

PYCKO SCIENTIFIC LIMITED

31 London Road, Grantham, NG31 6EX

Telephone 01476 401992

bill@pycko.co.uk

www.pycko.co.uk

Your Alternative
To The Obvious

Ruggedized Detector Data Sheet

The Ruggedized Detector or “R-style” scintillation detector is used in wireline logging applications where severe thermal shock, mechanical shock and mechanical vibration are important considerations. The R-style detectors are capable of withstanding temperatures up to 175°C. The R-style detector is capable of withstanding mechanical shock up to 125 g’s.

For less severe applications we recommend our E-style configuration.

R-style detectors are offered in both an open face “RX-style in which the customer can supply the PMT and the “RD-style” with a demountable PMT. The detectors are custom built to meet the customer’s desired diameter and length.

Some examples of our ruggedized detector configurations are shown in Figure 1 and Figure 2.



Figure 1. An assortment of our R-style detectors.

The NaI(Tl) scintillation crystals are grown and machined in a crystal growth facility. A high temperature solder glass-to-metal seal and stainless steel crystal housing are featured in our design.



Figure 2. ASI's RD-style detectors.

Our manufacturing process uses multiple heat cycle tests and multiple hermetic seal tests on the detector package in order to validate expected performance. The heat cycle tests confirm that the crystal to glass and glass to PMT interfaces are maintained during extreme temperature excursions. In order to ensure seal reliability, each detector is leak checked with a helium leak check test. Multiple leak tests confirm that the detector has a reliable hermetic seal.

Our in process and final testing ensures that we will deliver a detector that meets specifications that are demanded in the industry.

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Specifications

Detector Style:	R-style, Open Face (no PMT) RD-style, Demountable PMT
Crystal Material:	Nal(Tl)
Crystal Housing:	Stainless steel crystal body; stainless steel light shield
Photomultiplier:	Ruggedized for High temperature
Sizes:	Diameter: 0.5" to 2.5" Length: 0.5" to 12" Custom made to meet the customer's needs
Temperature Range:	-55°C to 175°C
Thermal Shock Gradient:	3°C/minute maximum
Mechanical Shock:	25g to 125g @ 11ms – 3 per axis (X and Z axis)
Detector Pulse Height Resolution:	8.5% or better at 662 KeV (Cs-137) (typical), as tested on a 2" PMT at 25°C.