

HUBER+SUHNER® DATA SHEET RF ASSEMBLIES

Test Lead: TL-8A

Rev.: A



Description

Test Lead assembly for indoor applications (Test and Measurement) consisting of a high flexible PE foamed cable with armouring protection and 2x N male straight connectors for frequency up to 8 GHz.

ID (Material/Item No.) **85006682**
Description (Product) **TL-8A-11N-11N-01500-51**



Product Configuration

Cable type 50Ω +/-1Ω, PE Foam double screen
 Armour Steel wire spring, steel braid, TPU blue, max. dia. 10.4 mm
 Length of Assembly 1500 mm +/- 15 mm
 Connector A N Straight male, knurl / hex. 19 mm, *Quick-Lock*
 Nut: steel; body: brass/SUCOPLATE®; Center Contact: Cu-Be/Gold
 Connector B N Straight male, knurl / hex. 19 mm, *Quick-Lock*
 Nut: steel; body: brass/SUCOPLATE®; Center Contact: Cu-Be/Gold
 Cable entry protection PA, black

Technical Data

Mechanical Data

Mating cycle *)	> 3000	Bending Radius repeated (min.)	55 mm (preferred: 100 mm)
Tensile Force (max.)	200 N	Connector interface	IEC 61169-16 / MIL-STD-348A/304
Recom. mating torque **)	1.0 Nm	Weight	0.295 kg

Environmental Data

Operating Temperature - 5°C to + 85°C
 Storage Temperature - 40°C to + 85°C
 RoHS, REACH compliant
 Water protection***) N-Connector without gasket on Interface

Electrical Data

Impedance	50 Ω +/-1 Ω	Operating Frequency	up to 8 GHz
Velocity of propagation	82 %	Insulation resistance	> 5 x 10 ³ MΩ
Capacitance	82 pF / m	Time delay	4.3 ns / m
Dielectric withstand voltage	500 V rms		

Return Loss	Frequency equal or better	1 GHz	2 GHz	3 GHz	4 GHz	6 GHz	8 GHz
		- 32 dB	- 29 dB	- 26 dB	- 26 dB	- 25 dB	- 22 dB
Attenuation (assembly)	typically, at 25°C	0.54 dB	0.80 dB	1.00 dB	1.16 dB	1.50 dB	1.84 dB
Power handling	sea level, at 40°C	150 W	105 W	80 W	75 W	62 W	50 W
Screening effectiveness		> 80 dB	> 76 dB	> 70 dB	> 65 dB	> 60 dB	> 50 dB
Insertion Loss stability ****)		< 0.02 dB	< 0.03 dB	< 0.04 dB	< 0.05 dB	< 0.08 dB	< 0.10 dB
Phase stability ****)		+/- 1.5° el.	+/- 2.5° el.	+/- 4° el.	+/- 5° el.	+/- 8° el.	+/- 10° el.

General Information

*) Number of Mating With use of torque wrench at recommended value, clean interface after each 20 matings, mated with connector according IEC or MIL standard
 **) H+S torque wrench H+S description: 74_Z-0-0-321 // material/item number: 22651994
 ***) Waterproof with gasket: IP 67
 ****) Stability test One, 180° revers bends, 75 mm radius mandrel

HUBER+SUHNER is certified according to ISO 9001 and ISO 14001

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HUBER+SUHNER AG
 RF Technology
 9100 Herisau, Switzerland
 Phone +41 (0)71 353 41 11
 Fax +41 (0)71 353 45 90
 www.hubersuhner.com

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DS-TL-8A-11N-11N-01500-51

DOC-0000413919

Rev.: A

HUBER+SUHNER® DATA SHEET RF ASSEMBLIES

Test Lead: TL-8A

Rev.: A



Description

Test Lead assembly for indoor applications (Test and Measurement) consisting of a high flexible PE foamed cable with armouring protection and 2x N male straight connectors for frequency up to 8 GHz.

ID (Material/Item No.) **85014502**
Description (Product) **TL-8A-11N-11N-03000-51**



Product Configuration

Cable type 50Ω +/-1Ω, PE Foam double screen
 Armour Steel wire spring, steel braid, TPU blue, max. dia. 10.4 mm
 Length of Assembly 3000 mm +/- 30 mm
 Connector A N straight male, knurl/hex. 19 mm, *Quick-Lock*
 Nut: steel; Body: brass SUCOPLATE®; Center Contact: Cu-Be/Gold
 Connector B N straight male, knurl/hex. 19 mm, *Quick-Lock*
 Nut: steel; Body: brass SUCOPLATE®; Center Contact: Cu-Be/Gold
 Cable entry protection PA, black

Technical Data

Mechanical Data

Mating cycle *	> 3000	Bending Radius repeated (min.)	55 mm (preferred: 100 mm)
Tensile Force (max.)	200 N	Connector interface N	IEC 61169-16 / MIL-STD-348A/304
Recom. mating torque **)	1.0 Nm	Weight	0.525 kg

Environmental Data

Operating Temperature - 5°C to + 85°C
 Storage Temperature - 40°C to + 85°C
 RoHS, REACH compliant
 Water protection N connector without gasket on Interface

Electrical Data

Impedance	50 Ω +/-1 Ω	Operating Frequency	up to 8 GHz
Velocity of propagation	82 %	Insulation resistance	> 5 x 10 ³ MΩ
Capacitance	82 pF / m	Time delay	4.3 ns / m
Dielectric withstand voltage	500 V rms		

Return Loss Attenuation (assembly) Power handling Screening effectiveness Insertion Loss stability ****) Phase stability ****)	Frequency	1 GHz	2 GHz	3 GHz	4 GHz	6 GHz	8 GHz
	equal or better typically, at 25°C sea level, at 40°C	- 31 dB 1.01 dB 150 W > 80 dB < 0.02 dB +/- 1.5° el.	- 27 dB 1.54 dB 105 W > 76 dB < 0.03 dB +/- 2.5° el.	- 25 dB 2.00 dB 80 W > 70 dB < 0.04 dB +/- 4° el.	- 25 dB 2.42 dB 75 W > 65 dB < 0.05 dB +/- 5° el.	- 24 dB 3.19 dB 62 W > 60 dB < 0.08 dB +/- 8° el.	- 21 dB 3.91 dB 55 W > 50 dB < 0.10 dB +/- 10° el.

General Information

*) Number of Mating With use of torque wrench at recommended value, clean interface after each 20 matings, mated with connector according IEC or MIL standard
 **) H+S torque wrench H+S description: 74_Z-0-0-321 // material/item number: 22651994
 ****) Stability test One, 180° revers bends, 75 mm radius mandrel

HUBER+SUHNER is certified according to ISO 9001 and ISO 14001

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HUBER+SUHNER AG
 RF Technology
 9100 Herisau, Switzerland
 Phone +41 (0)71 353 41 11
 Fax +41 (0)71 353 45 90
 www.hubersuhner.com

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DS-TL-8A-11N-11N-03000-51

DOC-0000443310

Rev.: A

HUBER+SUHNER® DATA SHEET RF ASSEMBLIES

Test Lead: TL-8A

Rev.: A



Description

Test Lead assembly for indoor applications (Test and Measurement) consisting of a high flexible PE foamed cable with armouring protection and 1x N male straight and 1x SMA male straight connectors for frequency up to 8 GHz.

ID (Material/Item No.) **85014643**
Description (Product) **TL-8A-11N-11SMA-01500-51**



Product Configuration

Cable type	50Ω +/-1Ω, PE Foam double screen
Armour	Steel wire spring, steel braid, TPU blue, max. dia. 10.4 mm
Length of Assembly	1500 mm +/- 15 mm
Connector A	N straight male, knurl/hex. 19 mm, <i>Quick-Lock</i> Nut: steel; Body: steel; Center Contact: Cu-Be/Gold
Connector B	SMA straight male, hex. 8 mm, <i>Quick-Lock</i> Nut: steel; Body: steel; Center Contact: Cu-Be/Gold
Cable entry protection	PA, black

Technical Data

Mechanical Data

Mating cycle *	> 3000	Bending Radius repeated (min.)	55 mm (preferred: 100 mm)
Tensile Force (max.)	200 N	Connector interface N	IEC 61169-16 / MIL-STD-348A/304
		Connector interface SMA	IEC 61169-15 / MIL-STD-348A/310
Recom. mating torque **)	1.0 Nm	Weight	0.285 kg

Environmental Data

Operating Temperature	- 5°C to + 85°C
Storage Temperature	- 40°C to + 85°C
RoHS, REACH	compliant
Water protection	N and SMA connector without gasket on Interface

Electrical Data

Impedance	50 Ω +/-1 Ω	Operating Frequency	up to 8 GHz
Velocity of propagation	82 %	Insulation resistance	> 5 x 10 ³ MΩ
Capacitance	82 pF / m	Time delay	4.3 ns / m
Dielectric withstand voltage	500 V rms		

	Frequency	1 GHz	2 GHz	3 GHz	4 GHz	6 GHz	8 GHz
Return Loss	equal or better	- 32 dB	- 29 dB	- 26 dB	- 26 dB	- 25 dB	- 22 dB
Attenuation (assembly)	typically, at 25°C	0.54 dB	0.80 dB	1.00 dB	1.16 dB	1.50 dB	1.84 dB
Power handling	sea level, at 40°C	150 W	105 W	80 W	75 W	62 W	50 W
Screening effectiveness		> 80 dB	> 76 dB	> 70 dB	> 65 dB	> 60 dB	> 50 dB
Insertion Loss stability ***)		< 0.02 dB	< 0.03 dB	< 0.04 dB	< 0.05 dB	< 0.08 dB	< 0.10 dB
Phase stability ***)		+/- 1.5° el.	+/- 2.5° el.	+/- 4° el.	+/- 5° el.	+/- 8° el.	+/- 10° el.

General Information

*) Number of Mating With use of torque wrench at recommended value, clean interface after each 20 matings, mated with connector according IEC or MIL standard

**) H+S torque wrench N connector: H+S description: 74_Z-0-0-321 // material/item number: 22651994
SMA connector: H+S description: 74_Z-0-0-21 // material/item number: 22543130

***) Stability test One, 180° revers bends, 75 mm radius mandrel

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RF Technology
9100 Herisau, Switzerland
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www.hubersuhner.com

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DS-TL-8A-11N-11SMA-01500-51

DOC-0000443302

Rev.: A

HUBER+SUHNER® DATA SHEET RF ASSEMBLIES

Test Lead: TL-8A

Rev.: A



Description

Test Lead assembly for indoor applications (Test and Measurement) consisting of a high flexible PE foamed cable with armouring protection and 1x N male straight and 1x SMA male straight connectors for frequency up to 8 GHz.

ID (Material/Item No.) 85014645
Description (Product) TL-8A-11N-11SMA-03000-51



Product Configuration

Cable type 50Ω +/-1Ω, PE Foam double screen
 Armour Steel wire spring, steel braid, TPU blue, max. dia. 10.4 mm
 Length of Assembly 3000 mm +/- 30 mm
 Connector A N straight male, knurl/hex. 19 mm, *Quick-Lock*
 Nut: steel; Body: steel; Center Contact: Cu-Be/Gold
 Connector B SMA straight male, hex. 8 mm, *Quick-Lock*
 Nut: steel; Body: steel; Center Contact: Cu-Be/Gold
 Cable entry protection PA, black

Technical Data

Mechanical Data

Mating cycle *	> 3000	Bending Radius repeated (min.)	55 mm (preferred: 100 mm)
Tensile Force (max.)	200 N	Connector interface N	IEC 61169-16 / MIL-STD-348A/304
		Connector interface SMA	IEC 61169-15 / MIL-STD-348A/310
Recom. mating torque **)	1.0 Nm	Weight	0.525 kg

Environmental Data

Operating Temperature - 5°C to + 85°C
 Storage Temperature - 40°C to + 85°C
 RoHS, REACH compliant
 Water protection N and SMA connector without gasket on Interface

Electrical Data

Impedance	50 Ω +/-1 Ω	Operating Frequency	up to 8 GHz
Velocity of propagation	82 %	Insulation resistance	> 5 x 10 ³ MΩ
Capacitance	82 pF / m	Time delay	4.3 ns / m
Dielectric withstand voltage	500 V rms		

	Frequency	1 GHz	2 GHz	3 GHz	4 GHz	6 GHz	8 GHz
Return Loss	equal or better	- 31 dB	- 27 dB	- 25 dB	- 25 dB	- 24 dB	- 21 dB
Attenuation (assembly)	typically, at 25°C	1.01 dB	1.54 dB	2.00 dB	2.42 dB	3.19 dB	3.91 dB
Power handling	sea level, at 40°C	150 W	105 W	80 W	75 W	62 W	55 W
Screening effectiveness		> 80 dB	> 76 dB	> 70 dB	> 65 dB	> 60 dB	> 50 dB
Insertion Loss stability ****)		< 0.02 dB	< 0.03 dB	< 0.04 dB	< 0.05 dB	< 0.08 dB	< 0.10 dB
Phase stability ****)		+/- 1.5° el.	+/- 2.5° el.	+/- 4° el.	+/- 5° el.	+/- 8° el.	+/- 10° el.

General Information

*) Number of Mating With use of torque wrench at recommended value, clean interface after each 20 matings, mated with connector according IEC or MIL standard
 **) H+S torque wrench N connector: H+S description: 74_Z-0-0-321 // material/item number: 22651994
 SMA connector: H+S description: 74_Z-0-0-21 // material/item number: 22543130
 ****) Stability test One, 180° revers bends, 75 mm radius mandrel

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HUBER+SUHNER AG
 RF Technology
 9100 Herisau, Switzerland
 Phone +41 (0)71 353 41 11
 Fax +41 (0)71 353 45 90
 www.hubersuhner.com

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DOC-0000443307

Rev.: A

HUBER+SUHNER® DATA SHEET RF ASSEMBLIES

Test Lead: TL-8A

Rev.: A



Description

Test Lead assembly for indoor applications (Test and Measurement) consisting of a high flexible PE foamed cable with armouring protection and 2x SMA male straight connectors for frequency up to 8 GHz.

ID (Material/Item No.) **85014638**
Description (Product) **TL-8A-11SMA-11SMA-01500-51**



Product Configuration

Cable type 50Ω +/-1Ω, PE Foam double screen
 Armour Steel wire spring, steel braid, TPU blue, max. dia. 10.4 mm
 Length of Assembly 1500 mm +/- 15 mm
 Connector A SMA straight male, hex. 8 mm, *Quick-Lock*
 Nut: steel; Body: steel; Center Contact: Cu-Be/Gold
 Connector B SMA straight male, hex. 8 mm, *Quick-Lock*
 Nut: steel; Body: steel; Center Contact: Cu-Be/Gold
 Cable entry protection PA, black

Technical Data

Mechanical Data

Mating cycle *)	> 3000	Bending Radius repeated (min.)	55 mm (preferred: 100 mm)
Tensile Force (max.)	200 N	Connector interface	IEC 61169-15 / MIL-STD-348A/310
Recom. mating torque **)	1.0 Nm	Weight	0.295 kg

Environmental Data

Operating Temperature - 5°C to + 85°C
 Storage Temperature - 40°C to + 85°C
 RoHS, REACH compliant
 Water protection SMA-Connector without gasket on Interface

Electrical Data

Impedance	50 Ω +/-1 Ω	Operating Frequency	up to 8 GHz
Velocity of propagation	82 %	Insulation resistance	> 5 x 10 ³ MΩ
Capacitance	82 pF / m	Time delay	4.3 ns / m
Dielectric withstand voltage	500 V rms		

Return Loss	Frequency equal or better	1 GHz	2 GHz	3 GHz	4 GHz	6 GHz	8 GHz
		- 32 dB	- 29 dB	- 26 dB	- 26 dB	- 25 dB	- 22 dB
Attenuation (assembly)	typically, at 25°C	0.54 dB	0.80 dB	1.00 dB	1.16 dB	1.50 dB	1.84 dB
Power handling	sea level, at 40°C	150 W	105 W	80 W	75 W	62 W	50 W
Screening effectiveness		> 80 dB	> 76 dB	> 70 dB	> 65 dB	> 60 dB	> 50 dB
Insertion Loss stability ***)		< 0.02 dB	< 0.03 dB	< 0.04 dB	< 0.05 dB	< 0.08 dB	< 0.10 dB
Phase stability ***)		+/- 1.5° el.	+/- 2.5° el.	+/- 4° el.	+/- 5° el.	+/- 8° el.	+/- 10° el.

General Information

*) Number of Mating With use of torque wrench at recommended value, clean interface after each 20 matings, mated with connector according IEC or MIL standard
 **) H+S torque wrench H+S description: 74_Z-0-0-21 // material/item number: 22543130
 ***) Stability test One, 180° revers bends, 75 mm radius mandrel

HUBER+SUHNER is certified according to ISO 9001 and ISO 14001

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 Fax +41 (0)71 353 45 90
 www.hubersuhner.com

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DS-TL-8A-11SMA-11SMA-01500-51

DOC-0000443296

Rev.: A

HUBER+SUHNER® DATA SHEET RF ASSEMBLIES

Test Lead: TL-8A

Rev.: A



Description

Test Lead assembly for indoor applications (Test and Measurement) consisting of a high flexible PE foamed cable with armouring protection and 2x SMA male straight connectors for frequency up to 8 GHz.

ID (Material/Item No.) **85014640**
Description (Product) **TL-8A-11SMA-11SMA-03000-51**



Product Configuration

Cable type 50Ω +/-1Ω, PE Foam double screen
 Armour Steel wire spring, steel braid, TPU blue, max. dia. 10.4 mm
 Length of Assembly 3000 mm +/- 30 mm
 Connector A SMA straight male, hex. 8 mm, *Quick-Lock*
 Nut: steel; Body: steel; Center Contact: Cu-Be/Gold
 Connector B SMA straight male, hex. 8 mm, *Quick-Lock*
 Nut: steel; Body: steel; Center Contact: Cu-Be/Gold
 Cable entry protection PA, black

Technical Data

Mechanical Data

Mating cycle *)	> 3000	Bending Radius repeated (min.)	55 mm (preferred: 100 mm)
Tensile Force (max.)	200 N	Connector interface	IEC 61169-15 / MIL-STD-348A/310
Recom. mating torque **)	1.0 Nm	Weight	0.525 kg

Environmental Data

Operating Temperature - 5°C to + 85°C
 Storage Temperature - 40°C to + 85°C
 RoHS, REACH compliant
 Water protection SMA-Connector without gasket on Interface

Electrical Data

Impedance	50 Ω +/-1 Ω	Operating Frequency	up to 8 GHz
Velocity of propagation	82 %	Insulation resistance	> 5 x 10 ³ MΩ
Capacitance	82 pF / m	Time delay	4.3 ns / m
Dielectric withstand voltage	500 V rms		

Return Loss	Frequency equal or better	1 GHz	2 GHz	3 GHz	4 GHz	6 GHz	8 GHz
		- 31 dB	- 27 dB	- 25 dB	- 25 dB	- 24 dB	- 21 dB
Attenuation (assembly)	typically, at 25°C	1.01 dB	1.54 dB	2.00 dB	2.42 dB	3.19 dB	3.91 dB
		sea level, at 40°C					
Power handling		150 W	105 W	80 W	75 W	62 W	55 W
Screening effectiveness		> 80 dB	> 76 dB	> 70 dB	> 65 dB	> 60 dB	> 50 dB
Insertion Loss stability ****)		< 0.02 dB	< 0.03 dB	< 0.04 dB	< 0.05 dB	< 0.08 dB	< 0.10 dB
Phase stability ****)		+/- 1.5° el.	+/- 2.5° el.	+/- 4° el.	+/- 5° el.	+/- 8° el.	+/- 10° el.

General Information

*) Number of Mating With use of torque wrench at recommended value, clean interface after each 20 matings, mated with connector according IEC or MIL standard
 **) H+S torque wrench H+S description: 74_Z-0-0-21 // material/item number: 22543130
 ****) Stability test One, 180° revers bends, 75 mm radius mandrel

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