supply	220V; 50-60 Hz; 150 W (110 V, 60 Hz optional)
connectors	signal: BNC (TNC optional); HV: MHV (SHV optional)
connection cables	1.5 m
weight	housing: 7.5 kg power supply: 5.7 kg

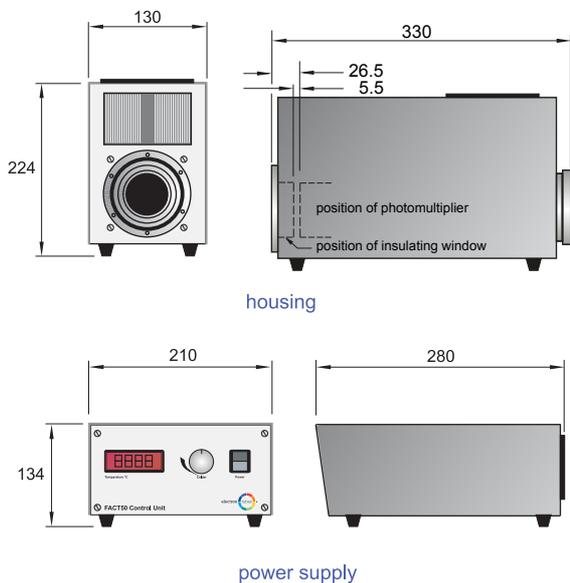
### 6 LCT50 features

- compact liquid heat exchanger for  $\Delta T$  of 50 °C below coolant temperature (typically 15 °C)
- liquid flow sensor with over-temperature cut-out, visual and audible warning
- housing temperature is displayed to within 0.1 °C

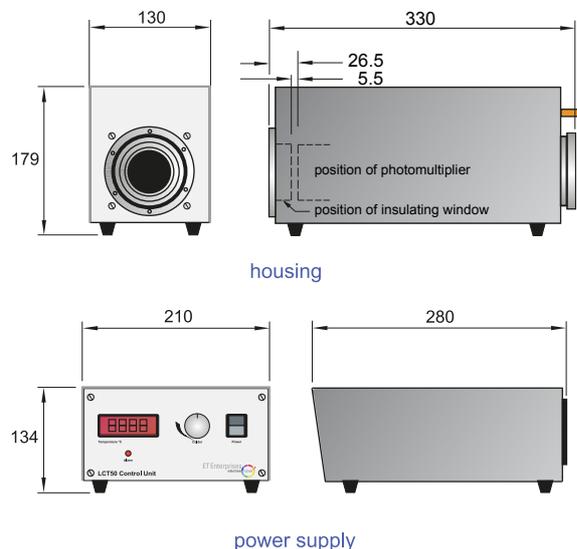
### 7 LCT50 specification

performance regulation	50 °C cooling below cooling liquid at 15 °C ±0.1 °C for ±5 °C change in liquid temperature
cool-down time	120 minutes
at 20 °C	
window material	double walled Pyrex (quartz optional)
supply	220V; 50-60 Hz; 150 W (110 V, 60 Hz optional)
connectors	signal: BNC (TNC optional); HV: MHV (SHV optional)
connection cables	1.5 m
weight	housing: 5.5 kg power supply: 5.9 kg

### 5 FACT50 external dimensions mm



### 8 LCT50 external dimensions mm



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DS\_FACT50 Issue 6 (12/05/14)