

QUBIG GmbH | Balanstr. 57 | 81541 Munich | Germany

**Shanghai Purple Berry Instrument Inc.**

Wei Xiang

Rm. 305, Bldg. 62

No. 421 Hongcao Rd., Xuhui District

200233 Shanghai

CHINA

Angebot: **A22.0067**

Auftrag: **B22.0374**

Sales contact: Enrico Vogt

Phone: +49 89 2302 9101

E-mail: sales@qubig.com

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Date: **20.11.2022**

## Produktionsauftrag

B22.0374 - Shanghai Purple Berry Instrument Inc. | PO: PBMP22111801

Pos.	Product & Description	Our Article No.	Your Article No.	Qty.
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copied from offer A22.0067 from 2022-02-11

**1.0 B22.0374\_Pos.1: PM-Li\_0.8 +TC | Qty. 1x** **A00050** - **1**

**Resonant, high-Q electro-optic PHASE modulator**

- optimised resonance frequency fo: **813 MHz** | RF bandwidth (-3dB): typ. **<2 MHz**
- frequency tuning range: min. **fo +/- 30 MHz** (manual adjustment / set&forget)
- RF connector: SMA, jack (female), straight | impedance: 50 Ohms, return loss (S11): typ. **< -20 dB**
- housing: **40x40x40mm^3** | mounting: 3x M4x0.7 for s- or p-polarisation | aperture: **3x3mm^2**
- laser wavelength  $\lambda_0$ : **671nm** | AR @  $\lambda_0$ : R < 0.5% | wavefront distortion (WFD): **<  $\lambda/6$  (633nm)**
- recommended max. laser intensity @  $\lambda_0$ : **< 5W/mm^2**
- required RF power for 1rad @  $\{\lambda_0, fo\}$ : ca. **25 dBm** | max. RF power (stable operation): ca. **2W**
- including thermal crystal mount for advanced thermal stability
- application: Laser cooling, trapping & manipulation of atoms/ions/molecules (Lithium, Li-7)

*net weight: 0.125kg, CoO: Germany, HS-code: 90139070*

**1.1 +TC** **A00211** - **1**

**Temperature Control option:**

- function/purpose: allows active temperature control / stabilisation of the modulator / crystal:
- internal T-sensor (10k NTC or PT1000) | TEC (30x30mm^2, {I, U, Q,  $\Delta T$ }\_max = {3.6A, 32.3W, 14.7V, 69K}
- incl. mounting hardware (plastic screws, spacer, etc.) | for external temperature control (< 0.1K)

**2.0 B22.0374\_Pos.2: PM7-SWIR1\_28 +BC2 +TXC +DC | Qty. 1x** **A00012** - **1**

**Resonant, free-space electro-optic PHASE modulator for SWIR1 Laser applications**

- PM7-series: select fixed resonance frequency within **2 - 30 MHz**
- optimised resonance frequency fo: **28 MHz** (+/-0.5MHz std. tol.) | RF bandwidth (-3dB): typ. **1 - 2% of fo**
- RF connector: **SMA-f**, straight | impedance @ fo: ca. **50 Ohms**, return loss (S11): typ. **< -10dB**

*Continued on next page ...*

Document number: A22.0067

Pos.	Product & Description	Our Article No.	Your Article No.	Qty.
	<ul style="list-style-type: none"> <li>- housing dimensions: <b>40x40x40mm<sup>3</sup></b>   mounting: 3x M4 for s- &amp; p- pol.</li> <li>- user wavelength <math>\lambda_0</math>: <b>1397 nm</b>   crystal aperture: <b>3x3mm<sup>2</sup></b>, CA <math>\geq 90\%</math></li> <li>- BBAR: <b>1.0 - 1.7 <math>\mu\text{m}</math></b> (<math>R_{\text{avg}} &lt; 1\%</math>, <math>T_{\text{avg}} &gt; 95\%</math>)   wavefront distortion (WFD): <math>&lt; \lambda/6</math> (633nm)</li> <li>- max. recommended laser intensity @ <math>\lambda_0</math>: ca. <b>5 W/mm<sup>2</sup></b>   Laser insertion loss (LIL) @ <math>\lambda_0</math>: <math>&lt; 2\%</math></li> <li>- modulation efficiency @ (1rad, fo, <math>\lambda_0</math>): typ. <b>(23 +/-1) dBm</b>   max. RF power: ca. <b>0.5W</b></li> <li>- applications: <b>Laser Frequency Stabilisation</b> - LFS (PDH, FM/MTS)</li> <li>- CoO: GERMANY, HS code: 90139080, RoHS compliant, net weight: 0.125kg</li> </ul>			
2.1	+BC2	A01307	-	1
	<b>Crystal Brewster-Cut option:</b> <ul style="list-style-type: none"> <li>- function/purpose: RAM suppression caused by e.g. polarisation misalignment &amp; etalon effects</li> <li>- Ref.: Vol. 41, No. 23 / Dec. 1 2016 / Optics Letters 5584</li> <li>- No. of crystals: 2x   <b>no beam displacement</b>   aperture: <b>2.5x2.5mm<sup>2</sup></b>, CA <math>\geq 90\%</math></li> <li>- wavefront distortion (WFD): <math>&lt; \lambda/6</math> (@ 633nm)</li> <li>- max. recommended laser intensity: <math>\leq 5\text{W/mm}^2</math> (at 698nm)</li> <li>- required RF power for 1 rad: ca. <b>18   25dBm</b> (at 698   1397nm)</li> <li>- housing: <b>45x30x25mm<sup>3</sup></b>   mounting: 4x M2.5 (bottom)</li> </ul>			
2.2	+TXC	A00210	-	1
	<b>Temperature Control option:</b> <ul style="list-style-type: none"> <li>- function/purpose: active temperature stabilisation of the modulator / crystal:</li> <li>- incl. thermal crystal mount</li> <li>- internal T-sensor (<b>PT1000</b>)   TEC (30x30mm<sup>2</sup>, 12V, 4A, &gt;30W)</li> <li>- incl. mounting hardware (plastic screws, spacer, etc.)   for external temperature control (<math>&lt; 0.1\text{K}</math>)</li> </ul>			
2.3	+DC	A00209	-	1
	<b>Extra DC-port option:</b> <ul style="list-style-type: none"> <li>- function/purpose: Active RAM suppression via voltage feedback on the crystal</li> <li>- Ref.: Zhang, et. al. OPTICS LETTERS / Vol. 39, No. 7 / April 1, 2014</li> <li>- Bandwidth (-3dB): 0 - 10kHz   connector: SMA-f, bulkhead (max. +/-500V),</li> <li>- Halfwave voltage: (@ 400   770nm): <math>\sim 130</math>   240V</li> <li>- Note: DC-port reduces the AC modulation efficiency by ca. 3dB</li> </ul>			
3.0	<b>B22.0374_Pos.3: Shipping &amp; Packaging   Qty. 1x</b>	<b>A01174</b>	-	
	1 Parcel: 30x20x12cm <sup>3</sup> , ca. 1kg			

**Shipping date:      Donnerstag, 8. Dezember 2022**