

QPE Series

Precision Programmable Attenuator

GENERAL DESCRIPTION

QuinStar Technology proudly engineers precision motorized programmable rotary vane attenuators to meet stringent requirements of the aerospace defense and space industries. Our remarkable dynamic range, provides an unprecedented level of control with a range of 0 to 80 dB in precise 0.02 dB increments. Handcrafted in-house, our versatile attenuators span 9 waveguide bands, covering the critical frequency range from 18 to 170 GHz. Whether you require fine-tuned attenuation control using the front-panel numerical keypad or prefer a range of hands-free remote interfaces, including USB-C, RS485, LAN, and the standard IEEE-488 interface, we've got you covered.

Our compact all-in-one design seamlessly integrates the electronic controller and attenuator components, ensuring a streamlined installation and operation process. QuinStar's unwavering commitment to reliability means we offer customization options with frequency-specific calibration maps. We offer a 1-week turnaround for annual calibration services, ensuring consistent high performance, ideal for mission-critical applications in the aerospace defense and space industries.

QuinStar's attenuators find their place in a wide array of professional industries, including automatic receiver testing, radar systems, satellite communication, microwave links, testing and calibration, space exploration, electronic warfare, research and development, high-frequency medical imaging, and radio astronomy. In all these fields, our precision and dependability are unmatched.



APPLICATIONS

- | | |
|------------------------|---------------|
| Research & Development | EW Systems |
| Testing & Calibration | Radar Systems |
| Aerospace & Defense | SatCom |

FEATURES

- Built-in calibration maps (or user selectable calibration maps)
- Offered over 18 to 170 GHz (K to D-bands)
- High accuracy (up to 80 dB)
- User-friendly numerical keypad input with large digital readout
- Manual/remote operation mode



 **MADE IN U.S.A**

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01.

ELECTRICAL SPECIFICATIONS

| Parameter | K | Ka | Q | U | V | E | W | F | D |
|-------------------------------|---------|---------|--------|--------|--------|-------|--------|--------|---------|
| Frequency Range (GHz) | 18-26.5 | 26.5-40 | 33-50 | 40-60 | 50-75 | 60-90 | 75-110 | 90-140 | 110-170 |
| Attn. Range (dB) | 0-80 | 0-80 | 0-70 * | 0-70 * | 0-70 * | 0-80 | 0-80 | 0-70 * | 0-60 * |
| Step Size (dB) Typical | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| Linearity (dB) Typical | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Ins. Loss @ min Attn. (dB) | 0.5 | 0.5 | 0.6 | 0.7 | 0.8 | 1.2 | 2.0 | 2.5 | 3 |
| VSWR Typical | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.3 | 1.3 |
| Max. Safe Power Handling (mW) | 1000 | 500 | 500 | 400 | 300 | 250 | 250 | 200 | 200 |
| DC Input (VDC) | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |

(*) Signifies All Projected Attenuation Ranges

02.

INTERFACE SPECIFICATIONS

| Parameter | Condition |
|-----------|---|
| LAN | AES encryption ready, programmable IP address |
| RS485 | Programmable baud rate EIA compliant |
| USB-C | High-speed USB 2.0 CDC |



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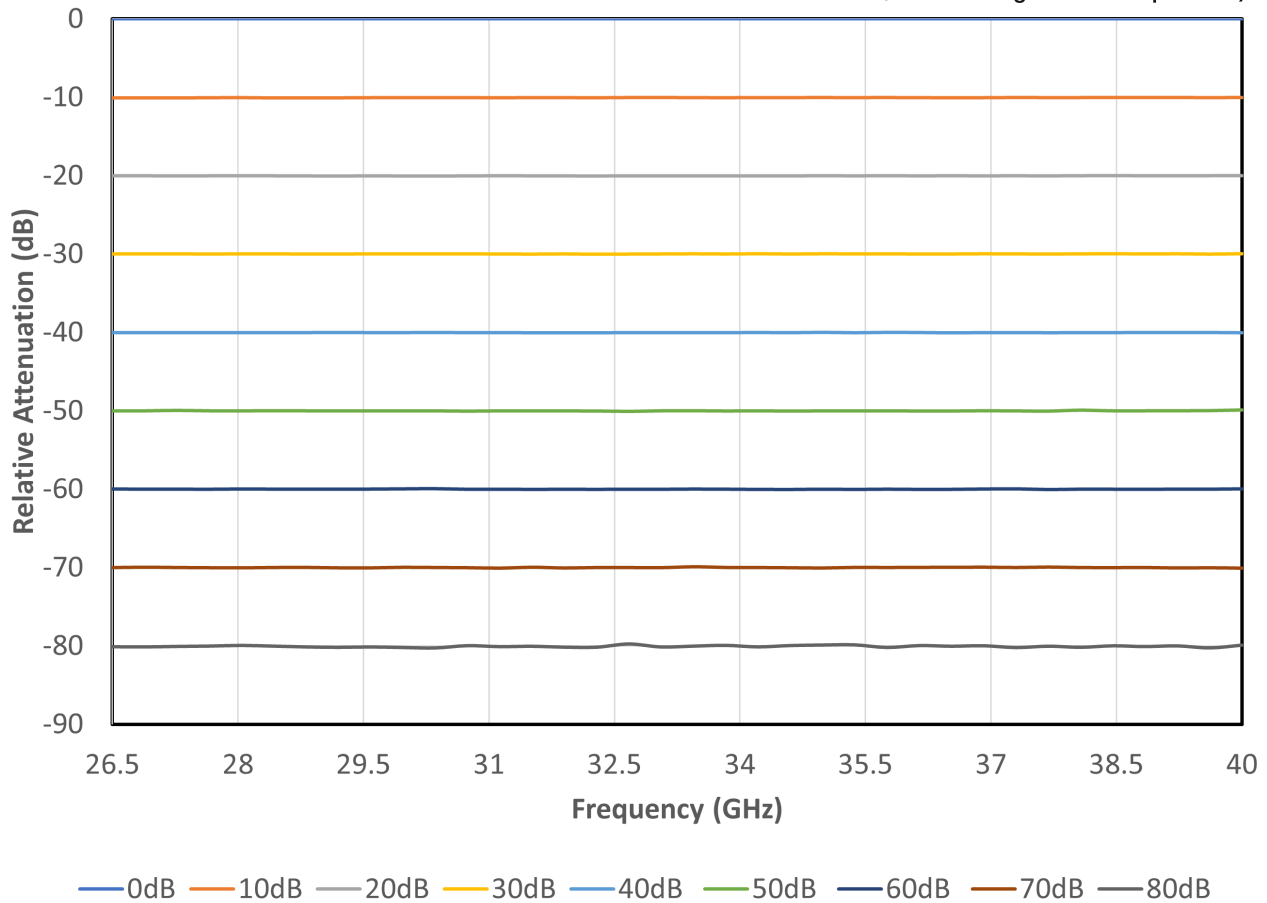
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03. MECHANICAL SPECIFICATIONS

| Parameter | Condition |
|---------------------------------|--------------------------|
| Attenuation Adjustment Type | Numerical Keypad |
| Front Panel Display | Backlit LCD |
| Time to max. Rotation (0-80 dB) | 3 s |
| Weight | 4 lbs |
| Compact Size | 4.25 × 6.80 × 3.60 (in.) |

04. CALIBRATED ATTENUATION

QPE Ka-band Calibrated Attenuations
(Calibrated against 36 frequencies)



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05. ORDERING INFORMATION

Model number →



Waveguide band

- 42 = K-band 12 = E-band
- 28 = Ka-band 10 = W-band
- 22 = Q-band 08 = F-band
- 19 = U-band 06 = D-band
- 15 = V-band

Internal use (0)

Internal use (00)

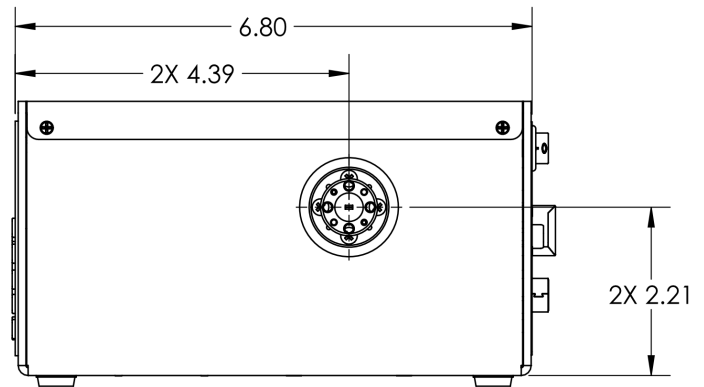
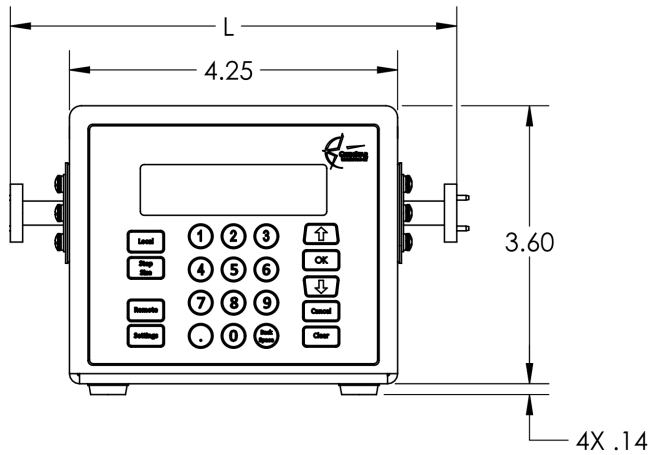
Internal use (00)

Waveguide Flange Option

- 595 = K-band 387 = E-band*
- 599 = Ka-band 387 = W-band*
- 383 = Q-band* 387 = F-band*
- 383 = U-band* 387 = D-band*
- 385 = V-band*

(*) Signifies Anti-Cocking Flanges

06. MECHANICAL OUTLINE



| Band | Waveguide Size | L (Inches) | Waveguide Flange |
|------|----------------|------------|------------------|
| K | WR-42 | 8.48 | UG-595/U |
| Ka | WR-28 | 6.92 | UG-599/U |
| Q | WR-22 | 6.58 | UG-383/U (ACF) |
| U | WR-19 | 6.38 | UG-383/U-M (ACF) |
| V | WR-15 | 5.78 | UG-385/U (ACF) |
| E | WR-12 | 5.78 | UG-387/U (ACF) |
| W | WR-10 | 5.78 | UG-387/U-M (ACF) |
| F | WR-8 | 5.78 | UG-387/U-M (ACF) |
| D | WR-6 | 5.78 | UG-387/U-M (ACF) |

Higher Frequency Models Feature Anti-Cocking Flanges (ACF)



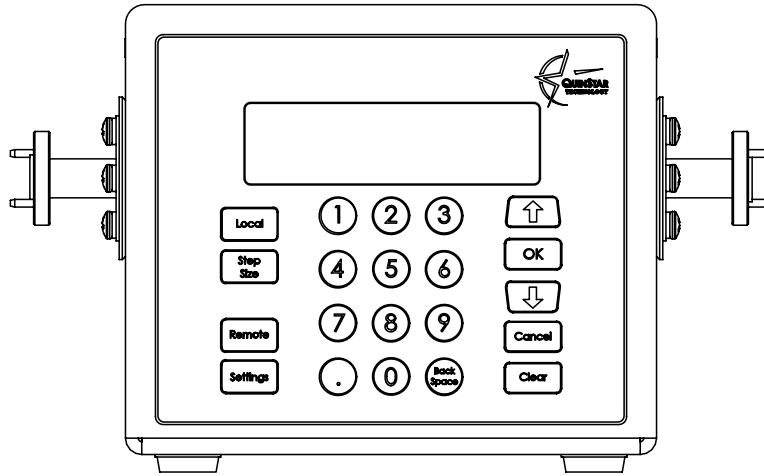
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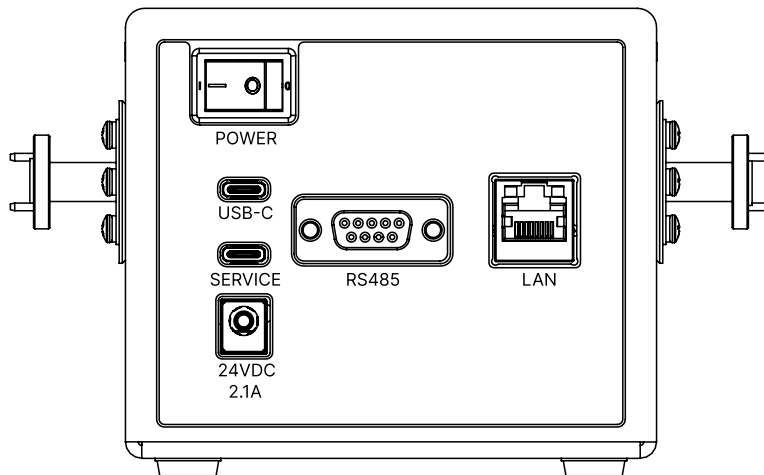
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07. FRONT AND BACK VIEWS

Front Display



Rear Interface



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