

Gooch & Housego



PM Fibre-Q, Visible λ

480-650nm Fibre-Coupled Acousto-Optic Modulator

S-M200-0.4C2N-3-F2P

Gooch & Housego specialise in providing optical components for high power fibre laser and amplifier systems. In-house control of critical manufacturing processes, from crystalline material selection and orientation, cutting, polishing and AR coating through to fibre coupling, ensure our components are of the highest optical quality.

The 'Fibre-Q' Acousto-Optic Modulator is designed for use in pulsed fibre laser amplifier systems. Giving optimum performance in demanding applications, such as material processing.

In addition to the standard product shown, custom configurations are available for specialised applications.

Key Features:

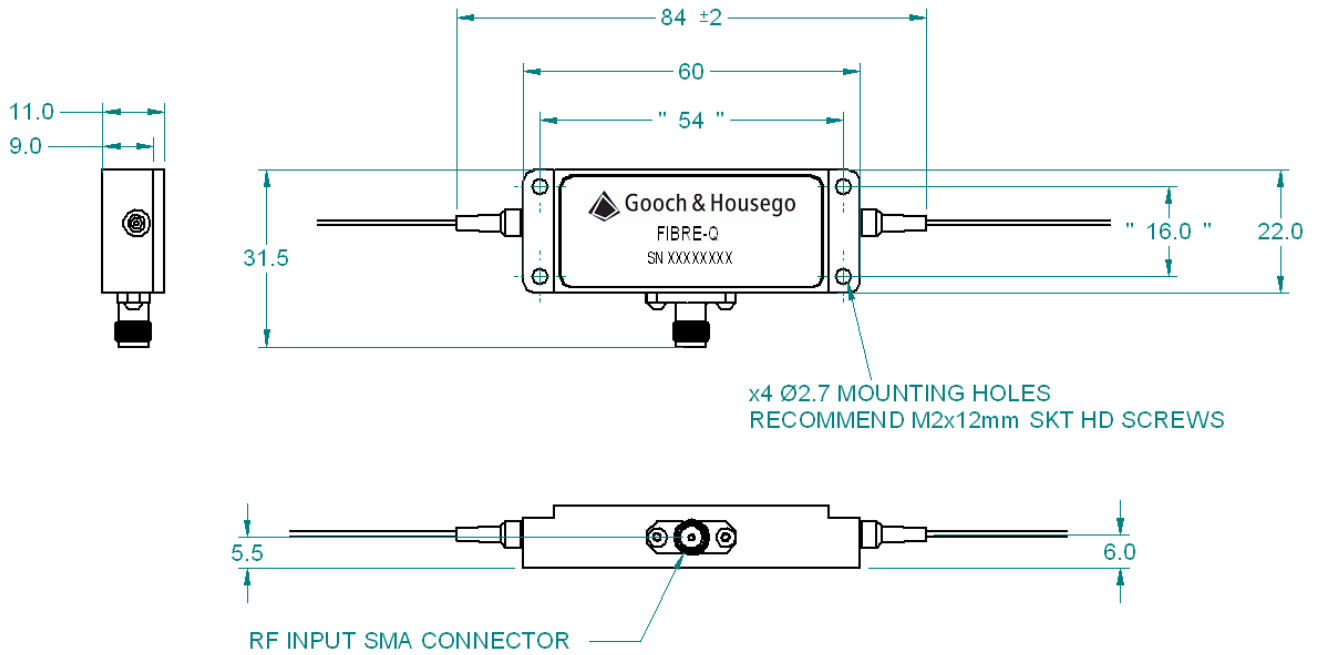
- Low insertion loss
- Compact, low profile package
- Sealed to IP54 (dust/splash proof, non-hermetic)
- Stable performance
- Custom configurations available

Applications:

- Fibre laser
- Fibre amplifier
- Pulse picker
- Short pulse generation
- Frequency shifter

General Specifications

Parameter	Unit	Min	Max	Typical	Comments
Interaction material:	-	-	-	-	Tellurium Dioxide
Wavelength:	nm	480	650		
Average optical power handling:	W	-	1	-	
Peak (pulse) optical power handling:	kW	-	1	-	Dependent on pulse width
Insertion loss:	dB	-	2.5	-	TBC
Polarisation extinction ratio	dB	18	-	20	
Extinction ratio (1 st order on / off)	dB	50	-	-	
Return Loss (RF ON / RF OFF)	dB	40	-	-	
Rise-time / fall-time: (10% - 90%)	ns	-	30	23	
Frequency:	MHz	-	-	200	
VSWR:		-	1.3:1	-	
Input impedance:	Ω	-	-	50	
RF power:	W	-	1.5	-	Absolute maximum rating. Higher power will cause damage.
Frequency shift:	MHz	-	-	200	Upshift
Fibre type:	-	-	-	-	Fujikura 480nm PMF SC48-PS-U25D fibre
Fibre length	m	1.5	-	-	900 μ m PVDF sleeving
Fibre termination:	-	-	-	-	Bare fibre



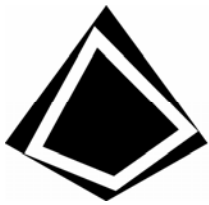
General Tolerance : ± 1mm

Other Gooch & Housego products which may be of interest:

Our extensive range of components for fibre laser applications includes:

- Isolators
- High reliability hermetically sealed Fibre-Q
- High power multimode combiners
- Combiners with all types of signal feedthrough fibre
- Ultra low ratio tap couplers
- WDMs for combining signals with red pointer lasers

Please send your specifications to sales@goochandhousego.com or contact your local sales representative to discuss your requirements.



Gooch & Housego



PM Fibre-Q

Polarisation Maintaining 1060nm Fibre-Coupled Acousto-Optic Modulator

T-M150-0.4C2G-3-F2P

Gooch & Housego specialise in providing optical components for high power fibre laser and amplifier systems. In-house control of critical manufacturing processes, from crystalline material selection and orientation, cutting, polishing and AR coating through to fibre coupling, ensure our components are of the highest optical quality.

The 'Fibre-Q' Acousto-Optic Modulator is designed for use in pulsed fibre laser amplifier systems. Giving optimum performance in demanding applications, such as material processing.

In addition to the standard product shown, custom configurations are available for specialised applications.

Key Features:

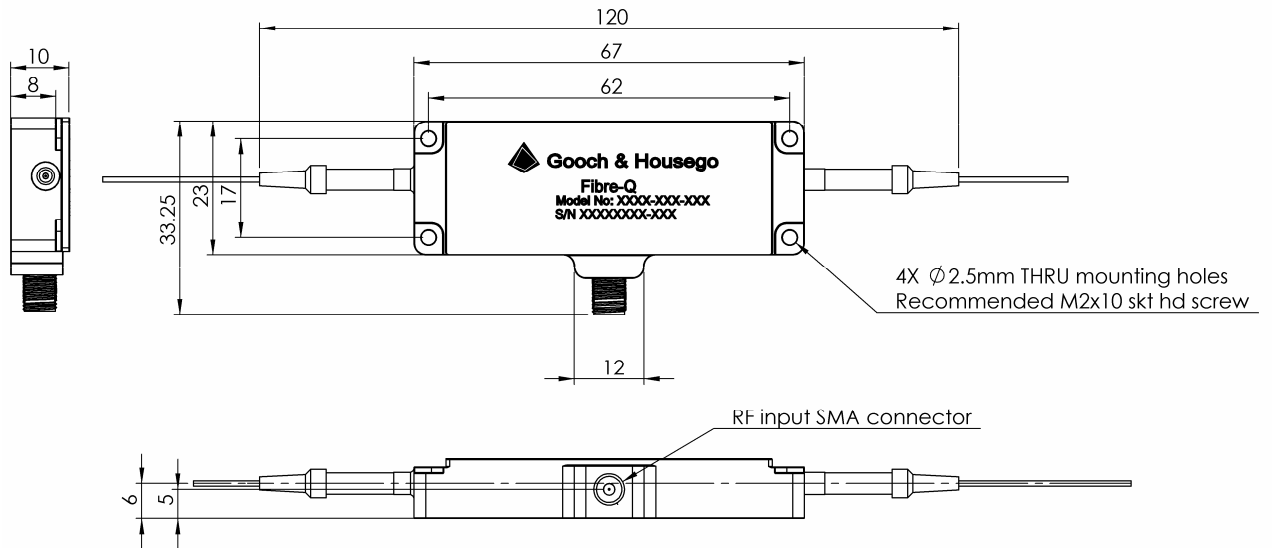
- Low insertion loss
- Compact, low profile package
- Rugged hermetic design
- Stable performance
- Custom configurations available

Applications:

- Fibre laser
- Fibre amplifier
- Pulse picker

General Specifications

Parameter	Unit	Min	Max	Typical	Comments
Interaction material:	-	-	-	-	Tellurium Dioxide
Wavelength:	nm	1030	1090	1060	Other wavelengths available on request
Average optical power handling:	W	-	5	-	
Peak (pulse) optical power handling:	kW	-	30	-	Dependent on pulse width
Insertion loss:	dB	-	2.5	2	
Polarisation extinction ratio	dB	18	-	20	
Extinction ratio (1 st order on / off)	dB	50	-	-	
Return Loss (RF ON)	dB	40	-	-	
Rise-time / fall-time: (10% - 90%)	ns	-	30	-	
Frequency:	Mhz	-	-	150	
VSWR:		-	1.2:1	-	
Input impedance:	Ω	-	-	50	
RF power:	W	-	2	-	
Frequency shift:	MHz	-	-	150	Upshift
Fibre type:	-	-	-	-	Fujikura PM980 (SM98-PS-U25A)
Fibre length	m	1.5	-	-	900 μ m black sleeving
Fibre termination:	-	-	-	-	Bare

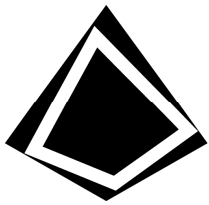


Other Gooch & Housego products which may be of interest:

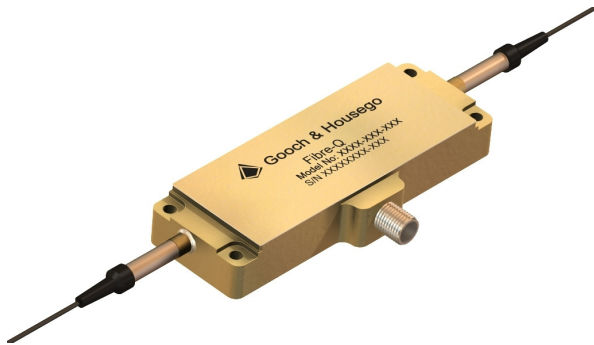
Our extensive range of components for fibre laser applications includes:

- Isolators
- High power multimode combiners
- Combiners with all types of signal feedthrough fibre
- Ultra low ratio tap couplers
- WDMs for combining signals with red pointer lasers

Please send your specifications to sales@goochandhousego.com or contact your local sales representative to discuss your requirements.



Gooch & Housego



PM Fibre-Q

Polarisation Maintaining 1060nm Fibre-Coupled Acousto-Optic Modulator

T-M200-0.1C2G-3-F2P

Gooch & Housego specialise in providing optical components for high power fibre laser and amplifier systems. In-house control of critical manufacturing processes, from crystalline material selection and orientation, cutting, polishing and AR coating through to fibre coupling, ensure our components are of the highest optical quality.

The 'Fibre-Q' Acousto-Optic Modulator is designed for use in pulsed fibre laser amplifier systems and as a pulse picker for short pulse, high rep rate fibre lasers.

In addition to the standard product shown, custom configurations are available for specialised applications.

Key Features:

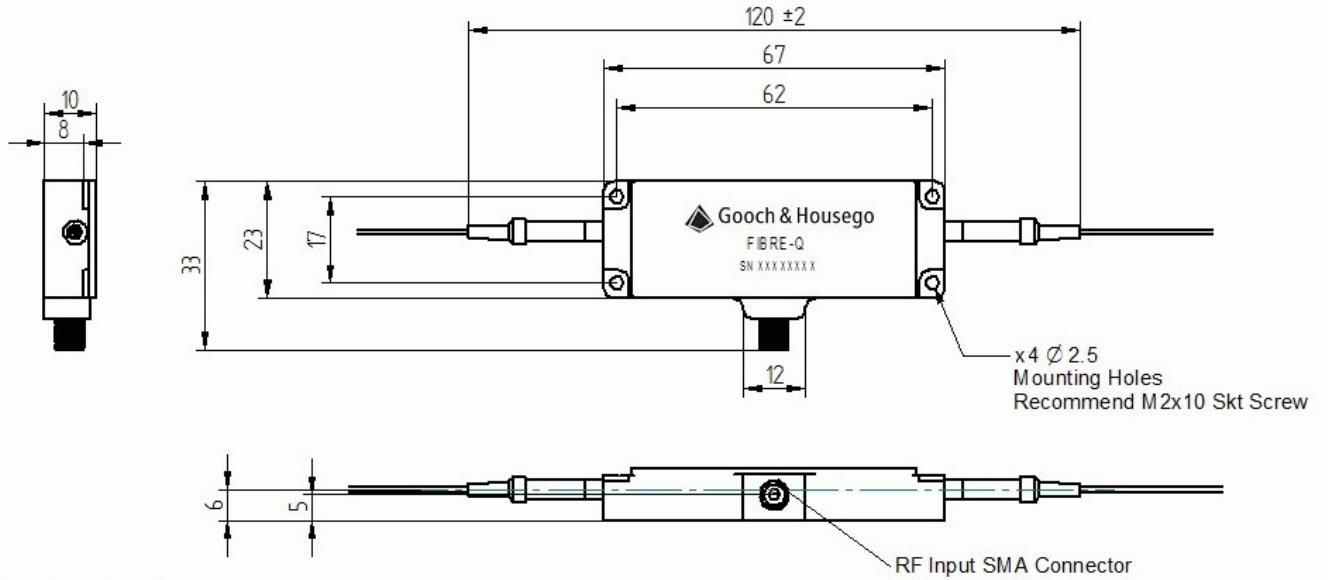
- Low insertion loss
- Compact, low profile package
- Rugged hermetic design
- Stable performance
- Custom configurations available

Applications:

- Fibre laser
- Pulse picker
- Optical sensing

General Specifications

Parameter	Unit	Min	Max	Typical	Comments
Interaction material:	-	-	-	-	Tellurium Dioxide
Wavelength:	nm	1030	1090	1060	Other wavelengths available on request
Average optical power handling:	W	-	1	-	
Peak (pulse) optical power handling:	kW	-	1	-	Dependent on pulse width
Insertion loss:	dB	-	4	3.5	
Polarisation extinction ratio	dB	18	-	20	
Extinction ratio (1 st order on / off)	dB	45	-	-	
Return Loss (RF ON / RF OFF)	dB	40	-	-	
Rise-time / fall-time: (10% - 90%)	ns	-	10	-	Does not include RF Driver rise / fall time
Frequency:	MHz	-	-	200	
VSWR:		-	1.5:1	-	
Input impedance:	Ω	-	-	50	
RF power:	W	-	2.5	-	Absolute maximum rating. Higher power will cause damage.
Frequency shift:	MHz	-	-	200	Upshift
Fibre type:	-	-	-	-	Fujikura PM980 (SM98-PS-U25A)
Fibre length	m	1.5	-	-	900 μ m PVDF sleeving
Fibre termination:	-	-	-	-	Bare fibre



General Tolerance : ± 1mm

Other Gooch & Housego products which may be of interest:

Our extensive range of components for fibre laser applications includes:

- Isolators
- High power multimode combiners
- Combiners with all types of signal feedthrough fibre
- Ultra low ratio tap couplers
- WDMs for combining signals with red pointer lasers

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Gooch & Housego



PM Fibre-Q

Polarisation Maintaining 1550nm Fibre-Coupled Acousto-Optic Modulator

T-M110-0.2C2J-3-F2P

Gooch & Housego specialise in providing optical components for high power fibre laser and amplifier systems. In-house control of critical manufacturing processes, from crystalline material selection and orientation, cutting, polishing and AR coating through to fibre coupling, ensure our components are of the highest optical quality.

The T-M110-0.2C2J-3-F2P Acousto-Optic Modulator is designed for use as a 110MHz frequency shifter for heterodyne interferometry, an intensity modulator or a pulse picker.

In addition to the standard product shown, custom configurations are available for specialised applications.

Key Features:

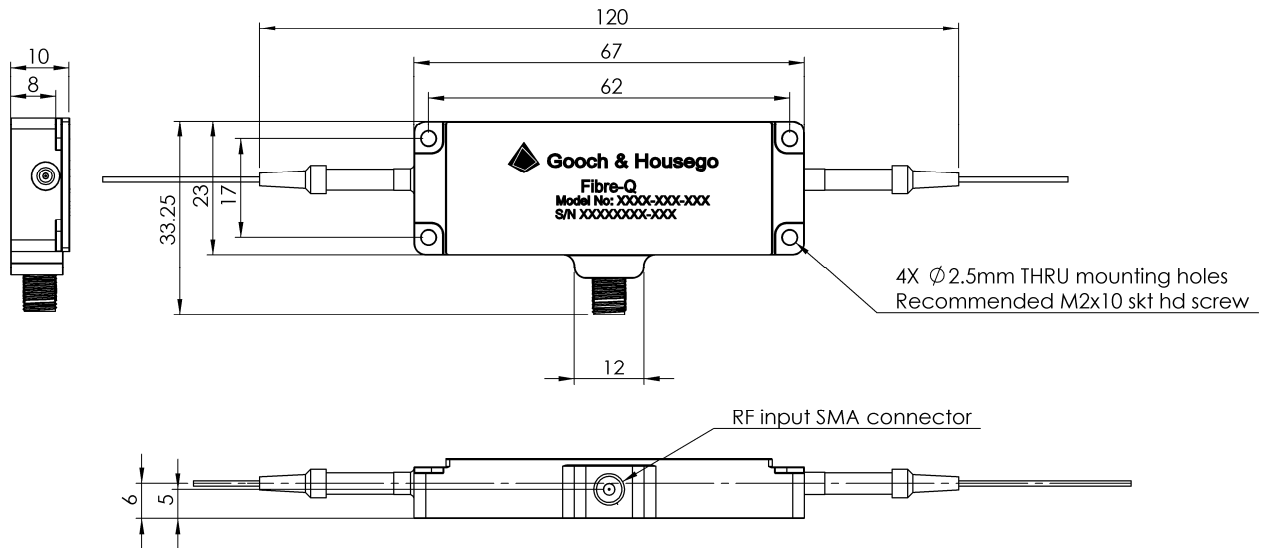
- Low insertion loss
- Compact, low profile package
- Rugged hermetic design
- Stable performance
- Custom configurations available

Applications:

- Sensing (heterodyne interferometry)
- Intensity modulation
- Pulse picking

General Specifications

Parameter	Unit	Min	Max	Typical	Comments
Interaction material:	-	-	-	-	Tellurium Dioxide
Wavelength:	nm	1530	1565	1550	Other wavelengths available on request
Average optical power handling:	W	-	1	-	
Peak (pulse) optical power handling:	kW	-	1	-	Dependent on pulse width
Insertion loss:	dB	-	3	2	
Polarisation Extinction ratio	dB	18	-	20	
Extinction ratio (1 st order on / off)	dB	50	-	-	
Return Loss (RF ON / RF OFF)	dB	40	-	-	
Rise-time / fall-time: (10% - 90%)	ns	-	25	-	
Frequency:	MHz	-	-	110	
VSWR:		-	1.2:1	-	
Input impedance:	Ω	-	-	50	
RF power:	W	-	3	-	Absolute maximum rating. Higher power will cause damage.
Frequency shift:	MHz	-	-	110	Upshift
Fibre type:	-	-	-	-	Fujikura PM1550 (SM15-PS-U25A)
Fibre length	m	1.5	-	-	900 μ m PVDF sleeving
Fibre termination:	-	-	-	-	Bare fibre

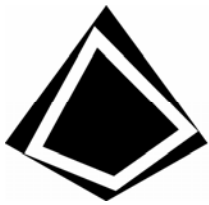


Other Gooch & Housego products which may be of interest:

Our extensive range of components for fibre laser applications includes:

- Isolators
- High power multimode combiners
- Combiners with all types of signal feedthrough fibre
- Ultra low ratio tap couplers
- WDMs for combining signals with red pointer lasers

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Gooch & Housego



PM Fibre-Q

Polarisation Maintaining 1550nm Fibre-Coupled Acousto-Optic Modulator

T-M080-0.4C2J-3-F2P

Gooch & Housego specialise in providing optical components for high power fibre laser and amplifier systems. In-house control of critical manufacturing processes, from crystalline material selection and orientation, cutting, polishing and AR coating through to fibre coupling, ensure our components are of the highest optical quality.

The T-M080-0.4C2J-3-F2P Acousto-Optic Modulator is designed for use as an 80MHz frequency shifter for heterodyne interferometry, an intensity modulator or a pulse picker.

In addition to the standard product shown, custom configurations are available for specialised applications.

Key Features:

- Low insertion loss
- Compact, low profile package
- Rugged hermetic design
- Stable performance
- Custom configurations available

Applications:

- Sensing (heterodyne interferometry)
- Intensity modulation
- Pulse picking

General Specifications

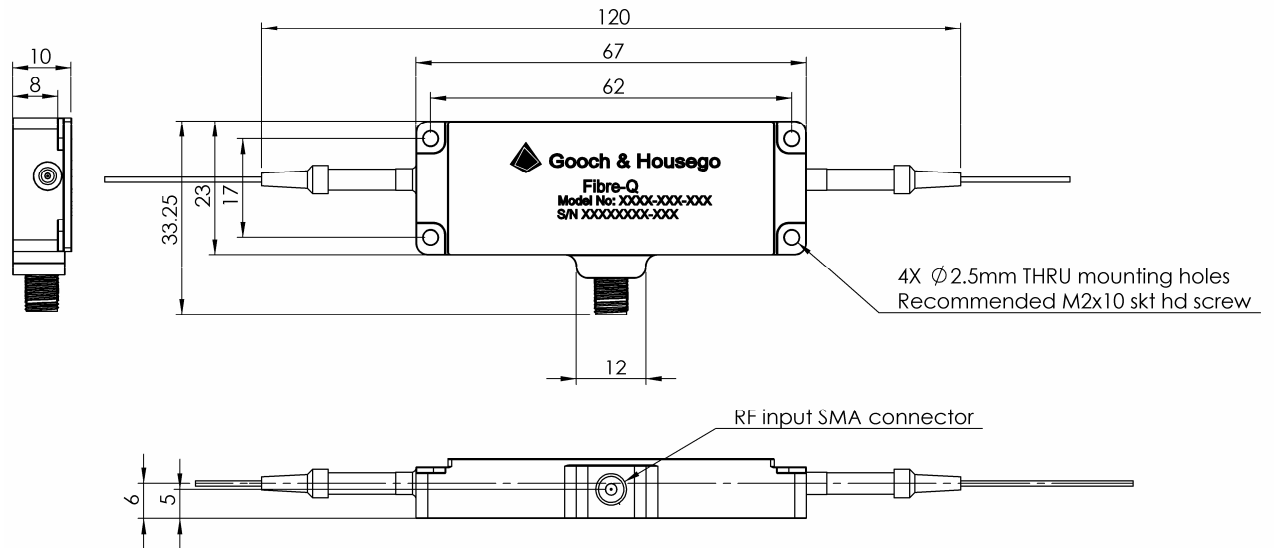
Parameter	Unit	Min	Max	Typical	Comments
Interaction material:	-	-	-	-	Tellurium Dioxide
Wavelength:	nm	1530	1565	1550	Other wavelengths available on request
Average optical power handling:	W	-	1	-	
Peak (pulse) optical power handling:	kW	-	30	-	Dependent on pulse width
Insertion loss:	dB	-	3	2	
Polarisation Dependant Loss (RF-ON)	dB	-	0.5	0.2	
Extinction ratio (1 st order on / off)	dB	50	-	-	
Return Loss (RF ON)	dB	40	-	-	
Rise-time / fall-time: (10% - 90%)	ns	-	35	-	
Frequency:	Mhz	-	-	80	
VSWR:		-	1.2:1	-	
Input impedance:	Ω	-	-	50	
RF power:	W	-	3.0	-	
Frequency shift:	MHz	-	-	80	Upshift
Fibre type:	-	-	-	-	Fujikura PM1550 (SM15-PS-U25A)
Fibre length	m	1.5	-	-	900 μ m black sleeving
Fibre termination:	-	-	-	-	Bare

Contact: Sales@goochandhousego.com

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PEC 0158 Issue 1
G&H Ref: 30167188

As part of our policy of continuous product improvement we reserve the right to change specifications at any time

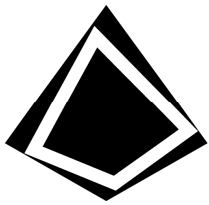


Other Gooch & Housego products which may be of interest:

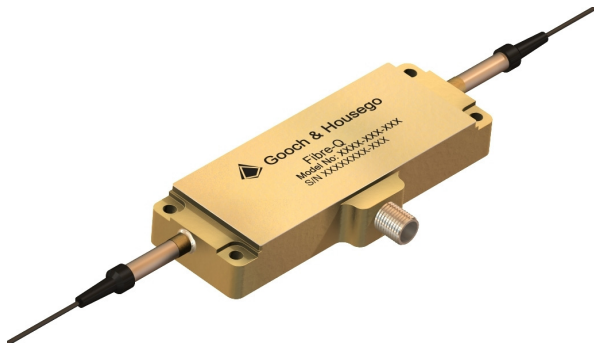
Our extensive range of components for fibre laser applications includes:

- Isolators
- High power multimode combiners
- Combiners with all types of signal feedthrough fibre
- Ultra low ratio tap couplers
- WDMs for combining signals with red pointer lasers

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Gooch & Housego



PM Fibre-Q

Polarisation Maintaining 1550nm Fibre-Coupled Acousto-Optic Modulator

T-M040-0.5C8J-3-F2P

Gooch & Housego specialise in providing optical components for high power fibre laser and amplifier systems. In-house control of critical manufacturing processes, from crystalline material selection and orientation, cutting, polishing and AR coating through to fibre coupling, ensure our components are of the highest optical quality.

The T-M040-0.5C8J-3-F2P Acousto-Optic Modulator is designed for use as a 40MHz frequency shifter for heterodyne interferometry or as an intensity modulator.

In addition to the standard product shown, custom configurations are available for specialised applications.

Key Features:

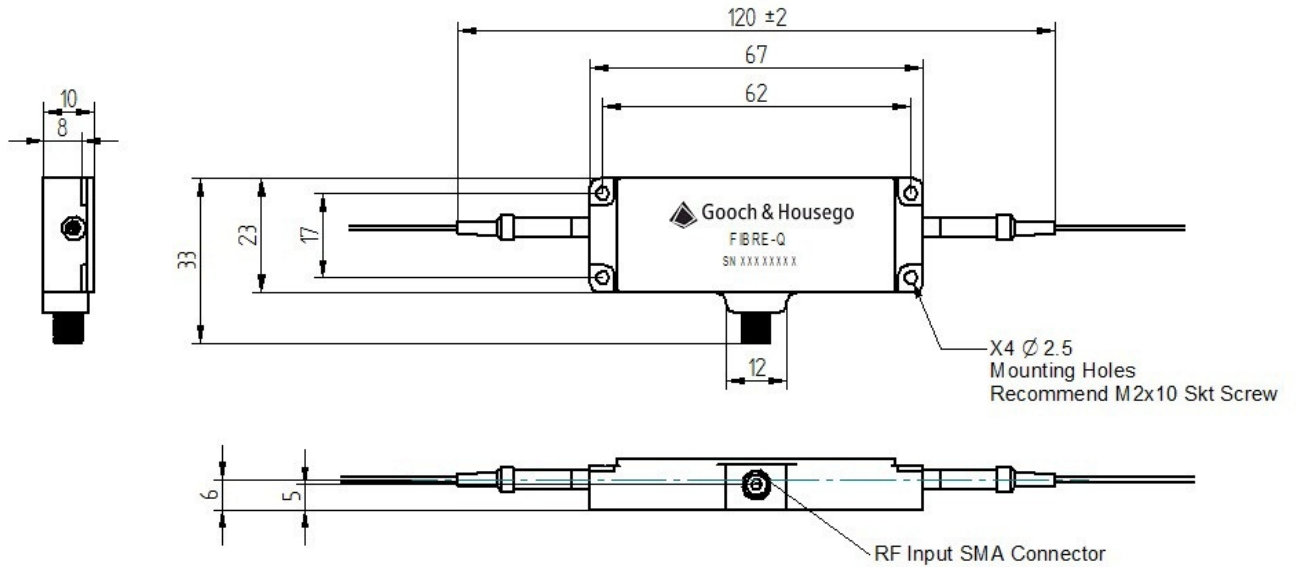
- Low insertion loss
- Compact, low profile package
- Rugged hermetic design
- Stable performance
- Custom configurations available

Applications:

- Sensing (heterodyne interferometry)
- Intensity modulation

General Specifications

Parameter	Unit	Min	Max	Typical	Comments
Interaction material:	-	-	-	-	Amfir
Wavelength:	nm	1530	1565	1550	Other wavelengths available on request
Average optical power handling:	W	-	1	-	
Peak (pulse) optical power handling:	kW	-	1	-	Dependent on pulse width
Insertion loss:	dB	-	2.5	-	
Polarisation Extinction ratio	dB	18	-	20	
Extinction ratio (1 st order on / off)	dB	50	-	-	
Return Loss (RF ON/OFF)	dB	40	-	-	
Rise-time / fall-time: (10% - 90%)	ns	-	100	70	
Frequency:	MHz	-	-	40	
VSWR:		-	1.5:1	-	
Input impedance:	Ω	-	-	50	
RF power:	W	-	0.4	0.25	
Frequency shift:	MHz	-	-	40	Upshift
Fibre type:	-	-	-	-	Fujikura PM1550 (SM15-PS-U25A)
Fibre length	m	1.5	-	-	900 μ m PVDF sleeving
Fibre termination:	-	-	-	-	Bare



General Tolerance : ± 1mm

Other Gooch & Housego products which may be of interest:

Our extensive range of components for fibre laser applications includes:

- Isolators
- High power multimode combiners
- Combiners with all types of signal feedthrough fibre
- Ultra low ratio tap couplers
- WDMs for combining signals with red pointer lasers

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Gooch & Housego



PM Fibre-Q

Polarisation Maintaining 1550nm Fibre-Coupled Acousto-Optic Modulator

T-M200-0.1C2J-3-F2P

Gooch & Housego specialise in providing optical components for high power fibre laser and amplifier systems. In-house control of critical manufacturing processes, from crystalline material selection and orientation, cutting, polishing and AR coating through to fibre coupling, ensure our components are of the highest optical quality.

The 'Fibre-Q' Acousto-Optic Modulator is designed for use in pulsed fibre laser amplifier systems and as a pulse picker for short pulse, high rep rate fibre lasers.

In addition to the standard product shown, custom configurations are available for specialised applications.

Key Features:

- Low insertion loss
- Compact, low profile package
- Rugged hermetic design
- Stable performance
- Custom configurations available

Applications:

- Fibre laser
- Pulse picker
- Optical sensing

Preliminary Specifications:

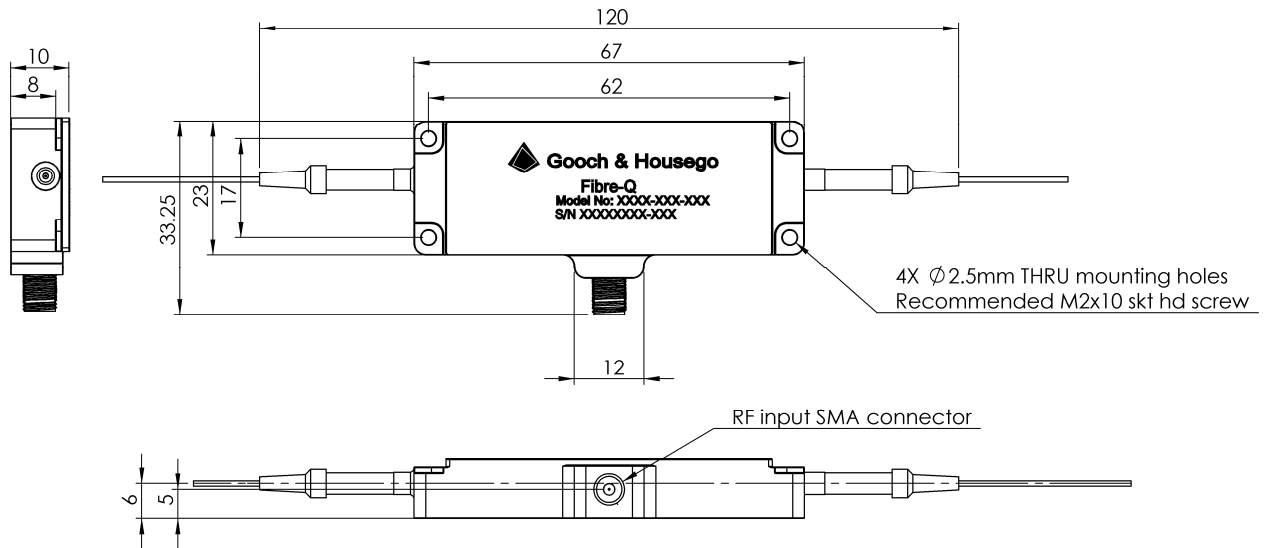
Parameter	Unit	Min	Max	Typical	Comments
Interaction material:	-	-	-	-	Tellurium Dioxide
Wavelength:	nm	1530	1565	1550	Other wavelengths available on request
Average optical power handling:	W	-	1	-	
Optical pulse energy:	µJ	-	100	-	Based on 10ns pulse
Insertion Loss (IL):	dB	-	6.0	5.0	At optimum RF power
Polarisation Extinction Ratio (PER):	dB	15	-	20	
Extinction Ratio (ER):	dB	50	-	-	Optical Power out (RF-ON) wrt Power In
Return Loss (RL):	dB	40	-	-	At optimum RF power
Rise-time / fall-time:	ns	-	10	-	Measured between 10% & 90%
Frequency:	Mhz	-	-	200	
VSWR:	-	-	1.5:1	-	
Input impedance:	Ω	-	-	50	
RF power:	W	-	3	-	
Frequency shift:	MHz	-	-	200	Up-shift (down shift available on request)
Fibre type:	-	-	-	-	Fujikura PM1550 (SM15-PS-U25A)
Fibre length	m	1.5	-	-	900µm black sleeving
Fibre termination:	-	-	-	-	Bare

Contact: Sales@goochandhousego.com

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PEC 0161
Issue 2
G&H Ref: 30167272

As part of our policy of continuous product improvement we reserve the right to change specifications at any time

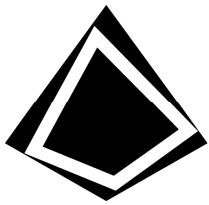


Other Gooch & Housego products which may be of interest:

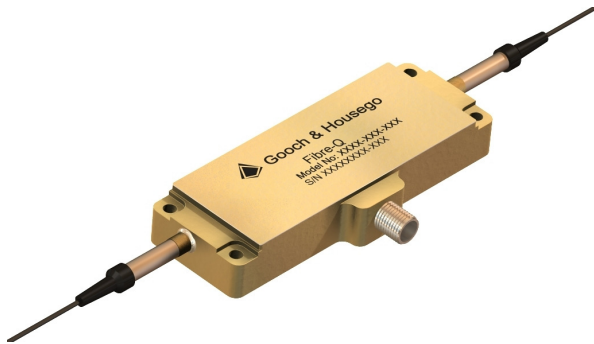
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- Isolators
- High power multimode combiners
- Combiners with all types of signal feedthrough fibre
- Ultra low ratio tap couplers
- WDMs for combining signals with red pointer lasers

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Gooch & Housego



Fibre-Q

2000nm Fibre-Coupled Acousto-Optic Modulator T-M080-0.3C2Z-3-F2S T-M080-0.3C2Z-3-F2P¹

Gooch & Housego specialise in providing optical components for high power fibre laser and amplifier systems. In-house control of critical manufacturing processes, from crystalline material selection and orientation, cutting, polishing and AR coating through to fibre coupling, ensure our components are of the highest optical quality.

The 'Fibre-Q' Acousto-Optic Modulator is designed for use in pulsed fibre laser amplifier systems and as a pulse picker for short pulse, high rep rate fibre lasers.

In addition to the standard product shown, custom configurations are available for specialised applications.

Key Features:

- Low insertion loss
- Compact, low profile package
- Rugged hermetic design
- Stable performance
- Custom configurations available

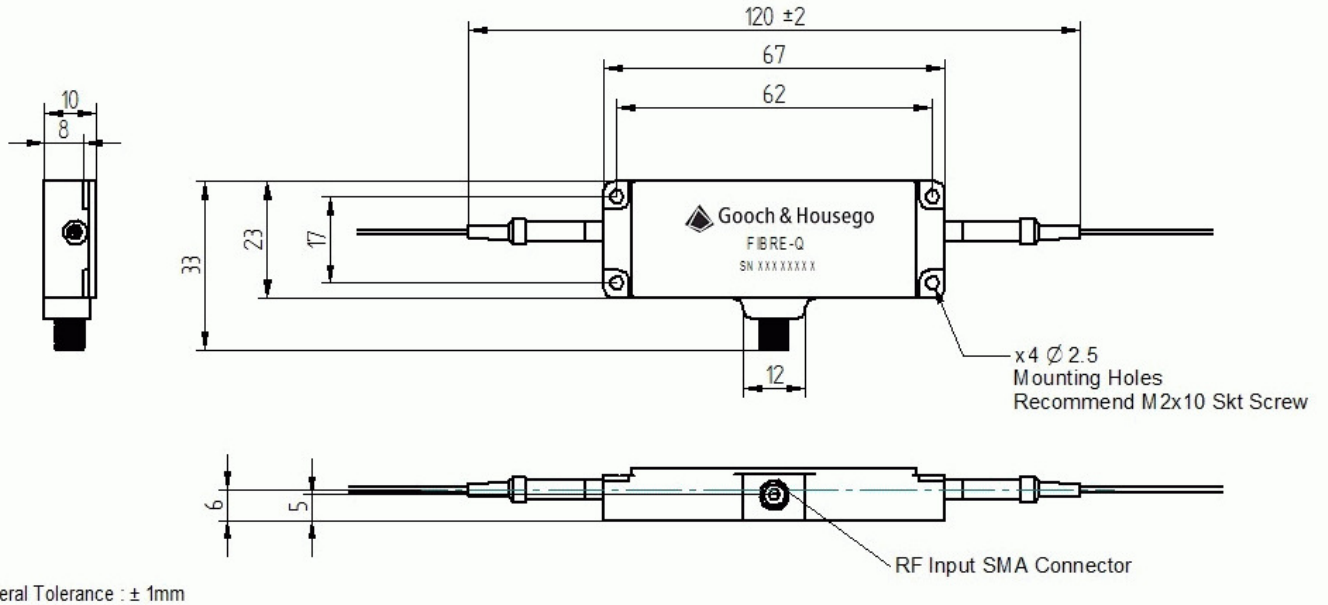
Applications:

- Fibre laser
- Pulse picker
- Optical sensing

General Specifications

Parameter	Unit	Min	Max	Typical	Comments
Interaction material:	-	-	-	-	Tellurium Dioxide
Wavelength:	nm	-	-	2000	
Average optical power handling:	W	-	5	-	
Peak optical power handling:	kW	-	30	-	Dependent on pulse width
Insertion loss:	dB	-	3	-	
Polarisation Dependant Loss	dB	-	1	0.7	
Polarisation Extinction Ratio (PER) ¹	dB	15	-	20	
Extinction ratio (1 st order on / off)	dB	50	-	-	
Return Loss (RF ON)	dB	40	-	-	
Rise-time / fall-time: (10% - 90%)	ns	-	100	70	
Frequency:	MHz	-	-	80	
VSWR:		-	1.5:1	-	
Input impedance:	Ω	-	-	50	
RF power:	W	-	6	-	Duty cycle <10%
Frequency shift:	MHz	-	-	80	Upshift
Fibre type:	-	-	-	-	Nufern SM1950 Nufern PM1950 ¹
Fibre length	m	1.5	-	-	900 μ m PVDF sleeving
Fibre termination:	-	-	-	-	Bare

¹Polarisation maintaining variant



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