

Smart Bias Tee 690 – 2700 MHz

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Technical Data

Type No.	78211590 +8 ... +14 VDC / BTS	78211591 +8 ... +14 VDC / Antenna	78211592 +8 ... +32 VDC / BTS	78211593 +8 ... +32 VDC / Antenna
Port 1: 4.3-10 male	BTS	Antenna	BTS	Antenna
Port 2: 4.3-10 female	Feeder	Feeder	Feeder	Feeder
Type No.	78211594 +8 ... +14 VDC / BTS	78211595 +8 ... +14 VDC / Antenna	78211596 +8 ... +32 VDC / BTS	78211597 +8 ... +32 VDC / Antenna
Port 1: 4.3-10 female	BTS	Antenna	BTS	Antenna
Port 2: 4.3-10 male	Feeder	Feeder	Feeder	Feeder

Frequency range	[MHz]	690 - 2700		
Insertion loss	Port 1 ↔ Port 2	[dB]	< 0.1 (690 - 2700 MHz)	
Isolation for DC and RCU signals	Port 1 ↔ Port 2	[dB]	> 70 (DC), > 30 dB 2.176 MHz (AISG signal)	
	Port 1 ↔ Port DC/RCU	[dB]	> 70	
	Port 2 ↔ Port DC/RCU	[dB]	> 0	
VSWR		< 1.1 (690 - 2700 MHz)		
Impedance	[Ω]	50		
Input power	Port 1 or Port 2	[W]	< 500 (690 - 2700 MHz)	
	Port DC/RCU		< 2.5 A / +8 ... +14 VDC	
Power consumption	[W]	Typically 0.6		
Lightning protection		3 kA, 10/350 μs pulse		
Intermodulation products	[dBc]	< -160 (3 rd order; with 2 x 20 W)		
Temperature range	[°C °F]	-40 ... +60 -40 ... +140		
Modem carrier frequency	[MHz]	2.176		
Application		Indoor or outdoor (IP 66)		
Weight	[kg lb]	0.44 0.96		
Dimensions (w x h x d)	[mm in]	80.5 x 80.5 x 41.5 3.17 x 3.17 x 1.6		
Packing size (w x h x d)	[mm in]	167 x 102 x 86 6.57 x 4.01 x 3.38		

Subject to alteration.

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All specifications are subject to change without notice.
The latest specifications are available at www.kathreinusa.com

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- **With 4.3-10 connectors**

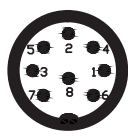
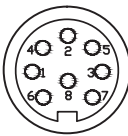
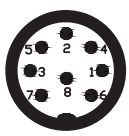
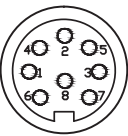
The **Smart Bias Tee** combines the performance of a standard Bias Tee with the function of an additional modem (AISG standard) in order to provide either DC voltage as well as remote control signals via an RF feeder cable to a TMA or RCU. The **Smart Bias Tee** provides low RF signal insertion loss from port 1 to port 2 and vice versa. The measures taken to protect against static discharge and lightning ensure a high level of reliability and operational safety.

- **78211590, 78211594:**
+8 ... 14 VDC (DC on pin1) version for use near the BTS, in order to feed-in DC voltage and RCU control signals into a feeder cable (**only required for TMAs and RCUs with power supply below 15 VDC**)
- **78211591, 78211595:**
+8 ... 14 VDC (DC on pin1) version for use near the antenna, in order to control an RCU (only required if **no TMA** is in use)
- **78211592, 78211596:**
+8 ... 32 VDC (DC on pin6) version for use near the BTS, in order to feed-in DC voltage and RCU control signals into a feeder cable
- **78211593, 78211597:**
+8 ... 32 VDC (DC on pin6) version for use near the antenna, in order to control an RCU (only required if **no TMA** is in use)

Abbreviations:

RCU	=	Remote Control Unit for remote electrical control of antenna tilt
BTS	=	Base Transceiver Station
TMA	=	Tower Mounted Amplifier
AISG	=	Antenna Interface Standards Group
Port 1	=	Port for BTS or for Antenna
Port 2	=	Port for Feeder Cable
Port DC/RCU	=	Port for DC voltage and Remote Control Unit signals

Pin connections:

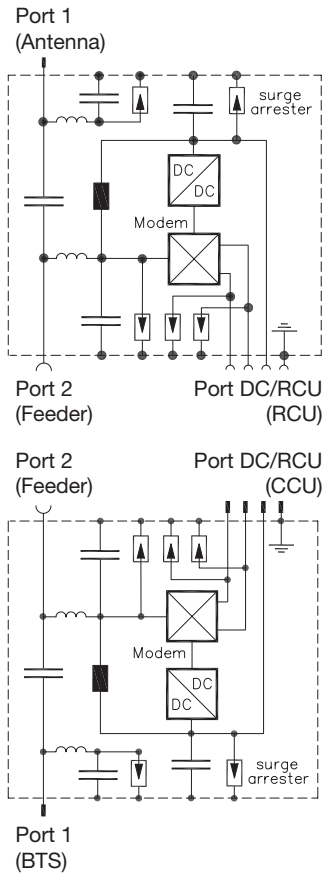
	78211590	78211591	78211592	78211593
	78211594	78211595	78211596	78211597
8-pin connector (IEC 60130-9)				
	male	female	male	female
Pin 1	+8...+14 VDC in	+8...+14 VDC in	Not connected	Not connected
Pin 2	Not connected	Not connected	Not connected	Not connected
Pin 3	RS485-B	RS485-B	RS485-B	RS485-B
Pin 4	Not connected	Not connected	Not connected	Not connected
Pin 5	RS485-A	RS485-A	RS485-A	RS485-A
Pin 6	Not connected	Not connected	+8...+32 VDC in	+8...+32 VDC in
Pin 7	DC return (grounded)	DC return (grounded)	DC return (grounded)	DC return (grounded)
Pin 8	Not connected	Not connected	Not connected	Not connected

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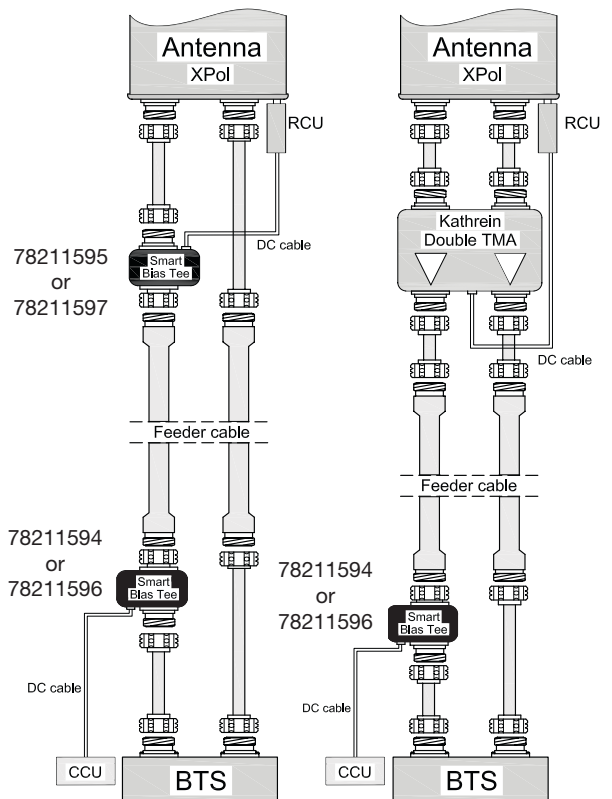
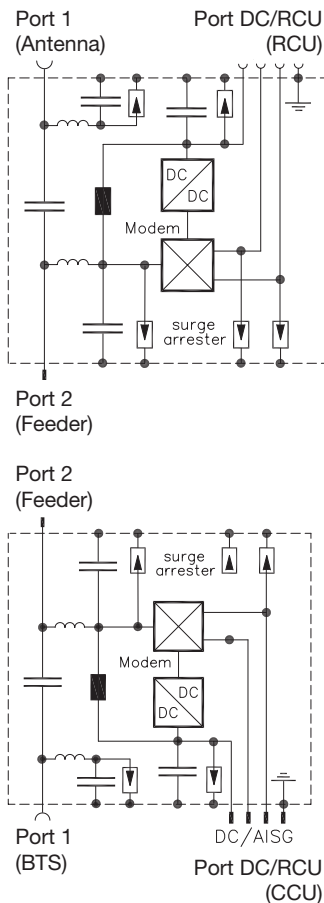
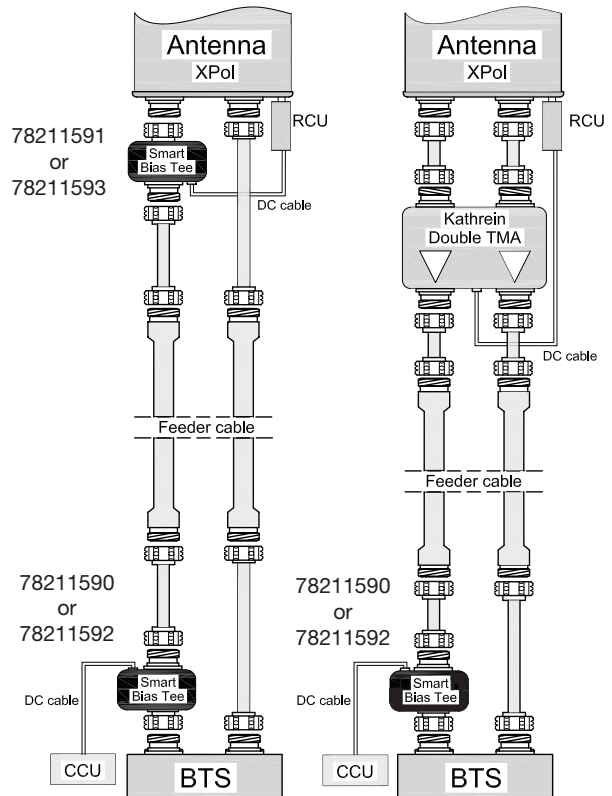
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Block diagrams:



Application Examples:



Subject to alteration.

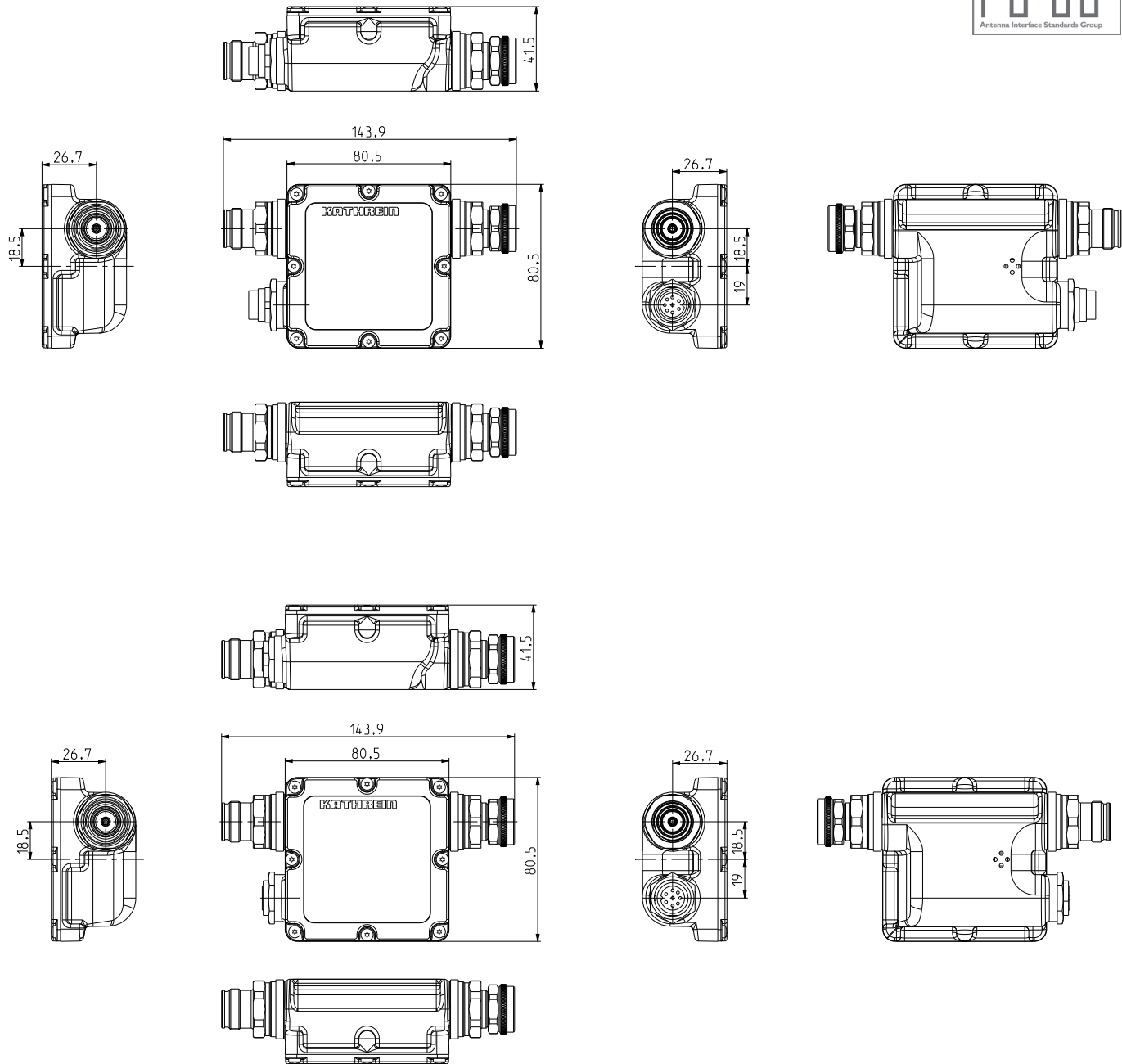
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Dimensional drawings:



Please note:

The Smart Bias Tees are designed to operate under the environmental conditions as described in ETS 300 019-1-4 class 4.1 E and have passed environmental tests as recommended in ETS 300 019-2-4.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

The coupling torque at 4.3-10 connectors is 5 – 8 Nm!

Hold the smart bias tee housing securely while tightening the 4.3-10 locking nut.

The tightening torque for fixing the AISG connector must be 0.5 – 1.0 Nm ('hand-tightened')

No lateral pressure may be placed on the Smart Bias Tee when mounting directly on an antenna.