# 40 W Ku-band GaN BUC

## **Compact and Lightweight**

Designed and built with VSAT stabilized antenna platforms and other similar satcom-on-the-move customer applications in mind.

# **Highly Efficient**

CPI has incorporated state-of-the-art Gallium Nitride (GaN) HEMT technology into its popular and field-proven Mini-BUC packaging. 30% to 50% more efficient than comparable GaAs-based products.

## Comprehensive M&C Functionality

Accessible anytime, anywhere via Internet or mobile phone. Integrate with SNMP to NMS. Enables effective operational management and minimizes network outage. Allows change of IP address without serial cable. Dual LO, serial and LAN interface.

## **Internal Self-Resetting Protection**

Protects against high temperatures, open/short/overdrive RF output conditions, INT/EXT reference 10 MHz conditions, prime power fluctuations. RF output overdrive protection prevents damage from higher than rated input power.

## **Global Applications**

Meets Electromagnetic Compatibility Directive 2004/108/EC to satisfy worldwide requirements and is CE-marked.

## Worldwide Support

Backed by over 35 years of satellite communications experience, and CPI'sworldwide 24-hour customer support network that includes more than 20 regional factory service centers.



## Model 4940L 40 watt Ku-band GaN BUC for satellite uplink applications

#### **OPTIONS**

- Internal or multiplexed 10 MHz reference
- Multi-band BUC: select from multiple factory-set frequency bands within
- Ku-band1:1 Redundant Switching
- DC option



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## 40 W Ku-band GaN BUC

Specification         Model 4940L           Prequency         14.00 to 14.50 GHz or 1375 to 14.50 GHz           Listed input         960 to 1500 Mino           Object Power (min.) Subtract GHz, CW Libear (Winz)         Note: Plin1 is the RF output power of the specified intermodulation. Plin2 is the RF output power of specified spectral regrowth. 40 wasts (44 dem)           Intermodulation         -25 dtc max. with respect to each of two equal carries 5 MHz apart           VSWN         Intermodulation           Specified Regrowth         -32 dtc max. with respect to each of two equal carries 5 MHz apart           VSWN         Intermodulation           Gain 2 dd Attenuation         77 dd s2.04 dbs.04 dbs.13.31           Specified Regrowth         -32 dtc max. with respect to each of two equal carries 5 MHz apart           Over amy STC range, (reg. set Over temp, frequency set 21.05 dtm max.         13250 MHz (with textended band option user may select 13060 or 12800 MHz)           Gain 2 dd Attenuation         77 dd s2.0 dd max.         10.0 MHz           Reference (Internal or external)         10.0 MHz         10.0 MHz           Reference (Ternal or external)         <			
L-Band Input         950 to 1450 MHz or 950 to 1200 MHz           Output Power (min.) Saturated (Past, CW) Linear (Pin.)         Note: PinI is the RF output power at the specified intermodulation. Pin2 is the RF output power at specified spectral regrowth. 40 watt (48 dBm) 20 watts (48 dBm) 20 watts (48 dBm)           Intermodulation         -25 dBc max. with respect to each of two equal carriers 5 MHz apart           VSWR         Input: 14 dB metrum loss. 1.5:1           Spectral Regrowth         -30 dBc @ 1.0x symbol rate, 1024 kbps, QPSX 7/8 VII           Local Oxellistor Frequency         13050 MHz (with setmedia band option user may select 13050 or 12800 MHz)           Gain at 0 dB Atmenation         77 dB z.20 uB           Gain at 0 dB Atmenation         77 dB z.20 uB           Gain Flatness         ±1.5 dB max. ±2.0 dB max. ower 40 MHz           Gain Flatness         ±1.5.0 dB max. ower 40 Band; ±0.75 dB max. ower 40 MHz           Reference Freq. Level (seternal)         10 MHz           Reference Freq. Level (seternal)         -40 to 140 ms, ±2 a dB           Attigeted on they, ±2 a dB curve         -40 to 140 ms, ±2 a dB curve           Attigeted on they, ±2 a dB curve         ±1.5 dB max.           Attigeted on they the taxes of the tax 100 Hz, -55 dB cHz at 100 Hz         Taxes taxe	Specification	Model 4940L	
Output Power (min.) Structed (Pat. (W) Linesr (Pinz)         Note: Pin I is the RF output power at the specified rearmodulation. PinJ is the RF output power at specified spectral regrowth. W and (C4 dBm)           Intermedulation         -25 dBc max. with respect to each of two equal carriers 5 MHz apart           Systematic (Pat. (W) Spectral Report)         -25 dBc max. with respect to each of two equal carriers 5 MHz apart           Systematic (Pat. (W) Spectral Report)         -25 dBc max. with respect to each of two equal carriers 5 MHz apart           Coll of Attenuation         -25 dBc max. with respect to each of two equal carriers 5 MHz apart           Coll of Attenuation         -25 dB cmax. with respect to each of two equal carriers 5 MHz apart           Coll of Attenuation         -20 dB return [00, 12800 MHz]           Gain at 0 dB Attenuation         -20 dB return [00, 12800 MHz]           Gain Stability         -15 dB max.           Over 24 hors         -20 25 dB (Med temperature and constant drive)           Gain Rates         -115 DB max. vert fD Banz, 22 DB max.           Over 24 hors         -20 25 dB (Med temperature and constant drive)           Gain Rates         -15 DB max. vert fD Banz, 22 DB max.           Reference Free, Input (settema)         -10 to 120 Ban, 22 DB max.           Over 24 hors         -20 5 dBc/Hz at 100 Hz.           Finput Level Meter         -40 to 120 dB nax.           Output Power Meter	Frequency	14.00 to 14.50 GHz or 13.75 to 14.50 GHz	
Saturated (Patt, CV) Linear (Pinz)         20 watts (d dBm) 20 watts (d dBm)           Linear (Pinz)         25 watts (d4 dBm)           Intermodulation         25 dBc max. with respect to each of two equal carriers 5 MHz apart           VSWR         Input: 14 dB return loss, 1.5:1, Output: 19 dB return loss, 1.3:1           Spectral Regrowth         -30 dBt @ H Low symbol rate, 1024 kbps, 0PSX 7/8 VH           Lead Oxellator Frequency         13050 MHz (with extended band option user may select 13050 on 12800 MHz)           Gain at 0 dB Attenuation         77 dB ±2.0 dB           Over any 50 C range, freq, set Over a Most         -3.25 dB (hand temperature and constant drive)           Gain states         ±1.50 dB max.           Over a Most         -0.25 dB (hand temperature and constant drive)           Gain falteness         ±1.50 dB max.           Over a Most         ±0.25 dB (hand temperature and constant drive)           Gain falteness         ±1.50 dB max.           Reference Freq. Input (externa)         Multiplexed on M-type transmit // input           Reference Freq. Level Meter         -0.10 dBm, ±2.0 dB           Oxiput Phase Noise         -65 dBc/Hz at 100 Hz, 75 BG/Hz at 10 Hz, 85 dBc/Hz at 100 Hz           Alf/MC Conversion         -0.20 // dB max. at 2.0 dB nox.           Oxiput Power Meter         -0.10 dBm zz.0 dB           Alf/M Conversion	L-Band Input	950 to 1450 MHz or 950 to 1700 MHz	
VSWR         Input: 14 dB return loss, 1.5:1: Output: 19 dB return loss, 1.3:1           Spectral Regrowth         <30 dBc g 1.0s symbol rate, 1024 kbps, QPS / 78 Vit	Saturated (Psat, CW) Linear (Plin1)	40 watts (46 dBm) 20 watts (43 dBm)	
Spectral Regrowth         <30 dBc @ 1.0x symbol rate. 1024 kbps, QPSK 7/8 Vit	Intermodulation	-25 dBc max. with respect to each of two equal carriers 5 MHz apart	
Local Oscillator Frequency         13050 MHz (with extended band option user may select 13050 or 12800 MHz)           Gain at 08 Attenuation         77 db 32.0 db           Gain Stability         ±1.5 db max.           Over temp, frequency set Over 24 hours         ±1.5 db max.           Over 24 hours         ±0.25 dB (fixed temperature and constant drive)           Gain Flatness         ±1.5 db max. over / All Band; 10.75 db max. over 40 MHz           Reference (internal or external)         10 MHz           Reference Freq. Level (external)         1.01 or 5 dbm.           Freq. Level (external)         1.01 or 5 dbm.           Ref. Freq. Level (external)         1.01 or 5 dbm.           Output Phase Noise         -65 dBc/Hz at 100 Hz. 75 dBc/Hz at 10 kHz, 95 dBc/Hz at 100 kHz           Output Phase Noise         -65 dBc/Hz at 100 HZ. 75 dBc/Hz at 10 kHz, 95 dBc/Hz at 100 kHz           Output Power Meter Absolute Accuracy (Relative Accuracy)         1.1 dB stops           Output Power Meter Mades         C/V and Bux at 2 dB output backoff           Output Power Meter Mades         C/V and Bux at 2 dB output backoff           Output Power Meter Mades         C/V and Bux at 10 in stops kmg/max and set dB output power           Group Delay         0.03 ns/MHz linear max, 0.001 ns/MHz? parabolic max, 1.0 ns pks fright max.           Prime Power         2.05 dB max. when compensation frequency compen	VSWR	Input: 14 dB return loss, 1.5:1; Output: 19 dB return loss, 1.3:1	
Gain st 0 dB Attenuation         77 dB ±2.0 dB           Gain Stability         1.5 dB max.           Over temp, frequency set         ±2.0 dB max.           Over 2 hours 2 hours         ±2.0 dB max.           Over 2 hours 2 hours         ±2.0 dB max.           Gain Stability         ±2.5 dB max.           Over 2 hours         ±2.5 dB max.           Over 2 hours         ±2.5 dB max.           Gain Stability         ±2.5 dB max.           Gain Flatness         ±1.5 dB max.           Greence Freq. Input (external)         100 Hz           Reference Freq. Level (external)         -101 of 5 dB max.           Output Plass Noise         -65 dBc/Hz at 100 HZ.75 dB lev/Lt at 10 kHz.           Tarsmit Attenuator         0 to 20 in 1 dB steps           AM/PM Conversion         2.07/dB max. at 2 dB output backoff           Output Power Meter Absolute Accuracy         ±1 dB max. when compensation frequency compensation set           Gain blaive Accuracy         ±0.5 dB max. when compensation frequency comperation set           <	Spectral Regrowth	<-30 dBc @ 1.0x symbol rate, 1024 kbps, QPSK 7/8 Vit	
Gain Stability Over any 50°C range, frequency set Over 24 bours         ±1.5 dB max. ±2.0 dB (fixed temperature and constant drive)           Gain Flatness         ±1.5 dB max. over full bank; 0.075 dB max. over 40 MHz           Reference (internal or external)         10 MHz           Reference (internal or external)         10 MHz           Reference freq. Input (external)         Multiplexed on N-type transmit IF input           Reference freq. Level (external)         Multiplexed on N-type transmit IF input           Reference freq. Level (external)         Multiplexed on N-type transmit IF input           Reference freq. Level (external)         -01 t0 4.5 dBm           Ref. Freq. Level (Meter         -40 to -10 dBm, ±2.0 dB           Output Phase Noise         -65 dBc/Hz at 100 Hz, -75 dBc/Hz at 1 0k Hz, 95 dBc/Hz at 100 kHz           Output Power Meter Range         15 dB           AM/PM Conversion         2.0 /dB max. when compensation frequency compensation set ellative Accuracy           Spurious/Harmonic Output         -55 dB max. when compensation frequency compensation set           Group Delay         0.03 ns/MHz linear max, 0.001 ns/MHz <sup>2</sup> parabolic max, 1.0 ns pkpk ripple max. in any 36 MHz band           Prime Power         95 to 255 VAC (36 to 60 VDC optional)           Power Consumption         2.00 ms/MHz <sup>2</sup> parabolic max, 1.0 ns pkpk ripple max.           Ambient Temperature         -40°C to +60°C operating	Local Oscillator Frequency	13050 MHz (with extended band option user may select 13050 or 12800 MHz)	
Over any, SDC range, freq, set Over 24 hours         11.5 dB max.           Over 24 hours         14.025 dB (fixed temperature and constant drive)           Gain Flatness         14.15.0 dB max. over full band; 40.75 dB max. over 40 MHz           Reference (internal or external)         10 MHz           Reference Freq. Input (external)         10 MHz           Reference Freq. Level (external)         -10 to -5 dBm           In Input Level (external)         -40 to -0 dBm, ±2.0 dB           Output Phase Noise         -65 dBc/Hz at 100 Hz, -55 dBc/Hz at 10 kHz, -95 dBc/Hz at 100 kHz           Output Phase Noise         -65 dBc/Hz at 100 Hz, -75 dBc/Hz at 10 kHz, -95 dBc/Hz at 100 kHz           Output Phase Noise         -65 dBc/Hz at 100 Hz, -75 dBc/Hz at 10 kHz, -95 dBc/Hz at 100 kHz           Output Power Meter Range         0 to 20 in 1 dB steps           Output Power Meter Range         -10 to -5 dBm max. when compensation frequency compensation set           Output Power Meter Mades         CWand burst with adjustable threshold           Sparloux Accuracy Relative Accuracy Relative Accuracy         -10 5 dB max. when compensation frequency compensation set           Sparloux Harmonic Output         -55 dBc max. at linear output power           Roop Delay         0.03 ns/MHz Parabolic max. 1.0 ns pk-pk ripple max. in any 36 MHz band           Prime Power         95 to 265 VAC (36 to 60 VDC optional)	Gain at 0 dB Attenuation	77 dB ±2.0 dB	
Reference (internal or external)         10 MHz           Reference Freq. Input (external)         Multiplexed on N-type transmit IF input           Reference Freq. Level (external)         -10 to -5 dBm           Ref. Freq. Level (external)         -10 to -5 dBm           Ref. Freq. Level (external)         -20 to -5 dBm           Output Phase Noise         -65 dBc/Hz at 100 Hz, -75 dBc/Hz at 10 kHz, -95 dBc/Hz at 100 kHz           Transmit Attenuator         0 to 20 in 1 dB steps           AM/PM Conversion         2.07/dB max. at 2 dB output backoff           Output Power Meter         Absolute Accuracy           Absolute Accuracy         ±1 dB max. when compensation frequency compensation set           Relative Accuracy         ±1 dB max. when compensation frequency compensation set           Spurious/Harmonic Output         -55 dBc max. at linear output power           Group Delay         0.03 ns/MHz linear max, 0.01 ns/MHz parabolic max, 10 ns ley, kr ripple max. in any 36 MHz band           Prime Power         95 to 265 VAC (36 to 60 VDC optional)           Power Consumption         220 max at linear output power           Relative Accuracy         100% condensing           Weatherproofing         1P67 rating that provides protection from water od tast storms; Sealed to 34 kPa           Altitude (operating)         Up to 50000 m (16,400 ft)           Shock and Vibr	Over any 50°C range, freq. set Over temp, frequency set	±2.0 dB max.	
Reference Freq. Input (external)         Multiplexed on N-type transmit IF input           Ref. Freq. Level (external)         -10 to +5 dBm           Ref. Freq. Level (external)         -10 to +5 dBm           IF Input Level Meter         -40 to -10 dBm, ±2.0 dB           Output Phase Noise         -65 dBc/Hz at 10Hz, -75 dBc/Hz at 10 Hz, -95 dBc/Hz at 100 kHz           Transmit Attenuator         0 to 20 in 1 dB steps           AM/PM Conversion         2.0°/dB max. at 2 dB output backoff           Output Power Meter Absolute Accuracy Relative Accuracy         ±1 dB max. when compensation frequency compensation set extension frequency compensation set           Output Power Meter Absolute Accuracy Relative Accuracy         ±1 dB max. when compensation frequency compensation set           Spurious/Harmonic Output         -55 dBc max. when compensation frequency compensation set           Output Power Meter Absolute Accuracy Relative Accuracy         ±0.03 ns/MHz linear max, 0.001 ns/MHz <sup>2</sup> parabolic max, 1.0 ns pk-pk ripple max. in any 36 MHz band           Prime Power         95 to 265 VAC (36 to 60 VDC optional)           Power Consumption         280 watts typ. at Plin, 400 watts max.           Ambient Temperature         -40°C to +60°C operating, -40°C to +70°C non-operating           Relative Humidity         100% condensing           Weatherproofing         IP67 rating that provides protection from water or dust storms; scaled to 34 kPa <tr< td=""><td>Gain Flatness</td><td><math>\pm 1.50</math> dB max. over full band; <math>\pm 0.75</math> dB max. over 40 MHz</td></tr<>	Gain Flatness	$\pm 1.50$ dB max. over full band; $\pm 0.75$ dB max. over 40 MHz	
Reference Freq. Level (external)       -10 to 45 dBm         Ref. Freq. Level (external)       -10 to 45 dBm         Ref. Freq. Level Meter       -40 to -10 dBm, 22.0 dB         Output Phase Noise       -65 dBc/Hz at 100 Hz, -75 dBc/Hz at 1 kHz, -85 dBc/Hz at 100 kHz         Output Phase Noise       -65 dBc/Hz at 100 Hz, -75 dBc/Hz at 1 kHz, -85 dBc/Hz at 100 kHz         Av/PM Conversion       2.0°/dB max, at 2 dB output backoff         Output Power Meter       Absolute Accuracy         Absolute Accuracy       11 dB max, when compensation frequency compensation set         Relative Accuracy       11 dB max, when compensation frequency compensation set         Spurious/Harmonic Output       -55 dBc max, at linear output power         Group Delay       0.03 ns/MHz linear max, 0.001 ns/MHz <sup>2</sup> panabolic max, 1.0 ns pk-pk ripple max, in any 36 MHz band         Prime Power       95 to 265 VAC (36 to 60 VDC optional)         Power Consumption       280 watts typ. at Plin, 400 watts max.         Ambient Temperature       -40°C to +60°C operating, -40°C to +70°C non-operating         Relative Humidity       100% condensing         Weatherproofing       IP67 rating that provides protection from water or dust storms; Sealed to 34 kPa         Altitude (operating)       Up to 5000 m (16,400 ft)         Shock and Vibration       20 g peak, 11 msec, 1/2 sine; 2.1 gimus 5 to 500 Hz <tr< td=""><td>Reference (internal or external)</td><td>10 MHz</td></tr<>	Reference (internal or external)	10 MHz	
Ref. Freq. Level Meter     Yes, via M&C       IF Input Level Meter     -40 to -10 dBm, ±2.0 dB       Output Phase Noise     -65 dBc/Hz at 100 Hz, -75 dBc/Hz at 10 kHz, -95 dBc/Hz at 100 kHz       Transmit Attenuator     0 to 20 in 1 dB steps       AM/PM Conversion     2.0'/dB max. at 2 dB output backoff       Output Power Meter Range     15 dB       Output Power Meter Range     15 dB       Output Power Meter Accuracy Relative Accuracy     ±1.0 dB max. when compensation frequency compensation set       Spurious/Harmonic Output     -55 dB cmax. at linear output power       Group Delay     0.03 ns/MHz linear max, 0.001 ns/MHz <sup>2</sup> parabolic max, 1.0 ns pk-pk ripple max. in any 36 MHz band       Prime Power     95 to 265 VAC (36 to 60 VDC optional)       Power Consumption     280 watts typ. at Plin, 400 watts max.       Ambient Temperature     -40°C to +60°C operating.       Weatherproofing     IP67 rating that provides protection from water or dust storms; Sealed to 34 kPa       Altitude (operating)     Up to 5000 m (16,400 ft)       Shoat and Vibration     20g peak, 11 msc, 1/2 sim; 2.1 gms, 5 to 500 Hz       RF Output Connection     FKs, 82-32, R5485/422, LAN       M&C Connection     FKs, 82-32, R5485/422, LAN       M&C Connection     FK, 82-32, R5485/422, LAN       Machine Temperature     FK, Ks-232, R5485/422, LAN       M&C Interface     FK, Ks-232, R5485/422, LAN	Reference Freq. Input (external)	Multiplexed on N-type transmit IF input	
IF Input Level Meter       -40 to -10 dBm, ±2.0 dB         Output Phase Noise       -65 dBc/Hz at 100 Hz, -75 dBc/Hz at 10 kHz, -85 dBc/Hz at 100 kHz         Transmit Attenuator       0 to 20 in 1 dB steps         AM/PM Conversion       2.0°/dB max. at 2 dB output backoff         Output Power Meter       15 dB         Absolute Accuracy Relative Accuracy       11 dB max, when compensation frequency compensation set         Absolute Accuracy Relative Accuracy       1.0 dB max, when compensation frequency compensation set         Goup Delay       0.03 ns/MHz linear max, 0.001 ns/MHz² parabolic max, 1.0 ns pk-pk ripple max. in any 36 MHz band         Prime Power       95 to 255 VAC (36 to 60 VDC optional)         Power Consumption       280 watts typ. at Plin, 400 watts max.         Ambient Temperature       -40°C to +60°C operating, -40°C to +70°C non-operating         Relative Humidity       100% condensing         Weatherproofing       IP67 rating that provides protection from water or dust storms; Sealed to 34 kPa         Altitude (operating)       Up to 5000 m (16,400 ft)         Shoat and Vibration       20 g peak, 11 msc, 1/2 sine; 2.1 gmm, 5 to 500 Hz         RF Output Connection       Type N female         Mk2 Interface       F5K, 5:322, R5485/422, LAN         M&C Connectorion       Type N female         M&C Connectorion       Chrea F12, Sis W at S1	Reference Freq. Level (external)	-10 to +5 dBm	
Output Phase Noise         -65 dBc/Hz at 100 Hz, -75 dBc/Hz at 1 kHz, -85 dBc/Hz at 10 kHz, -95 dBc/Hz at 10 kHz           Transmit Attenuator         0 to 20 in 1 dB steps           AM/PM Conversion         2.0°/dB max. at 2 dB output backoff           Output Power Meter Absolute Accuracy Relative Accuracy         11 dB max. when compensation frequency compensation set exclusion of the adjustable threshold           Spurious/Harmonic Output         0.03 ns/MHz linear max, 0.001 ns/MHz <sup>2</sup> parabolic max, 10 ns pk-pk ripple max. In any 36 MHz band Prime Power           Prime Power         95 to 265 VAC (36 to 60 VOC optional)           Power Consumption         280 watts typ. at Plin, 400 watts max.           Ambient Temperature         -40°C to +60°C operating, -40°C to +70°C non-operating           Relative Humidity         100% condensing           Weatherproofing         IP67 rating that provides protection from water or dust storms; Sealed to 34 kPa           Altitude (operating)         Up to 5000 nt (6,400 ft)           Shock and Vibration         20 g peak, 11 msc, 1/2 sine; 12 gmas, 5 to 500 Hz           RF Output Connection         WR-75 PBR120 flange with 4.2 mm through-holes           L-band Input Connection         VP NP VF-04PMMS-SC7001; AC Mating Connector: 978 3106F 16-115-622           Dimensions, L x W x H         220 L x 151 W x 134 H mm (8,7° L x 5,9° W x 5,3° H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	Ref. Freq. Level Meter	Yes, via M&C	
Transmit Attenuator0 to 20 in 1 dB stepsAM/PM Conversion2.0°/dB max. at 2 dB output backoffOutput Power Meter Range15 dBOutput Power Meter Absolute Accuracy Relative Accuracy±1 dB max. when compensation frequency compensation set t ±0.5 dB max. when compensation frequency compensation setOutput Power Meter ModesCW and burst with adjustable thresholdSpurious/Harmonic Output-55 dB c max. at linear output powerGroup Delay0.03 ns/MHz linear max, 0.001 ns/MHz² parabolic max, 1.0 ns pk-pk ripple max. in any 36 MHz bandPrime Power95 to 265 VAC (36 to 60 VDC optional)Power Consumption280 watts typ. at Plin, 400 watts max.Ambient Temperature-40°C to +60°C operating, -40°C to +70°C non-operatingRelative AccuracyIP67 rating that provides protection from water or dust storms; Sealed to 34 kPaAltitude (operating)Up to 5000 m (16,400 ft)Shock and Vibration20 g peak, 11 msec, 1/2 sine; 2.1 grms, 5 to 500 HzRF Output ConnectionWR-75 PBR120 flange with 4.2 mm through-holesL-band Input ConnectionType N femaleM&C ProtocolsASCII, NDSatrom VI, SABus, Codan packet, Telnet, SNMP vI, WEB GUIPrime Power ConnectionsACConnector: ITW PWF-04PMMS-SC7001; AC Mating Connectors, siolafor 16-15-622Dimensions, L x W x H220 L x 151 W x 134 H mm (8.7° L x 5.9° W x 5.3° H), not including connectors, siolator of top screws - contact CPI for outline drawing if needed	IF Input Level Meter	-40 to -10 dBm, ±2.0 dB	
AM/PM Conversion         2.0°/dB max. at 2 dB output backoff           Output Power Meter Absolute Accuracy Relative Accuracy         ±1 dB max. when compensation frequency compensation set elative Accuracy           Output Power Meter Absolute Accuracy Relative Accuracy         ±1.0 B max. when compensation frequency compensation set elative Accuracy           Output Power Meter Modes         CW and burst with adjustable threshold           Spurious/Harmonic Output         -55 dB c max. at linear output power           Group Delay         0.03 ns/MHz linear max, 0.001 ns/MHz² parabolic max, 1.0 ns pk-pk ripple max. in any 36 MHz band           Prime Power         95 to 265 VAC (36 to 60 VDC optional)           Power Consumption         280 watts typ. at Plin, 400 watts max.           Ambient Temperature         -40°C to +60°C operating40°C to +70°C non-operating           Relative Hunidity         100% condensing           Veatherproofing         IP67 rating that provides protection from water or dust storms; Sealed to 34 kPa           Altitude (operating)         Up to 5000 m (16,400 ft)           Shock and Vibration         20g peak, 11 msec, 1/2 sine; 2.1 grms, 5 to 500 Hz           RF Output Connection         WR-75 PBR120 flange with 4.2 mm through-holes           L-band Input Connection         WR-75 PBR120 flange with 4.2 mm through-holes           M&C Protocols         ASCII, NDSatcom VI, SABus, Codan packet, Telnet, SNMP VI, WEB GUI	Output Phase Noise	-65 dBc/Hz at 100 Hz, -75 dBc/Hz at 1 kHz, -85 dBc/Hz at 10 kHz, -95 dBc/Hz at 100 kHz	
Output Power Meter Absolute Accuracy Relative Accuracy         ±1 dB max. when compensation frequency compensation set           Output Power Meter Absolute Accuracy Relative Accuracy         ±1.0 B max. when compensation frequency compensation set           Output Power Meter Modes         CW and burst with adjustable threshold           Spurious/Harmonic Output         -55 dBc max. at linear output power           Group Delay         0.03 ns/MHz linear max, 0.001 ns/MHz <sup>2</sup> parabolic max, 1.0 ns pk-pk ripple max. in any 36 MHz band           Prime Power         95 to 265 VAC (36 to 60 VDC optional)           Power Consumption         280 watts typ. at Plin, 400 watts max.           Ambient Temperature         -40°C to +60°C operating, -40°C to +70°C non-operating           Relative Humidity         100% condensing           Weatherproofing         IP67 rating that provides protection from water or dust storms; Sealed to 34 kPa           Altitude (operating)         Up to 5000 m (16,400 ft)           Shock and Vibration         20 g peak, 11 msec, 1/2 sine; 2.1 grms, 5 to 500 Hz           RF Output Connection         WR-75 PBR120 flange with 4.2 mm through-holes           L-band Input Connection         Fsk, RS-232, RS485/422, LAN           M&C Protocols         ASCII, NDSatcom v1, SABus, Codan packet, Telet, SNMP v1, WEB GUI           Prime Power Connections         AC connector: UTW PWF-04PMMS-5C7001; AC Mating Connector: 2078 31067 16: 115-622	Transmit Attenuator	0 to 20 in 1 dB steps	
Output Power Meter Absolute Accuracy Relative Accuracy         ±1 dB max. when compensation frequency compensation set           Output Power Meter Modes         CW and burst with adjustable threshold           Spurious/Harmonic Output         -55 dBc max. at linear output power           Group Delay         0.03 ns/MHz linear max, 0.001 ns/MHz <sup>2</sup> parabolic max, 1.0 ns pk-pk ripple max. in any 36 MHz band           Prime Power         95 to 265 VAC (36 to 60 VDC optional)           Power Consumption         280 watts typ. at Plin, 400 watts max.           Ambient Temperature         -40°C to +60°C operating, -40°C to +70°C non-operating           Relative Humidity         100% condensing           Weatherproofing         IP67 rating that provides protection from water or dust storms; Sealed to 34 kPa           Altitude (operating)         Up to 5000 m (16,400 ft)           Shock and Vibration         20g peak, 11 msec, 1/2 sine; 2.1 grms, 5 to 500 Hz           RF Output Connection         WR-75 PBR120 flange with 4.2 mm through-holes           L-band Input Connection         KR, SZ-32, RS485/422, LAN           M&C Protocols         ASCII, NDSatcom v1, SABus, Codan packet, Teinet, SNMP v1, WEB GUI           Prime Power Connectors         QOptional DC Connector: 97B 31067 16-115-622           Dimensions, Lx W x H         220 L x 151 W x 134 H mm (8.7° L x 5.9° W x 5.3° H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed <td>AM/PM Conversion</td> <td>2.0°/dB max. at 2 dB output backoff</td>	AM/PM Conversion	2.0°/dB max. at 2 dB output backoff	
Absolute Accuracy Relative Accuracy±1 dB max. when compensation frequency compensation setOutput Power Meter ModesCW and burst with adjustable thresholdSpurious/Harmonic Output-55 dB cmax. at linear output powerGroup Delay0.03 ns/MHz linear max, 0.001 ns/MHz² parabolic max, 1.0 ns pk-pk ripple max. in any 36 MHz bandPrime Power95 to 265 VAC (36 to 60 VDC optional)Power Consumption280 watts typ. at Plin, 400 watts max.Ambient Temperature-40°C to +60°C operating, -40°C to +70°C non-operatingRelative Humidity100% condensingWeatherproofingIP67 rating that provides protection from water or dust storms; Sealed to 34 kPaAltitude (operating)Up to 5000 m (16,400 ft)Shock and Vibration20 g peak, 11 msec, 1/2 sine; 2.1 gms, 5 to 500 HzRF Output ConnectionWR-75 PBR120 flange with 4.2 mm through-holesL-band Input ConnectionASCII, NDSatcom v1, SA8S/422, LANM&C ProtocolsASCII, NDSatcom v1, SA8S, Codan packet, Telnet, SNMP v1, WEB GUIPrime Power ConnectionsACConnector: CTW PWF-OMPMMS-SC7001; AC Mating Connector: 978 3106F 16-115-622Dimensions, Lx W x H220 L x 151 W x 134 H mm (8.7" L x 5.9" W x 5.3" H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	Output Power Meter Range	15 dB	
Spurious/Harmonic Output-55 dBc max. at linear output powerGroup Delay0.03 ns/MHz linear max, 0.001 ns/MHz² parabolic max, 1.0 ns pk-pk ripple max. in any 36 MHz bandPrime Power95 to 265 VAC (36 to 60 VDC optional)Power Consumption280 watts typ. at Plin, 400 watts max.Ambient Temperature-40°C to +60°C operating, -40°C to +70°C non-operatingRelative Humidity100% condensingWeatherproofingIP67 rating that provides protection from water or dust storms; Sealed to 34 kPaAltitude (operating)Up to 5000 m (16,400 ft)Shock and Vibration20 g peak, 11 msec, 1/2 sine; 2.1 grms, 5 to 500 HzRF Output ConnectionWR-75 PBR120 flange with 4.2 mm through-holesL-band Input ConnectionType N femaleM&C ProtocolsASCII, NDSatcom v1, SABus, Codan packet, Telnet, SNMP v1, WEB GUIPrime Power ConnectionsAC Connector: ITW PWF-04PMMS-SC7001; AC Mating Connector: 97B 3106F 16-115-622Dimensions, Lx W x H220 L x 151 W x 134 H mm (8.7" L x 5.9" W x 5.3" H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	Absolute Accuracy		
Group Delay0.03 ns/MHz linear max, 0.001 ns/MHz² parabolic max, 1.0 ns P+pk ripple max. in any 36 MHz bandPrime Power95 to 265 VAC (36 to 60 VDC optional)Power Consumption280 watts typ. at Plin, 400 watts max.Ambient Temperature-40°C to +60°C operating, -40°C to +70°C non-operatingRelative Humidity100% condensingWeatherproofingIP67 rating that provides protection from water or dust storms; Sealed to 34 kPaAltitude (operating)Up to 5000 m (16,400 ft)Shock and Vibration20 g peak, 11 msec, 1/2 sine; 2.1 grms, 5 to 500 HzRF Output ConnectionWR-75 PBR120 flange with 4.2 mm through-holesL-band Input ConnectionType N femaleM&C ProtocolsASCII, NDSatcom v1, SABus, Codan packet, Telnet, SNMP v1, WEB GUIPrime Power ConnectionsAC Connector: ITW PWF-04PMMS-SC7001; AC Mating Connector: 97B 3106F 16-115-622Dimensions, L x W x H220 L x 151 W x 134 H mm (8.7″ L x 5.9″ W x 5.3″ H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	Output Power Meter Modes	CW and burst with adjustable threshold	
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Power Consumption       280 watts typ. at Plin, 400 watts max.         Ambient Temperature       -40°C to +60°C operating, -40°C to +70°C non-operating         Relative Humidity       100% condensing         Weatherproofing       IP67 rating that provides protection from water or dust storms; Sealed to 34 kPa         Altitude (operating)       Up to 5000 m (16,400 ft)         Shock and Vibration       20 g peak, 11 msec, 1/2 sine; 2.1 grms, 5 to 500 Hz         RF Output Connection       WR-75 PBR120 flange with 4.2 mm through-holes         L-band Input Connection       Type N female         M&C Interface       FSK, RS-232, RS485/422, LAN         M&C Protocols       ASCII, NDSatcom v1, SABus, Codan packet, Telnet, SNMP v1, WEB GUI         Prime Power Connections       AC Connector: LTW PWF-04PMMS-SC7001; AC Mating Connector: 97B 3106F 16-115-622         Dimensions, L x W x H       220 L x 151 W x 134 H mm (8.7″ L x 5.9″ W x 5.3″ H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	Group Delay	0.03 ns/MHz linear max, 0.001 ns/MHz <sup>2</sup> parabolic max, 1.0 ns pk-pk ripple max. in any 36 MHz band	
Ambient Temperature40°C to +60°C operating, -40°C to +70°C non-operatingRelative Humidity100% condensingWeatherproofingIP67 rating that provides protection from water or dust storms; Sealed to 34 kPaAltitude (operating)Up to 5000 m (16,400 ft)Shock and Vibration20 g peak, 11 msec, 1/2 sine; 2.1 grms, 5 to 500 HzRF Output ConnectionWR-75 PBR120 flange with 4.2 mm through-holesL-band Input ConnectionType N femaleM&C InterfaceFSK, RS-232, RS485/422, LANM&C ProtocolsASCII, NDSatcom v1, SABus, Codan packet, Telnet, SNMP v1, WEB GUIPrime Power ConnectionsAC Connector: LTW PWF-04PMMS-SC7001; AC Mating Connector: 97B 3106F 16-115-622Dimensions, L x W x H220 L x 151 W x 134 H mm (8.7" L x 5.9" W x 5.3" H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	Prime Power	95 to 265 VAC (36 to 60 VDC optional)	
Relative Humidity100% condensingWeatherproofingIP67 rating that provides protection from water or dust storms; Sealed to 34 kPaAltitude (operating)Up to 5000 m (16,400 ft)Shock and Vibration20 g peak, 11 msec, 1/2 sine; 2.1 grms, 5 to 500 HzRF Output ConnectionWR-75 PBR120 flange with 4.2 mm through-holesL-band Input ConnectionType N femaleM&C InterfaceFSK, RS-232, RS485/422, LANM&C ProtocolsASCII, NDSatcom v1, SABus, Codan packet, Telnet, SNMP v1, WEB GUIPrime Power ConnectionsAC Connector: LTW PWF-04PMMS-SC7001; AC Mating Connector: 97B 3106F 16-11S-622Dimensions, L x W x H220 L x 151 W x 134 H mm (8.7" L x 5.9" W x 5.3" H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	Power Consumption	280 watts typ. at Plin, 400 watts max.	
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Altitude (operating)Up to 5000 m (16,400 ft)Shock and Vibration20 g peak, 11 msec, 1/2 sine; 2.1 grms, 5 to 500 HzRF Output ConnectionWR-75 PBR120 flange with 4.2 mm through-holesL-band Input ConnectionType N femaleM&C InterfaceFSK, RS-232, RS485/422, LANM&C ProtocolsASCII, NDSatcom v1, SABus, Codan packet, Telnet, SNMP v1, WEB GUIPrime Power ConnectionsAC Connector: LTW PWF-04PMMS-SC7001; AC Mating Connector: 0016 20D003 110 12; Optional DC Connector: 97B 3102R 16-11P-622; Optional DC Mating Connector: 97B 3106F 16-11S-622Dimensions, L x W x H220 L x 151 W x 134 H mm (8.7" L x 5.9" W x 5.3" H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	Relative Humidity	100% condensing	
Shock and Vibration20 g peak, 11 msec, 1/2 sine; 2.1 grms, 5 to 500 HzRF Output ConnectionWR-75 PBR120 flange with 4.2 mm through-holesL-band Input ConnectionType N femaleM&C InterfaceFSK, RS-232, RS485/422, LANM&C ProtocolsASCII, NDSatcom v1, SABus, Codan packet, Telnet, SNMP v1, WEB GUIPrime Power ConnectionsAC Connector: LTW PWF-04PMMS-SC7001; AC Mating Connector: 0016 20D003 110 12; Optional DC Connector: 97B 3102R 16-11P-622; Optional DC Mating Connector: 97B 3106F 16-11S-622Dimensions, L x W x H220 L x 151 W x 134 H mm (8.7" L x 5.9" W x 5.3" H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	Weatherproofing	IP67 rating that provides protection from water or dust storms; Sealed to 34 kPa	
RF Output Connection       WR-75 PBR120 flange with 4.2 mm through-holes         L-band Input Connection       Type N female         M&C Interface       FSK, RS-232, RS485/422, LAN         M&C Protocols       ASCII, NDSatcom v1, SABus, Codan packet, Telnet, SNMP v1, WEB GUI         Prime Power Connections       AC Connector: LTW PWF-04PMMS-SC7001; AC Mating Connector: C016 20D003 110 12; Optional DC Connector: 97B 3102R 16-11P-622; Optional DC Mating Connector: 97B 3106F 16-11S-622         Dimensions, L x W x H       220 L x 151 W x 134 H mm (8.7" L x 5.9" W x 5.3" H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	Altitude (operating)	Up to 5000 m (16,400 ft)	
L-band Input Connection       Type N female         M&C Interface       FSK, RS-232, RS485/422, LAN         M&C Protocols       ASCII, NDSatcom v1, SABus, Codan packet, Telnet, SNMP v1, WEB GUI         Prime Power Connections       AC Connector: LTW PWF-04PMMS-SC7001; AC Mating Connector: C016 20D003 110 12; Optional DC Connector: 97B 3102R 16-11P-622; Optional DC Mating Connector: 97B 3106F 16-11S-622         Dimensions, L x W x H       220 L x 151 W x 134 H mm (8.7" L x 5.9" W x 5.3" H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	Shock and Vibration	20 g peak, 11 msec, 1/2 sine; 2.1 g <sub>rms</sub> , 5 to 500 Hz	
M&C Interface       FSK, RS-232, RS485/422, LAN         M&C Protocols       ASCII, NDSatcom v1, SABus, Codan packet, Telnet, SNMP v1, WEB GUI         Prime Power Connections       AC Connector: LTW PWF-04PMMS-SC7001; AC Mating Connector: C016 20D003 110 12; Optional DC Connector: 97B 3102R 16-11P-622; Optional DC Mating Connector: 97B 3106F 16-11S-622         Dimensions, L x W x H       220 L x 151 W x 134 H mm (8.7" L x 5.9" W x 5.3" H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	RF Output Connection	WR-75 PBR120 flange with 4.2 mm through-holes	
M&C Protocols       ASCII, NDSatcom v1, SABus, Codan packet, Telnet, SNMP v1, WEB GUI         Prime Power Connections       AC Connector: LTW PWF-04PMMS-SC7001; AC Mating Connector: C016 20D003 110 12; Optional DC Connector: 97B 3102R 16-11P-622; Optional DC Mating Connector: 97B 3106F 16-11S-622         Dimensions, L x W x H       220 L x 151 W x 134 H mm (8.7" L x 5.9" W x 5.3" H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	L-band Input Connection	Type N female	
Prime Power Connections       AC Connector: LTW PWF-04PMMS-SC7001; AC Mating Connector: C016 20D003 110 12; Optional DC Connector: 97B 3102R 16-11P-622; Optional DC Mating Connector: 97B 3106F 16-11S-622         Dimensions, L x W x H       220 L x 151 W x 134 H mm (8.7" L x 5.9" W x 5.3" H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	M&C Interface	FSK, RS-232, RS485/422, LAN	
Prime Power Connections         Optional DC Connector: 97B 3102R 16-11P-622; Optional DC Mating Connector: 97B 3106F 16-11S-622           Dimensions, L x W x H         220 L x 151 W x 134 H mm (8.7" L x 5.9" W x 5.3" H), not including connectors, isolator of top screws - contact CPI for outline drawing if needed	M&C Protocols	ASCII, NDSatcom v1, SABus, Codan packet, Telnet, SNMP v1, WEB GUI	
isolator of top screws - contact CPI for outline drawing if needed	Prime Power Connections		
Weight         4.5 kg DC (9.9 lbs), 4.9 kg AC (10.8 lbs)	Dimensions, L x W x H		
	Weight	4.5 kg DC (9.9 lbs), 4.9 kg AC (10.8 lbs)	





Quality Management System - ISO 9001:2008 For more detailed information, please refer to the corresponding CPI technical description if one has been published, or contact CPI. Specifications may change without notice as a result of additional data or product refinement. Please contact CPI before using this information for system design.

MKT 372, ISSUE 14 dated SEP 2015 Page 2 of 3

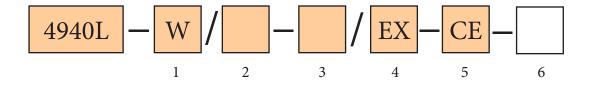
#### Ku-Band

#### 40 W Ku-band GaN BUC

## Configure your 4940L GaN BUC

Configuring your BUC is easy. For this product, most of the configuration is predetermined. All that is left is to indicate which frequency range is needed, what type of operating voltage is required, and whether the internal reference option is required. Instructions follow:

Box 2: Frequency range (within Ku-band) - Enter "S" for 14.00 to 14.50 GHz - Enter "E" for 13.75 to 14.50 GHz Box 3: Operating Voltage -Enter "48" for 36 to 60 V DC powered -Enter "AC" for AC powered Box 6: Internal reference -Enter "R" only if internal reference option is selected -LEAVE BLANK if internal reference option is not selected



Examples: 4940L-W/S-AC/EX-CE-R indicates a BUC with a frequency range of 14.0 -14.5 GHz, AC powered and with internal reference. 4940L-W/E-48/EX-CE indicates a BUC with a frequency range of 13.75 to 14.5 GHz, with 48 V DC input and no internal reference.

Notes: Box 1 indicates a waveguide RF output connection. Box 4 indicates that power is fed via an external connector. Box 5 indicates that this product is CE marked.





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MKT 372, ISSUE 14 dated SEP 2015, page 3 of 3  $\,$