

Electro-Optic Phase Modulator —HC-QN Series

Product introduction

- HC-QN series electro-optic phase modulators use the electro-optic effect of lithium niobate crystal to realize the phase modulation of optical signals, and use titanium diffusion or proton exchange technology to manufacture optical waveguides, which can realize dual-polarization or single-polarization phase modulation. Has that characteristic of low insertion loss, high modulation bandwidth, low half-wave voltage, high damage optical pow and the like, and is mainly applied to the fields of optical chirp control in a high-speed optical communication system, phase delay in a coherent communication system, optical sideband generation, phase modulation in quantum communication, stimulated Brillouin scatter (SBS) reduction in an analog optical fiber communication system and the like.

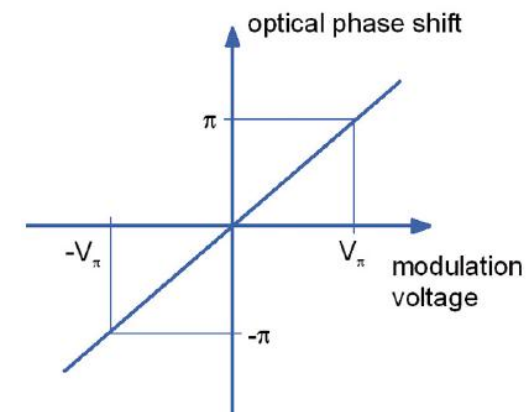
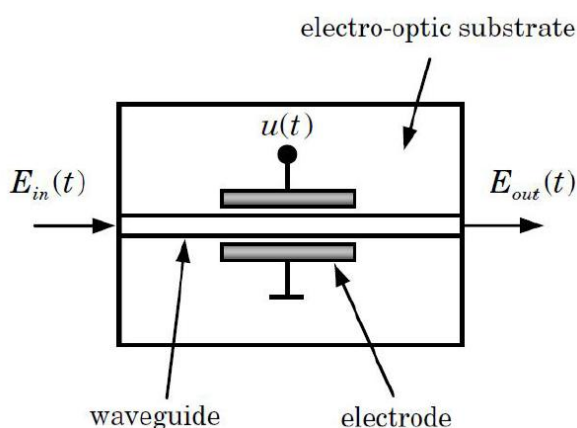
Product features

- Multiple operating wavelength
- Low half-wave voltage
- Low insertion loss
- High damage optical power

Scope of application

- Optical fiber sensing
- Optical fiber communication and laser coherent combination
- Phase Retardation (Shifter)
- Quantum communication

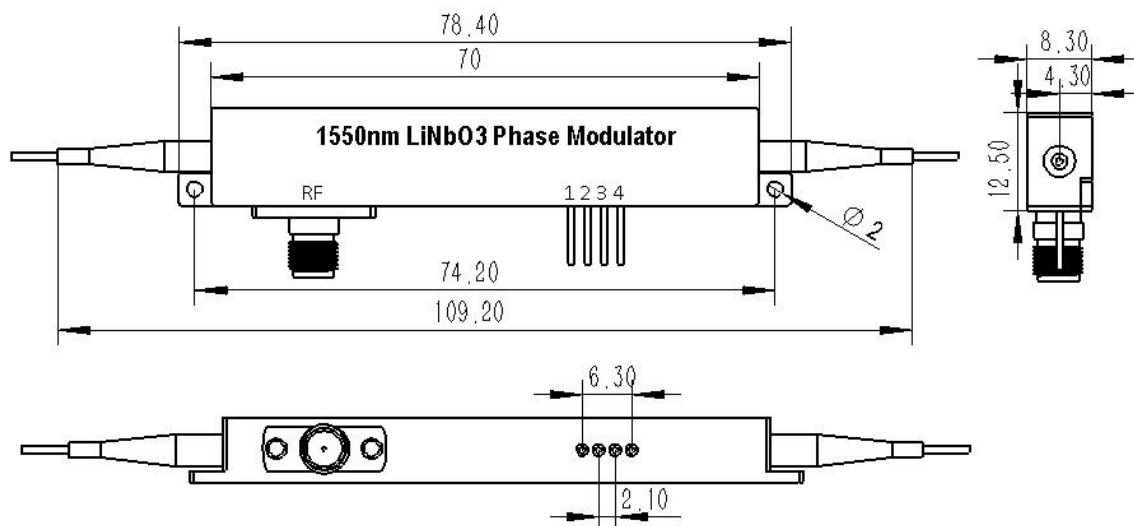
Functional block diagram



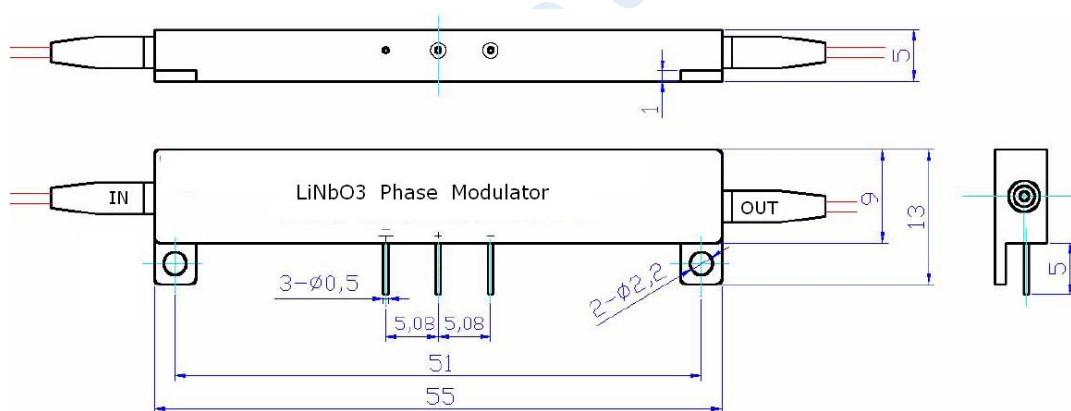
Technical parameters

Parameter	Symbol	QN-08	QN-10-300M	QN-10-10G	QN-15-300M	QN-15-10G	QN-15-18G
Operating wavelength	λ	770-880nm	1064±60nm		1550±100nm		
Insertion loss	IL	<5 dB	<4 dB		<4 dB		
Optical return loss	ORL	-40 dB	-45 dB	-45 dB	-45dB	-45dB	-40dB
Operating bandwidth (-3dB)	S_{21}	10GHz	300MHz-	10GHz-	300MHz	10GHz	18GHz
Rise time 10% ~ 90%	t_r	35ps	1ns	35ps	1ns	35ps	18ps
Half-wave voltage V_{π} @ 50KHz	V_{π}	5V	4V	4.5V	4V	4V	5V
Input impedance	Z_{RF}	50 Ω	1M Ω	50 Ω	1M Ω	50 Ω	50 Ω
Electrical interface		2.92mm(f)	2pin	2.92mm(f)	2pin	2.92mm(f)	2.92mm(f)
Electrical return loss	S11	<-10dB					
Input and output optical fiber		Polarization Maintain Panda Slow Axis Alignment					
Fiber optic Connector		FC/APC or Customer Specified					
Operating temperature	Top	-10~60°C					
Storage temperature	Tst	-40~80°C					
Electrical signal input power	Pi	<28dBm					
Maximum input optical power	Po	20mW	100mW	100mW	100mW	100mW	100mW

Mechanical dimensions (mm)



Package 1 (bandwidth $\geq$ 10G)



Package 2 (bandwidth $\sim$ 300M)

Ordering Information HC-QN-WL-BW-PP-FA (connector)

WL — working wavelength: 15-1550nm, 10-1064nm

BW — Operating bandwidth: 300M, 10GHz, 18G