



## KEY FEATURES

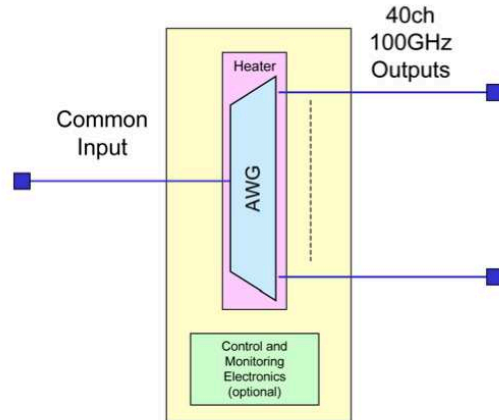
- 40 Channels
- Low Insertion Loss & PDL
- Low Crosstalk
- Gaussian & Wide-Band Options
- High Uniformity
- Internal Thermal Regulation
- Electronics Option
- Compact Footprint
- MSA-Compliant Option Available
- Telcordia GR-1209/GR-1221 Qualified

## 40-Channel 100GHz Thermal AWG

The **KAIAM** thermal AWG (Arrayed Waveguide Grating) is a passive demultiplexing device that spatially separates a stream of optical signals from a single-mode input fiber into different single mode fibers, each corresponding to an individual ITU channel in the specified wavelength band. The device can also be applied in the reverse format for multiplexing applications. Due to the temperature dependence of center wavelength, the AWG die requires a heater element (and control electronics when needed) that keeps the AWG at a certain temperature within 68-80°C to maintain the optical performance from 5°C to 65°C of environmental temperature.



## FUNCTIONAL SCHEMATIC DIAGRAM



## OPTICAL SPECIFICATIONS

PARAMETERS	UNIT	MIN	MAX	CONDITIONS
Number of Channels			40	
Channel Spacing	GHz		100	
Nominal Center Frequencies	THz	192.10	196.00	C-Band On Grid
Clear Pass Band	nm	-0.1	0.1	
Center Wavelength Accuracy	pm	-40	40	Relative to ITU all SOP
Filter Bandwidth @ -1.0dB	nm	0.20 (Gaussian)		Avg. SOP
		0.40 (Wide Band)		Avg. SOP
Filter Bandwidth @ -3.0dB	nm	0.40 (Gaussian)		Avg. SOP
		0.60 (Wide Band)		Avg. SOP
Filter Bandwidth @ -20dB	nm		1.2 (Wide Band)	Avg. SOP
Adjacent Channel Crosstalk	dB		-27	Over CPB, All SOP
Non-Adjacent Channel Crosstalk	dB		-30	Over CPB, All SOP
Total Integrated Crosstalk	dB		-22	Over CPB, All SOP
Insertion Loss <sup>1</sup>	dB		4.25 (Gaussian)	Over CPB, All SOP
			5.5 (Wide Band)	Over CPB, All SOP
Insertion Loss Uniformity	dB		1.0	At ITU, Avg. SOP
Insertion Loss Ripple	dB		1.5 (Gaussian)	Over CPB, All SOP
			0.5 (Wide Band)	Over CPB, All SOP
Polarization Dependent Loss	dB		0.5 (Gaussian)	Over CPB
			0.4 (Wide Band)	Over CPB
Directivity	dB	-40		Over CPB, All SOP
Return Loss	dB	-40		Over CPB, All SOP
Chromatic Dispersion	ps/nm	-20	+20	Over CPB, All SOP

CPB = Clear Pass Band SOP = States of Polarization

1. Including connector loss

**OPERATING & STORAGE CONDITIONS**

PARAMETERS	UNIT	MIN	MAX
Operating Temperature	°C	-5	65
Operating Humidity	% R.H.	0	90
Storage Temperature	°C	-40	85
Storage Humidity	% R.H.	0	90

**ELECTRICAL CHARACTERISTICS**

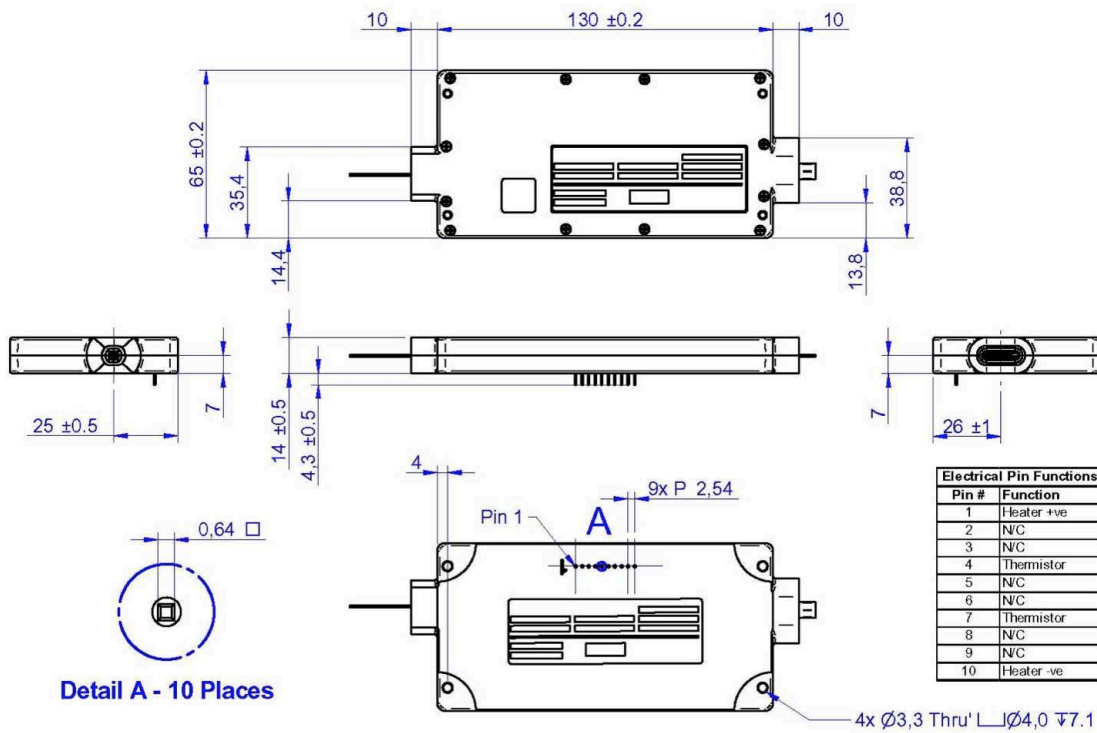
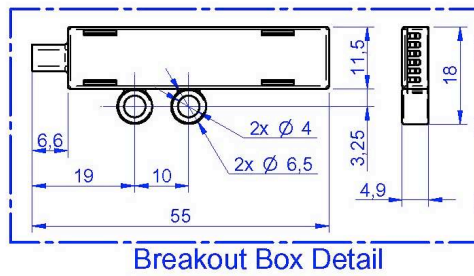
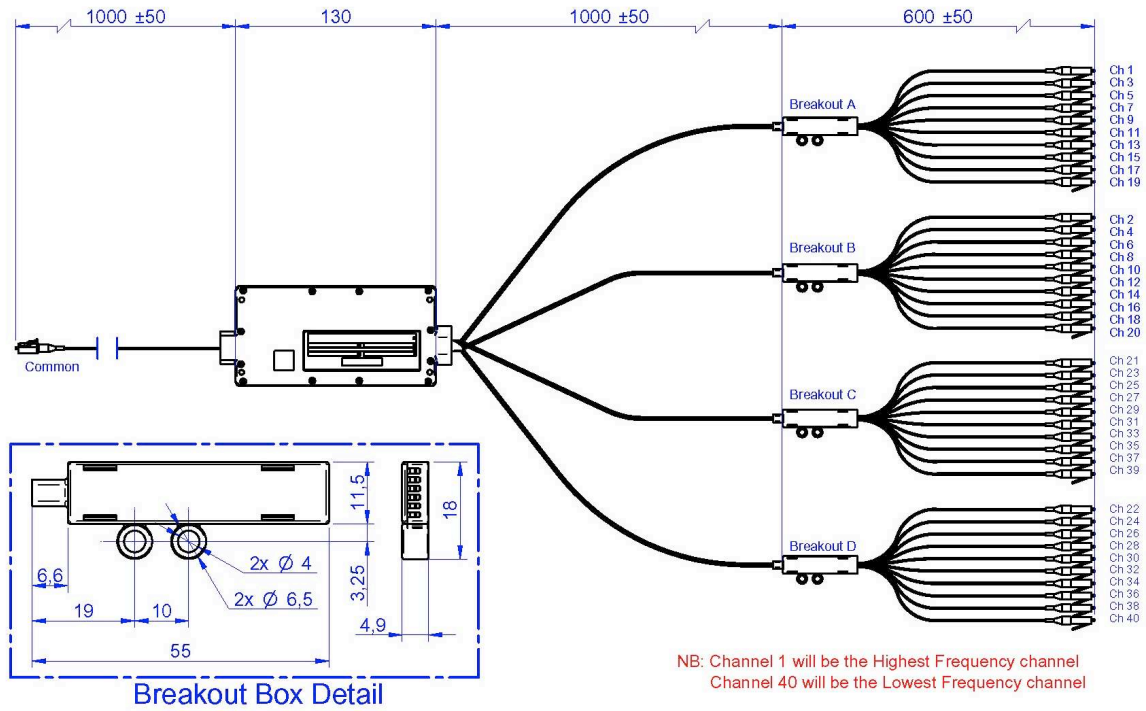
PARAMETERS	UNIT	MIN	MAX	NOTES
Heater Resistance	Ohms			4.75 Typical
Heater Drive Voltage	V		8	
Heater Drive Current	A		1.6	C-Band On Grid
Heater Power	W		12.5	Max heater power required to reach device set point temperature from -5 to ambient (air flow <1.5m/s, warm-up time <10mins)
Thermistor Resistance	kOhms			50 Typical (at 25°C)

**ELECTRICAL INTERFACE**

WITHOUT INTERNAL ELECTRONICS	
PIN #	FUNCTION
1	Heater +ve
2	N/C
3	N/C
4	Thermistor
5	N/C
6	N/C
7	Thermistor
8	N/C
9	N/C
10	Heater -ve

WITH INTERNAL ELECTRONICS	
PIN #	FUNCTION
1	Heater Supply +5V
2	Heater Supply +5V
3	Control Circuit Supply +5V
4	Ready
5	Error / Alarm
6	Reset Enable
7	TX (RS232)
8	GND
9	RX (RS232)
10	GND

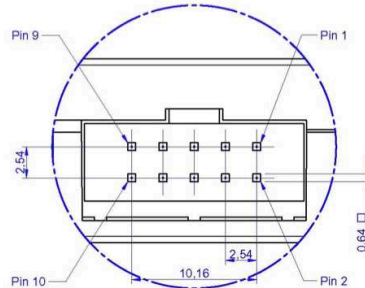
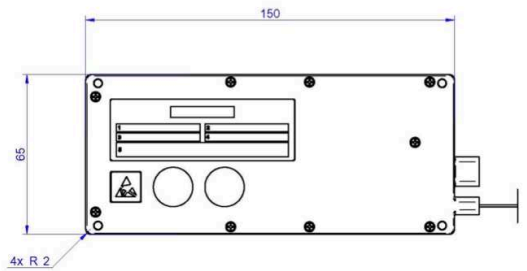
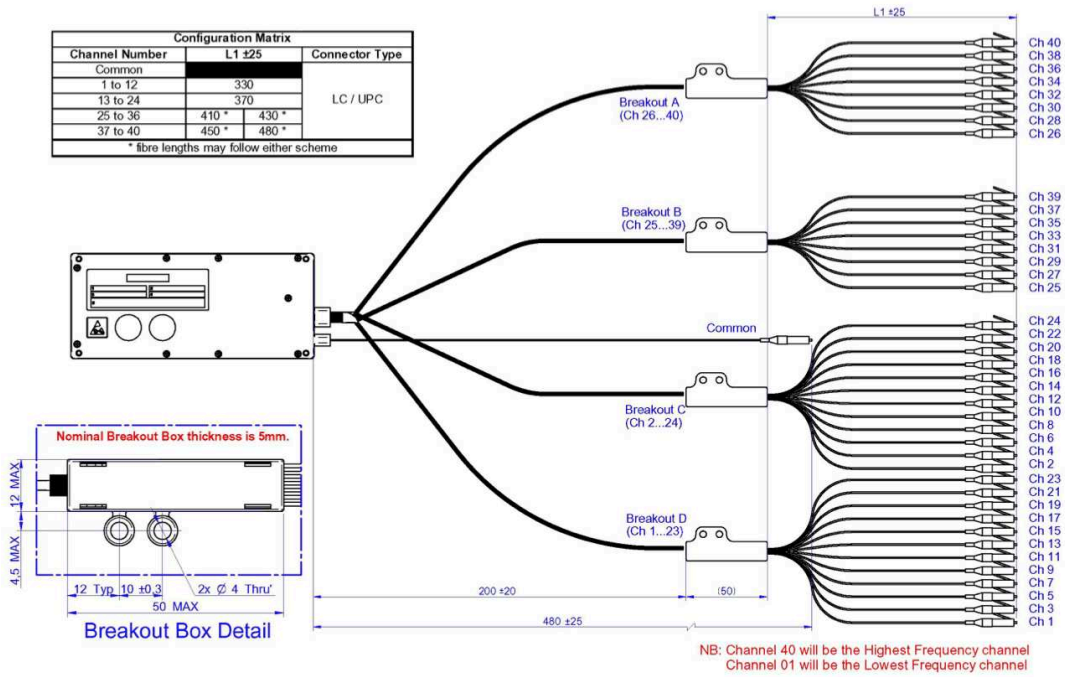
## MECHANICAL DRAWINGS (OPTION WITHOUT ELECTRONICS)



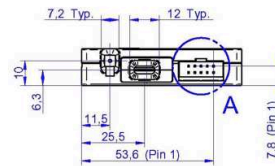
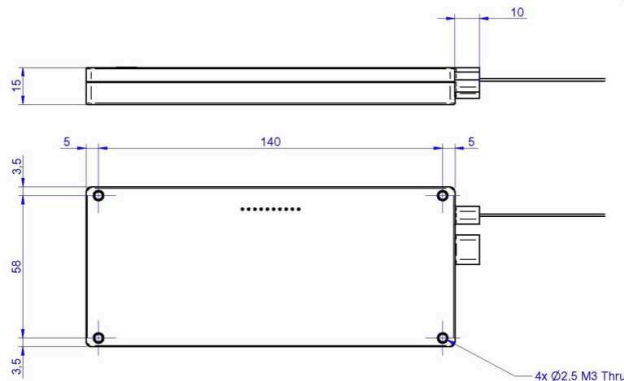
Electrical Pin Functions	
Pin #	Function
1	Heater +ve
2	N/C
3	N/C
4	Thermistor
5	N/C
6	N/C
7	Thermistor
8	N/C
9	N/C
10	Heater -ve

Detail A - 10 Places

## MECHANICAL DRAWINGS (OPTION WITH ELECTRONICS)



DETAIL A - Electrical Connector



ELECTRICAL PIN FUNCTIONS		
Pin #	Name	Function
1	+5V	Heater Supply
2	+5V	Heater Supply
3	+5V	Control Circuit Supply
4	Ready	Output
5	Error / Alarm	Output
6	Reset / Enable	Input
7	TX	RS232 Transmit
8	GND	Ground
9	RX	RS232 Receive
10	GND	Ground

### 40CH 100GHZ THERMAL AWG PART NUMBERS

On Grid Gaussian	DMX-G40-HH2-ST3
On Grid Wide Band	DMX-W40-HH2-CBA
On Grid Gaussian w/ Elect.	DMX-G40-HH1-ST6
On Grid Wide Band w/ Elect.	DMX-W40-HH1-1DD

**Note:** all connectors LC/UPC

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