DC~40GHz 2.4mm 11dB Programmable Step Attenuator YX-PSADC-40G-11-1P1

The 2.4mm 11dB programmable step attenuator can achieve 0-11dB step attenuation within the wide frequency range of DC-40GHz, with a minimum step size of 1dB. It has advantages like high attenuation accuracy, good repeatability, low insertion loss, and long service life. It is mainly used to control the signal level amplitude entering the system, the output signal power of the system, and the matching between the signal source and the load. It can also simulate the loss of the signal transmission path in the communication system and is widely applied in various broadband spectrum analyzers, broadband vector network analyzers, broadband synthetic signal sources, noise figure testers, various microwave automatic test systems, and wireless 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

Electrical &Mechanical Specifications	
Frequency Range	DC ~ 40GHz
Attenuation	11dB
Step Amount	1dB
Connector Form	2.4mm
Electrical Connector Form	Pitch: 2.54mm×2.54mm; Straight pin cross section: 0.64mm×0.64mm; Number of cores: 10; Recommended matching connector: 517.076.003.010 (Audu)
VSWR	≤2.0
Insertion loss	≤3.6dB (At 0dB)

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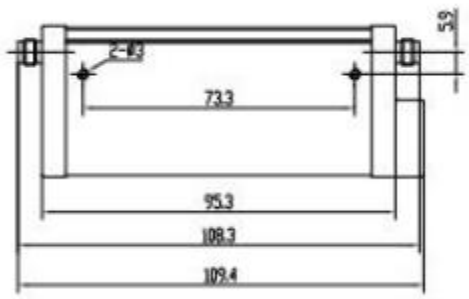
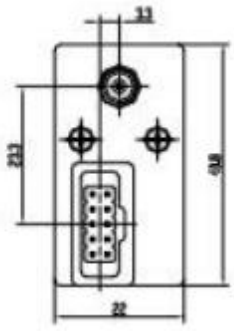
Electrical &Mechanical Specifications				
Attenuation	1dB	2dB	4dB	11dB
Attenuation Accuracy	±1.0dB	±1.2dB	±1.5dB	±3.0dB
Repeatability	≤0.05dB (typical)			
Maximum Input Power	1W (Continuous Wave)			
Minimum Service Life	1 million times (Per Stage)			
Operational Temperature	-20℃~+70℃			
Storage Temperature	-55℃~85℃			
Shock (Working State)	10g, 6ms, Three-Axis Six-Direction			
Vibration (Working State)	Acceleration 5g, 50~2000Hz			
Humidity Resistance	240h@40℃、95%RH			

Environmental Specifications	
Weight	Max. 0.35kg
Switching Speed	Max. 20ms
Relay Drive Voltage	20V ~ 28V, Rated Voltage: 24V
Relay Drive Current	126mA (At Rated Voltage at Normal Temperature, Per Stage)

External Dimensions (Unit: mm)





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Attenuation Composition：

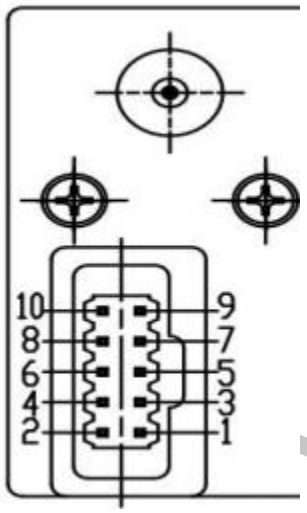
The programmable attenuator consists of four parts. Each part can switch between straight-through and different attenuation plates to achieve the switch between straight-through and attenuation. For instance, the first part has a straight-through plate and a 1dB attenuation plate, the second part has a straight-through plate and a 4dB attenuation plate, the third part has a straight-through plate and a 2dB attenuation plate, and the fourth part has a straight-through plate and a 4dB attenuation plate. The combination of the straight-through plate and the attenuation plate can achieve an attenuation of 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 relay inside the programmable step attenuator, a DC voltage of 20V to 28Vdc is needed, and the driving current is 126mA (at room temperature and 24V driving voltage, per stage). The relay has a latching device. Once the relay is activated, the internal driving circuit automatically cuts off the power supply, and the power consumption is low. The relay switching time is no more than 20ms. To control the relay to select a pass-through or attenuation plate, the corresponding connector needs to receive a TTL level, and the driving mode is a falling edge trigger (the falling edge from high level to low level works, and the low-level duration must be more than 20ms). The specific control relationship is as follows: Power supply: Connector pin 10 is the positive pole of the power supply (+20 to +28Vdc), the rated voltage is +24Vdc, and pin 3 is the negative pole (ground). Control: If the pin changes from TTL high level to low level (0V to +1.0Vdc) and the low-level lasts for more than 20ms, and other pins (except pins 3 and 10) are TTL high level (+4.2V to +5Vdc), their respective functions will be achieved.



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

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

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

Cautions:

1. When powering the programmable step attenuator, the 3rd pin must be well grounded, otherwise it may cause permanent damage to the internal components of the programmable step attenuator.
2. When installing the attenuator, in order to make it have better shock resistance, please place the attenuator horizontally (that is, the mounting screws of the attenuator are perpendicular to the horizontal plane).
3. The attenuator can only withstand a maximum power of 1W (CW), so do not input more than 1W (CW) power into the attenuator port at this time.
4. The port of the programmable step attenuator is a precision female connector, which can only be connected to the matching connector. At the same time, when connecting, pay attention to whether the size of the port to be connected meets the national standard requirements to avoid damaging the connector and affecting the device's indicators and service life. In addition, it is best to use a torque wrench when connecting and disconnecting the connector. Cover the connector with a dust cap when not in use to prevent excess matter from entering the attenuator and affecting the indicators.
5. The programmable step attenuator is a non-sealed attenuator, please store it in a dry and dust-free environment.