DC~26.5GHz 3.5mm 11dB Programmable Step Attenuator P/N:YX-PSADC-26.5G-11-1P1

Overview:

The 3.5mm 11dB Programmable Step Attenuator can achieve step attenuation from 0 to 11dB in the wide frequency range of DC to 26.5GHz, with a minimum step size of 1dB.It is mainly used to control the signal stage entering the system, control the system's output signal power, adjust the matching between the signal source and the load, and can also be used to simulate the signal transmission path loss in communication systems.

Features:

- High attenuation accuracy
- Good repeatability
- Low insertion loss
- Long service life

Typical Applications:

- Broadband spectrum analyzers
- Broadband vector network analyzers
- Broadband synthesized signal sources
- Noise figure test instruments
- Microwave automatic test systems
- Wireless communication systems

RoHS

Performance Characteristics				
Frequency Range	DC~26.5GHz			
Attenuation	11dB			
Step Amount	1dB			
Connector Type	3.5mm			
	Electrical Connector Type: Spacing: 2.54mm x 2.54mm; Straight pin cross-section: 0.64mm x 0.64mm; Number of cores: 10; Recommended matching connector: 517.076.003.010 (ODU)			
Insertion Loss	≤3.0dB(at 0dB)			
Attenuation	1dB	2dB	4dB	11dB
Attenuation Accuracy	±1.0dB	±1.0dB	±1.2dB	±3.0dB
VSWR	≤2.0			
Repeatability	≤0.05dB(typical value)			
Maximum Input Power	1W(CW)			
Minimum Service Life	1 million cycles (per stage)			

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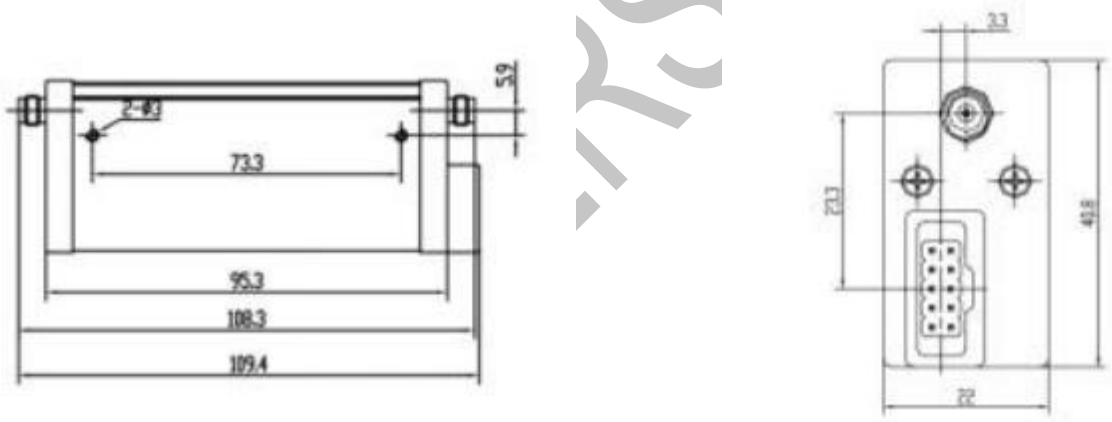
Performance Characteristics	
Operational Temperature	-20ºC~+70ºC
Storage Temperature	-55ºC~+85ºC
Shock（Operating Condition）	10g,6ms,three-axis six-direction
Vibration (Operating Condition)	Acceleration 5g,50~2000Hz
Humidity Resistance	240h@40℃,95%RH

Mechanical Characteristics	
Weight	Maximum 0.35kg
Switching Speed	Maximum 20ms
Relay Drive Voltage	20V~28V
	Rated Voltage:24V
Relay Drive Current	126mA(at ambient temperature,rated voltage,per stage)

Outline drawing（Unit:mm）:



Attenuation Composition:

The programmable attenuator contains four sections, each of which can switch between a straight-through and different attenuation pads to achieve switching between straight-through and attenuation. For example, the first section includes a straight-through pad and a 1dB attenuation pad, the second section includes a straight-through pad and a 4dB attenuation pad, the third section includes a straight-through pad and a 2dB attenuation pad, and the fourth section includes a straight-through pad and a 4dB attenuation pad. The combination of straight-through pads and attenuation pads can achieve attenuation from 0dB to 11dB. The specific combination is as follows:

Attenuation	First Stage	Second Stage	Third Stage	Fourth Stage
0dB	O	O	O	O
1dB	×	O	O	O
2dB	O	O	×	O
3dB	×	O	×	O
4dB	O	×	O	O
5dB	×	×	O	O
6dB	O	×	×	O
7dB	×	×	×	O
8dB	O	×	O	×
9dB	×	×	O	×
10dB	O	×	×	×
11dB	×	×	×	×

Note: O indicates that the transmission signal is transmitted through the straight-through piece,
× indicates that the transmission signal is transmitted through the attenuation piece.

Control Mode:

To drive the relays inside the programmable step attenuator, a DC voltage of 20V to 28Vdc is required, with a driving current of 126mA (at ambient temperature, 24V driving voltage, per stage). The relay has a latching device, and after the relay action, the internal driving circuit automatically cuts off the power supply, resulting in low power consumption. The relay switching time is ≤20ms.

To control the relay to choose between the direct pad or the attenuation pad, a TTL level input is required on the corresponding connector to achieve the function. The driving method is triggered by a falling edge (the falling edge from a high level to a low level is effective, and the low level must last more than 20ms). The specific control relationship is as follows:

Power: Connector pin 10 is the positive pole of the power supply (+20 to +28Vdc), rated voltage +24Vdc, pin3 is the negative pole (ground).

Control: If this pin transitions from a TTL high level to a low level(0V to +1.0Vdc) and the low level lasts more than 20ms, and other pins (except pins 3 and 10) are at a TTL high level (+4.2V to +5Vdc), then each function is realized.

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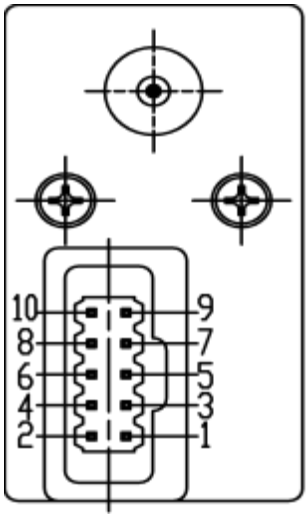

Pin 1	First stage pass-through
Pin 2	First stage 10dB attenuation
Pin 4	Second stage straight through
Pin 5	Third stage pass-through
Pin 6	Fourth stage pass-through
Pin 7	Fourth stage 40dB attenuation
Pin 8	Third stage 20dB attenuation
Pin 9	Second stage 40dB attenuation

For example: To achieve 50dB attenuation, the connector should be powered as follows:

Pin 1	TTL high level
Pin 2	TTL high level to low level and low level duration greater than 20ms
Pin 3	Ground
Pin 4	TTL high level
Pin 5	TTL high level to low level and low level duration greater than 20ms
Pin 6	TTL high level to low level and low level duration greater than 20ms
Pin 7	TTL high level
Pin 8	TTL high level
Pin 9	TTL high converts to low and low duration is greater than 20ms
Pin 10	+24Vdc

Cautions:

1. When powering the programmable step attenuator, pin 3 must be well grounded; otherwise, it may cause permanent damage to the internal components of the programmable step attenuator.

2. When installing the attenuator, to provide better shock resistance, please place the attenuator horizontally (i.e., the installation screws of the attenuator are perpendicular to the horizontal plane).

3. The attenuation pad can only withstand a maximum of 1W (CW) of power, so do not input more than 1W (CW) of power into the attenuator port at this time.

4. The programmable step attenuator port is a precision female connector and can only be connected with matching connectors. When connecting, pay attention to whether the port size meets the national standard requirements to avoid damaging the connector, affecting the device's specifications and service life. In addition, it is best to use a torque wrench when connecting and disconnecting the connectors. When not in use, cover the connectors with dust caps to prevent foreign objects from entering the attenuator and affecting the specifications.

5. The programmable step attenuator is a non-sealed attenuator, please store it in a dry and dust-free environment.