



RAICOL
CRYSTALS

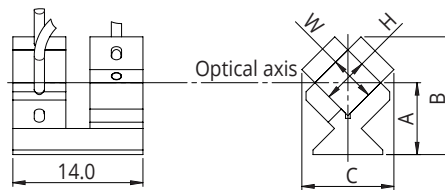
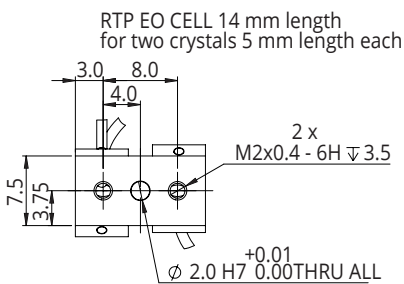
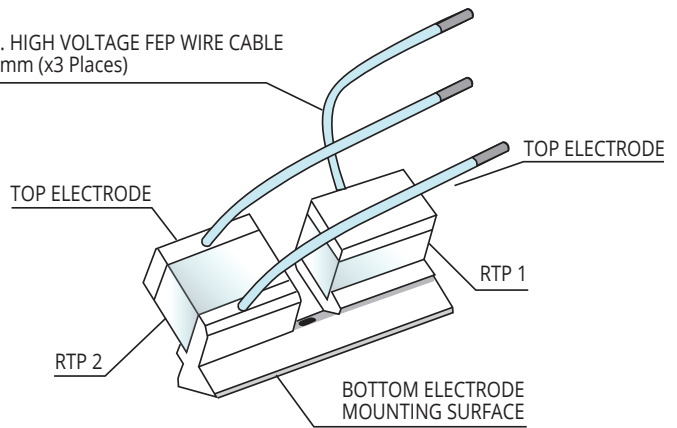
RTP_{EO} Devices

RTP (Rubidium Titanyl Phosphate) is a robust electro-optic crystal suitable for a wide variety of applications (such as Q-Switches, Amplitude & Phase Modulators, Pulse Pickers, etc.) and operation in industrial, medical, and defense products. The crystal is transparent at most common visible and near infrared laser wavelengths. It performs well over a wide temperature range (from -50°C to +70°C) and at high repetition rates. RTP based Q-switch devices are offered in matched pair configurations, in a temperature compensating design. When used for applications such as Q-Switches and Amplitude Modulators, the crystals are mounted in a way that the input beam is polarized along the diagonal of the face.

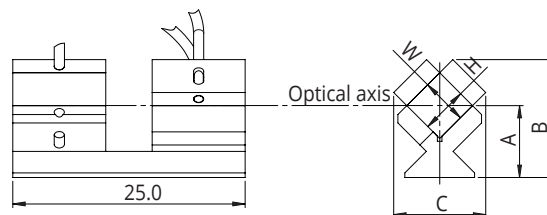
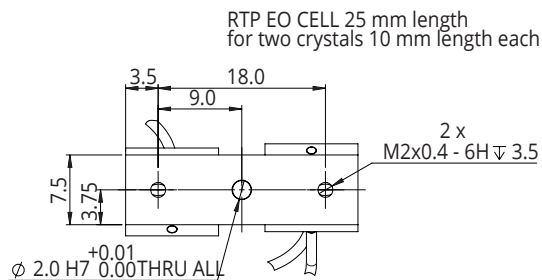
Features

- Low half-wave voltage
- High damage threshold
- Non hygroscopic
- Minimal ringing at high rep rates
- Operates over wide temperature range

CONNECTRONIC CORP. HIGH VOLTAGE FEP WIRE CABLE
P/N ET 1828 L=150 ± 2 mm (x3 Places)



HxW	A	B	C
2x2	5.7	8.6	5.7
3x3	6.0	9.5	7.0
4x4	7.0	11.2	8.5
5x5	7.7	12.7	9.9
6x6	8.5	14.2	11.3
7x7	9.2	15.5	12.7
8x8	9.9	14.1	17.0
9x9	10.6	18.4	15.6



Single Crystals Tolerances

Length per crystal (L): ± 0.5 mm
 Height (H) / Width (W): ± 0.10 mm
 Perpendicularity: < 20 arc min
 Parallelism: < 10 arc sec
 Scratch/dig: 10/5 in the clear aperture
 Chamfers: < 0.2 mm $\times 45^\circ \pm 5^\circ$
 Electrodes: Ti on Z-sides
 Marking: polarity of Z-axis (+) on the side surface.
 AR/AR coatings: $R < 0.1\%$
 Damage threshold: > 600 MW/cm²
 @1064 nm, 10ns, 10Hz
 Side surfaces fine ground $< 30\mu\text{m}$

Matched Pair

Lengths matched to within ± 0.002 mm. Extinction ratio: transmission ratio of matched pair between parallel/crossed polarizers measured at operating wavelength. Crystals in V-groove with 90° between Z- axes (+) and (-) on the top. Light polarization vertical or horizontal.
 Angular adjustment tolerance: 1.5 degree
 Transmission: $> 98.5\%$

EO-Cell

Wire type: ET1828, Connectronics Corp.
 Wires length: 150 mm
 Connectronics Corp.
 Total Capacitance: 2.0-3.0 pF (crystal lengths 5 mm) and 4.0-6.0 pF (crystal lengths 10 mm)

Static Half Wave Voltage at wavelength (λ , nm) according to the following formulas:

$$\text{X-cut: } V_x = (W/2L) \times [(9.35 \times \lambda) - 2000] [V] \pm 15\%$$

$$\text{Y-cut: } V_y = (W/2L) \times [(8 \times \lambda) - 1900] [V] \pm 15\%$$

Part Number Explanation

↑ ↑ ↑ ↑ ↑ ↑ ↑
 Ty - D - O - Cr - L - E - W

Ty - Crystal Type: **R** (RTP)

D - Device: **Q** (EO Cell)

M (Matched pair)

S (Single Crystal)

O - Orientation: x/y/z

Cr - Cross Section: [mm]

L - Crystal Length: [mm]

E - Extinction Ratio [dB] 20/25

W - Operation Wavelength [nm]

PN example:

RTP, Matched Pair, Y cut

2.5 X 2.5 X 10mm

20dB, 1064 nm

R-M-Y-025-10-20-1064

Selection Guide					
Part Number	Crystal Size [mm]	HWV (kV)	Part Number	Crystal Size (mm)	HWV (kV)
R-Q-Y-020 -5-20-1064	2 x 2 x 5	1.3	R-Q-Y-020 -10-20-1064	2 x 2 x 10	.66
R-Q-Y-030 -5-20-1064	3 x 3 x 5	2.0	R-Q-Y-030 -10-20-1064	3 x 3 x 10	.99
R-Q-Y-040 -5-20-1064	4 x 4 x 5	2.6	R-Q-Y-040 -10-20-1064	4 x 4 x 10	1.3
R-Q-Y-050 -5-20-1064	5 x 5 x 5	3.3	R-Q-Y-050 -10-20-1064	5 x 5 x 10	1.7
R-Q-Y-060 -5-20-1064	6 x 6 x 5	4.0	R-Q-Y-060 -10-20-1064	6 x 6 x 10	2.0
R-Q-X-020 -5-20-1064	2 x 2 x 5	1.6	R-Q-X-020 -10-20-1064	2 x 2 x 10	.79
R-Q-X-030 -5-20-1064	3 x 3 x 5	2.4	R-Q-X-030 -10-20-1064	3 x 3 x 10	1.2
R-Q-X-040 -5-20-1064	4 x 4 x 5	3.2	R-Q-X-040 -10-20-1064	4 x 4 x 10	1.6
R-Q-X-050 -5-20-1064	5 x 5 x 5	4.0	R-Q-X-050 -10-20-1064	5 x 5 x 10	2.0
R-Q-X-060 -5-20-1064	6 x 6 x 5	4.8	R-Q-X-060 -10-20-1064	6 x 6 x 10	2.4
R-Q-X-070 -5-20-1064	7 x 7 x 5	5.6	R-Q-X-070 -10-20-1064	7 x 7 x 10	2.8
R-Q-X-080 -5-20-1064	8 x 8 x 5	6.4	R-Q-X-080 -10-20-1064	8 x 8 x 10	3.2
R-Q-X-090 -5-20-1064	9 x 9 x 5	7.2	R-Q-X-090 -10-20-1064	9 x 9 x 10	3.6

- Notes:
- ☒ Halfwave voltage (HWV) is Nominal $\pm 15\%$
 - ☒ Matched pair crystals, unmounted, are offered as standard sets. Simply substitute M for Q in the part number
 - ☒ Standard products are available in other sizes and at alternate wavelengths. Check with Raicol for comprehensive list.
 - ☒ Standard extinction ratios are 20dB, 23dB, 25dB, 27dB, and 30dB. Contact Raicol for more details.