SPINNER

1.0 mm Coaxial Connector – Reliable Connectivity Solutions

S-Parameter Measurements Up to 120 GHz!

HIGH FREQUENCY PERFORMANCE WORLDWIDE
spinner-group.com

The SPINNER Group

For almost 80 years, the SPINNER Group has been setting new standards worldwide in high-frequency technology. Based in Munich with production facilities in Germany, Hungary and China, SPINNER currently has over 900 employees. Our international network of subsidiaries and distributors supports customers in over 40 countries.


TEST & MEASUREMENT


COMMUNICATION


BROADCAST


SATCOM/SPACE


DEFENSE


INDUSTRY


SUBSEA/OFFSHORE

RF Measurement

These days, up-to-date measurement equipment is essential for all development, production, testing and quality control departments that deal with RF signals on coaxial lines. Particularly for vector network analyzers, high-precision connectors, terminations, and adapters are a must.

The same statement applies to calibration kits and mechanical accessories such as gauges for checking mating face dimensions or torque wrenches for tightening coupling nuts. In all of these cases, SPINNER has established new, extremely high standards of precision which most users would not want to do without.

Precisely measured values are especially important when transmitting high power levels. Other major applications include extensive testing of mobile communications systems, terahertz communication, terabit ethernet high-speed data transmission and quantum research.

SPINNER supplies coaxial measurement equipment of outstanding electrical and mechanical quality for use at frequencies up to 250 GHz.

Coaxial and Waveguide Measurement Devices

Coaxial & waveguide measurement devices made by SPINNER are needed for:

VNA / S-Parameter Measurement

- Calibration and verification standards
- Air lines
- Rotary joints
- Articulated lines
- Adapters
- Connector gauges

PIM Measurement and Test Automation

- EasyDock push-pull adapters
- Low PIM switches
- Low PIM test cables
- Low PIM rotary joints
- Low PIM loads
- Low PIM passive intermodulation standards

Millimeter Wave Measurement

- Ruggedized test port adapters
- mmWave waveguide-to-coaxial adapters
- 0.5 mm, 0.8 mm & 1.0 mm coaxial connector system
- 1.35 mm E Connector
- EasyLaunch PCB connectors
- EasySnake flexible dielectric waveguides
- Connectivity solutions for RF anechoic chambers

Connectivity Solutions for RF Anechoic Chambers

- Ruggedized test port adapters
- mmWave waveguide-to-coaxial adapters
- Panel feedthroughs
- Articulated lines
- EasySnake flexible dielectric waveguides
- Rotary joints

Ensure Reliable Measurements with SPINNER's 1.0 mm Connector

SPINNER's 1.0 mm high precision coaxial calibration kit, connectors, and adapters are engineered for a frequency range from DC up to 120 GHz and offer excellent performance.

The 1.0 mm coaxial connectors are standard in RF labs worldwide. These include vector network analyses (VNA) or measurements in the millimeter-wave range. The 1.0 mm coax interface is also known as the Type W connector.

In fact, they are must-haves for engineers who perform measurements in the range up to 120 GHz. It provides measurement accuracy, versatility and ease of use for coaxial measurements, microwave communication systems, defense and aerospace applications, where precise and accurate signal transmission is critical.

However, their conventional design suffers from a problem: the pitch is too coarse, i.e. the axial distance between the thread walls is too great.

The nut that mates with a 1.0 mm connector loosens practically from being looked at. Calibration problems are therefore literally built-in, often making it necessary to repeat entire test series. Besides the unnecessary extra costs this incurs, it's a major source of frustration.

Achieving Reproducible Test Results from the Start

SPINNER provides multiple solutions to address the common issue of 1.0 mm coaxial connectors loosening over time.

Hence, we offer a comprehensive range of adapters to ensure optimal mechanical connections across various frequency ranges. SPINNER provides adapters from 1.0 mm to 1.85 mm for measurements up to 70 GHz on a 110/120 GHz VNA, as well as adapters for the 1.35 mm E-connector. Our ruggedized test port adapters for the 1.0 mm interface are particularly recommended for achieving reliable and stable connections.

Secured by a Ruggedized Test Port Adapter

For laboratories that rely on 1.0 mm connectors, we offer various ruggedized test port adapter specifically designed for one-millimeter coax connections.

These adapters use a larger thread to achieve a secure mechanical lock, effectively blocking unintended transverse or torsional forces that could damage the delicate 1.0 mm coaxial connection. As a result, once a test setup is assembled and calibrated, it can be consistently relied upon to perform as intended.

Design Goals

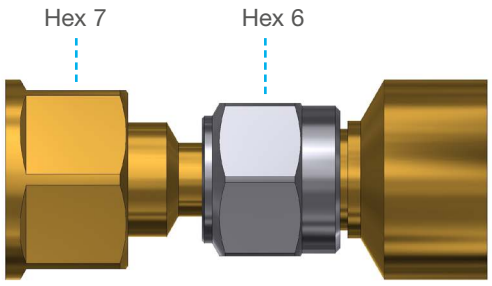
1 mm precision interface with:

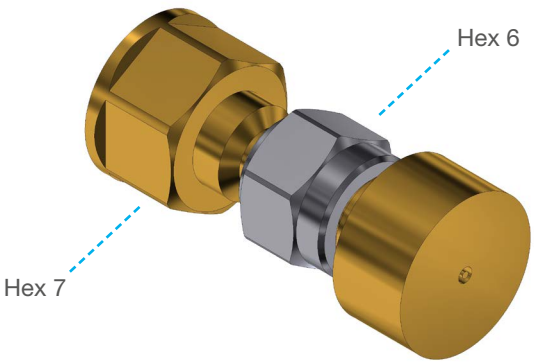
- Accurate alignment with outer conductor
- Well-defined reference plane
- Maximized return loss
- High connector repeatability
- Suitable for precision S-parameter measurements
- Operating frequency range DC to 120 GHz
- Especially designed load element up to 120 GHz

Special Design Features

Wrench size avoids accidental use

In contrast to the coupling nut of the 1.0 mm interface with 6 mm wrench size, the wrench flats for counter holding have been designed in 7 mm. This prevents the accidental use of the counter holding wrench on the coupling nut, which should be tightened with a torque wrench.





1.0 mm SOLR High Precision Calibration Kit, 50 Ohms

Features

- SOLR calibration from DC to 120 GHz (Short-Open-Load-Reciprocal VNA two port calibration, also known as unknown thru calibration)
- Model parameters

Description	Qty	Part Number	Use Case	BN 71518A	BN 71572A
Frequency range				DC to 120 GHz SOLR calibration	DC to 120 GHz SOLR calibration measurement of connector pin depths
Calibration data type				Model parameters	
Traceability				DC to 116.5 GHz	
Calibration document				SPINNER calibration certificate	
Short circuit termination, female	1	**BN 535735C0001**	SOLR	•	
Short circuit termination, male	1	**BN 535736C0001**	SOLR	•	
Open circuit termination, female	1	**BN 535733C0001**	SOLR	•	
Open circuit termination, male	1	**BN 535734C0001**	SOLR	•	
Matched load, female	1	**BN 535737C0001**	SOLR	•	
Matched load, male	1	**BN 535738C0001**	SOLR	•	
Thru, female / female	1	**BN 535739C0001**	SOLR	•	
Thru, male / male	1	**BN 535740C0001**	SOLR	•	
Thru, female / male	1	**BN 535741C0001**	SOLR	•	
Torque wrench 6 mm / 45 N·cm	1	**BN 238748C0001**	Tightening	•	
Torque wrench 6 mm / 34 N·cm	1	**BN 238749C0001**	Tightening	•	
Double open-ended spanner 7 mm*	1	**BN 238750**	Counteracting	•	
Connector gauge for female mating face	1	**BN 537086**	Pin depth measurement	o	•
Connector gauge for male mating face	1	**BN 537085**	Pin depth measurement	o	•

*In contrast to the coupling nut of the 1.0 mm interface with 6 mm wrench size, the wrench flats for counter holding have been designed in 7 mm. This prevents the accidental use of the counter holding wrench on the coupling nut, which should be tightened with a torque wrench.

Calibration Standards Glossary

Technical Document TD 00247
https://www.spinner-group.com/images/download/technical_documents/SPINNER_TD00247.pdf

1.0 mm SOLR High Precision Calibration Kit, 50 Ohms

Features

- SOLR calibration from DC to 120 GHz (Short-Open-Load-Reciprocal VNA two port calibration, also known as unknown thru calibration)
- Model and S parameters

Description	Qty	Part Number	Use Case	BN 535742	BN 535743
Frequency range				DC to 120 GHz SOLR calibration	DC to 120 GHz SOLR calibration measurement of connector pin depths
Calibration data type				Model and S parameters	
Traceability				DC to 116.5 GHz	
Calibration document				SPINNER calibration certificate	
Short circuit termination, female	1	**BN 535735**	SOLR	•	
Short circuit termination, male	1	**BN 535736**	SOLR	•	
Open circuit termination, female	1	**BN 535733**	SOLR	•	
Open circuit termination, male	1	**BN 535734**	SOLR	•	
Matched load, female	1	**BN 535737**	SOLR	•	
Matched load, male	1	**BN 535738**	SOLR	•	
Thru, female / female	1	**BN 535739**	SOLR	•	
Thru, male / male	1	**BN 535740**	SOLR	•	
Thru, female / male	1	**BN 535741**	SOLR	•	
Torque wrench 6 mm / 45 N·cm	1	**BN 535748C0001**	Tightening	•	
Torque wrench 6 mm / 35 N·cm	1	**BN 238749C0001**	Tightening	•	
Double open-ended spanner 7 mm*	1	**BN 238750**	Counteracting	•	
Connector gauge for female mating face	1	**BN 238786**	Pin depth measurement	o	•
Connector gauge for male mating face	1	**BN 238785**	Pin depth measurement	o	•

*In contrast to the coupling nut of the 1.0 mm interface with 6 mm wrench size, the wrench flats for counter holding have been designed in 7 mm. This prevents the accidental use of the counter holding wrench on the coupling nut, which should be tightened with a torque wrench.

Calibration Standards Glossary

Technical Document TD 00247
https://www.spinner-group.com/images/download/technical_documents/SPINNER_TD00247.pdf

mmWave Waveguide-to-Coaxial Adapters

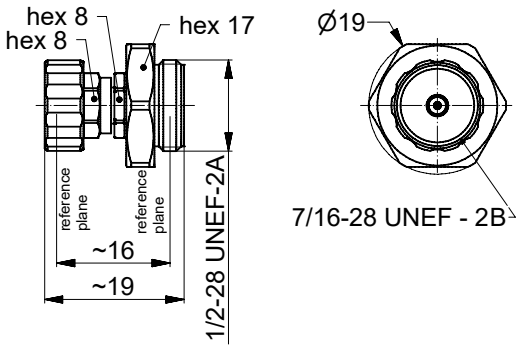
Features

- Well-defined reference plane
- Maximized return losses
- High connector repeatability (min. 45 dB)
- Suitable for precision measurement of S-parameters
- Ruggedized coaxial ports
- In-line style: DC short circuit
- Right-angle style: DC open circuit

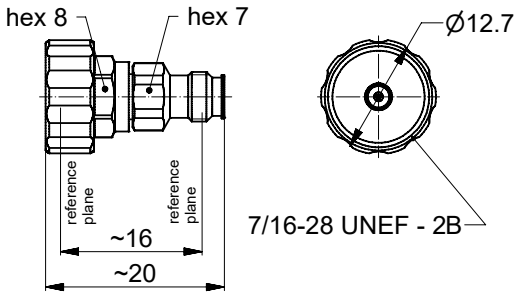
Part Number	Style	Description	Frequency Range	Return Loss, min.
BN 533140	In-line	Precision waveguide-to-coaxial adapter R 1.2k (WR 8) to 1.0 mm female RUG*	90 to 120 GHz	≥ 10 dB
BN 533141	In-line	Precision waveguide-to-coaxial adapter R 900 (WR 10) to 1.0 mm female RUG*	Full W band	≥ 16 dB
BN 533142	In-line	Precision waveguide-to-coaxial adapter R 740 (WR 12) to 1.0 mm female RUG*	Full E band	≥ 16 dB
BN 533143	In-line	Precision waveguide-to-coaxial adapter R 620 (WR 15) to 1.0 mm female RUG*	Full V band	≥ 16 dB
BN 533161	In-line	Precision waveguide-to-coaxial adapter R 900 (WR 10) to 1.0 mm male RUG*	Full W band	≥ 16 dB
BN 533162	In-line	Precision waveguide-to-coaxial adapter R 740 (WR 12) to 1.0 mm male RUG*	Full E band	≥ 16 dB
BN 533163	In-line	Precision waveguide-to-coaxial adapter R 620 (WR 15) to 1.0 mm male RUG*	Full V band	≥ 16 dB
BN 533107	In-line	Precision waveguide-to-coaxial adapter R 1.2k (WR 08) to 1.0 mm female	90 to 120 GHz	≥ 10 dB
BN 533108	In-line	Precision waveguide-to-coaxial adapter R 1.2k (WR 08) to 1.0 mm male	90 to 120 GHz	≥ 10 dB
BN 533110	Right-angle	Precision waveguide-to-coaxial adapter R 1.2k (WR 08) to 1.0 mm female	90 to 120 GHz	≥ 16 dB
BN 533112	In-line	Precision waveguide-to-coaxial adapter R 900 (WR 10) to 1.0 mm female	Full W band	≥ 16 dB
BN 533114	Right-angle	Precision waveguide-to-coaxial adapter R 900 (WR 10) to 1.0 mm female	Full W band	≥ 16 dB
BN 533116	In-line	Precision waveguide-to-coaxial adapter R 740 (WR 12) to 1.0 mm female	Full E band	≥ 16 dB
BN 533118	Right-angle	Precision waveguide-to-coaxial adapter R 740 (WR 12) to 1.0 mm female	Full E band	≥ 16 dB
BN 533120	In-line	Precision waveguide-to-coaxial adapter R 620 (WR 15) to 1.0 mm female	Full V band	≥ 16 dB

*RUG = Ruggedized

Precision Inter-Type Test Port Adapters Ruggedized



Part Number	Interface Type A	Interface Type B	Frequency Range	Return Loss, min.
BN 534974	1.0 mm female RUG	1.35 mm male RUG	DC to 90 GHz	28 dB @ DC to 20 GHz 20 dB @ 20 to 50 GHz 17 dB @ 50 to 70 GHz 14 dB @ 70 to 90 GHz

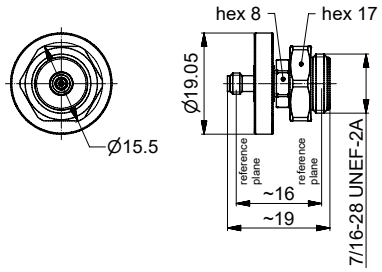


Part Number	Interface Type A	Interface Type B	Frequency Range	Return Loss, min.
BN 535151	1.0 mm female RUG	1.85 mm male	DC to 70 GHz	28 dB @ DC to 20 GHz 20 dB @ 20 to 50 GHz 17 dB @ 50 to 70 GHz
BN 535152		1.85 mm female		
BN 534975		1.35 mm female	DC to 90 GHz	28 dB @ DC to 20 GHz 20 dB @ 20 to 50 GHz 17 dB @ 50 to 70 GHz 14 dB @ 70 to 90 GHz
BN 535156		0.8 mm female	DC to 120 GHz	25 dB @ DC to 26.5 GHz 22 dB @ 26.5 to 50 GHz 18 dB @ 50 to 90 GHz 15 dB @ 90 to 120 GHz
BN 535157		0.8 mm male		
BN 535160		0.8 mm male RUG		
BN 535163	0.5 mm female RUG	1.0 mm male		25 dB @ DC to 50 GHz 20 dB @ 50 to 90 GHz 15 dB @ 90 to 120 GHz
BN 535164		1.0 mm female		

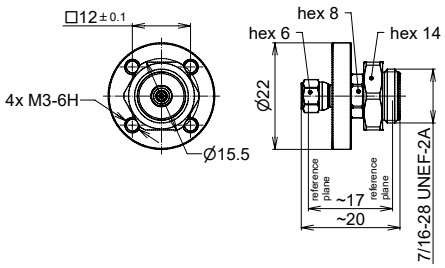
Precision Within-Type Test Port Adapters Ruggedized

Features

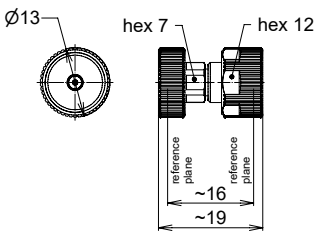
- Full bandwidth
- Amongst others especially suitable to ANRITSU VNA broadband millimeter-wave module with “Adapter Mounting Bracket” to stabilize the sophisticated coaxial 1.0 mm test port



Part Number	Interface Type A	Interface Type B	Frequency Range	Return Loss, min.
BN 534976	1.0 mm male RUG	1.0 mm female	DC to 110 GHz	28 dB @ DC to 20 GHz 20 dB @ 20 to 50 GHz 17 dB @ 50 to 70 GHz 14 dB @ 70 to 110 GHz

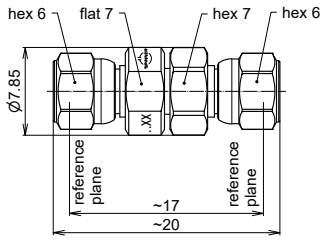


Part Number	Interface Type A	Interface Type B	Frequency Range	Return Loss, min.
BN 535127	1.0 mm female RUG	1.0 mm male	DC to 110 GHz	28 dB @ DC to 20 GHz 20 dB @ 20 to 50 GHz 17 dB @ 50 to 70 GHz 14 dB @ 70 to 110 GHz
BN 535126	1.0 mm male RUG	1.0 mm male 4-hole female	DC to 120 GHz	28 dB @ DC to 20 GHz 20 dB @ 20 to 50 GHz 17 dB @ 50 to 70 GHz 14 dB @ 70 to 120 GHz
BN 535129	1.0 mm female RUG	1.0 mm female		
BN 535158		1.0 mm male		



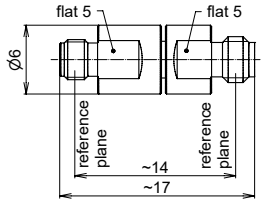
Part Number	Interface Type A	Interface Type B	Frequency Range	Return Loss, min.
BN 535128	1.0 mm female RUG	1.0 mm female RUG	DC to 110 GHz	28 dB @ DC to 20 GHz 20 dB @ 20 to 50 GHz 17 dB @ 50 to 70 GHz 14 dB @ 70 to 110 GHz

Precision Within-Type Adapters



Part Number	Interface Type A	Interface Type B	Frequency Range	Return Loss, min.
BN 535744	1.00 mm male	1.0 mm male	DC to 120 GHz	27 dB @ DC to 10 GHz 24 dB @ 10 to 26.5 GHz 21 dB @ 26.5 to 50 GHz 18 dB @ 50 to 70 GHz 15 dB @ 70 to 90 GHz 12 dB @ 90 to 120 GHz
BN 535745	1.00 mm female	1.0 mm female		
BN 535746	1.00 mm male	1.0 mm female		

Precision Inter-Type Adapters



Part Number	Interface Type A	Interface Type B	Frequency Range	Return Loss, min.
BN 535143	1.85 mm male	1.0 mm male	DC to 70 GHz	28 dB @ DC to 20 GHz 20 dB @ 20 to 50 GHz 17 dB @ 50 to 70 GHz
BN 535144	1.85 mm male	1.0 mm female		
BN 535145	1.85 mm female	1.0 mm male		
BN 535146	1.85 mm female	1.0 mm female		
BN 534917R000	1.35 mm male	1.0 mm male	DC to 90 GHz	28 dB @ DC to 20 GHz 20 dB @ 20 to 50 GHz 17 dB @ 50 to 90 GHz
BN 534918R000	1.35 mm male	1.0 mm female		
BN 534919R000	1.35 mm female	1.0 mm male		
BN 534920R000	1.35 mm female	1.0 mm female		
BN 533164	1.0 mm female	0.8 mm male	DC to 120 GHz	25 dB @ DC to 26.5 GHz 22 dB @ 26.5 to 50 GHz 18 dB @ 50 to 90 GHz 15 dB @ 90 to 120 GHz
BN 533165	1.0 mm male	0.8 mm female		
BN 533166	1.0 mm male	0.8 mm male		
BN 533167	1.0 mm female	0.8 mm female		

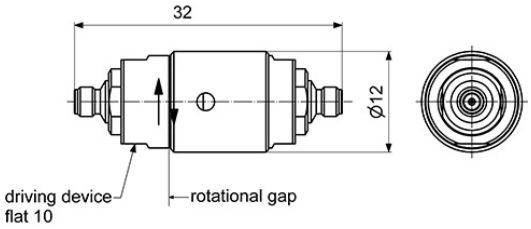
PCB Launch Connector EasyLaunch

Features

- Variable positioning for maximum flexibility in compact board design
- Excellent RF performance for the highest frequencies
- Solderless and reusable
- Keeps the micro stripline free of damage through FCC (flattened center conductor) technology

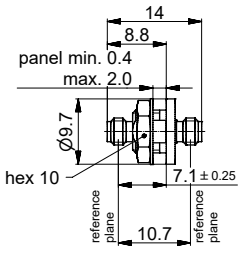
Part Number	Description	Frequency Range	Return Loss, min.
BN 533402C0001	PCB Launch connector 1.0 mm female	DC to 110 GHz	10 dB @ DC to 110 GHz

Single Channel Coaxial Rotary Joints



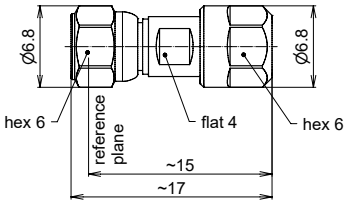
Part Number	Interface Type A	Interface Type B	Frequency Range	VSWR, max.
BN 8350BNE2	1.0 mm female	1.0 mm female	DC to 110 GHz	1.2 @ DC to 26.5 GHz 1.4 @ 26.5 to 70 GHz 1.5 @ 70 to 110 GHz
BN 835183	1.0 mm female	1.0 mm female panel 3-hole	DC to 110 GHz	

Panel Connectors



Part Number	Interface Type A	Interface Type B	Frequency Range	Return Loss, min.
BN 534999	1.0 mm female, d-hole	1.0 mm female	DC to 120 GHz	24 dB @ DC to 26.5 GHz 18 dB @ 26.5 to 70 GHz 15 dB @ 70 to 90 GHz 12 dB @ 90 to 120 GHz

Cable Connectors



Part Number	Interface Type A	Cable Type	Frequency Range	Return Loss, min.
BN 533144	1.0 mm male	Semi-rigid UT-047 (MIL-DTL-17/151)	DC to 110 GHz	17 dB @ DC to 90 GHz 15 dB @ 90 to 110 GHz
BN 533188	1.0 mm female			
BN 533186	1.0 mm male	Semi-rigid UT-047-LL	DC to 110 GHz	17 dB @ DC to 90 GHz 15 dB @ 90 to 110 GHz
BN 533187	1.0 mm female			
535780	1.0 mm female panel 2 hole	Semi-rigid EZ-20-LA	DC to 120 GHz	21 dB/25 dB @ DC to 30 GHz 17 dB/20 dB @ 30 to 70 GHz 15 dB/18 dB @ 70 to 120 GHz

Accessories

Part Number	Description
BN 537085	Connector pin depth gauge for 1.0 mm male connectors
BN 537086	Connector pin depth gauge for 1.0 mm female connectors

Part Number	Description
BN 238748C0001	Torque wrench 6 mm, 0.45 N·m, break-over type
BN 238749C0001	Torque wrench 6 mm, 0.34 N·m, break-over type
BN 238750	Counter wrench 7 mm

Notes

Notes

Notes

HIGH FREQUENCY PERFORMANCE WORLDWIDE

SPINNER designs and builds cutting-edge radio frequency systems, setting performance and longevity standards for others to follow. The company's track record of innovation dates back to 1946, and many of today's mainstream products are rooted in SPINNER inventions.

Industry leaders continue to count on SPINNER's engineering excellence to drive down their costs of service and ownership with premium-quality, off-the-shelf products and custom solutions. Headquartered in Munich, Germany, the global frontrunner in RF components remains the first choice in simple-yet-smart RF solutions.

www.spinner-group.com

SPINNER GmbH
Headquarters
Erzgiessereistr. 33
80335 Munich
GERMANY
Phone: +49 89 12601-0
info@spinner-group.com

SPINNER ANZ Pty. Ltd
44 Lakeview Dr,
Scoresby VIC 3179
AUSTRALIA
Phone: +61 413 200677
info-anz@spinner-group.com

SPINNER Austria GmbH
Modecenterstraße 22/C38
1030 Vienna
AUSTRIA
Phone: +43 1 66277 51
info-austria@spinner-group.com

SPINNER Electrotécnica S.L.
c/ Perú, 4 – Local n° 15
28230 Las Rozas (Madrid)
SPAIN
Phone: +34 91 6305 842
info-iberia@spinner-group.com

SPINNER France S.A.R.L.
32–34 Avenue Kléber
75116 Paris
FRANCE
Phone: +33 6 32505210
info-france@spinner-group.com

SPINNER ICT Inc.
2220 Northmont Parkway, 250
Duluth, GA 30096
USA
Phone: +1 770 2636 326
info@spinner-group.com

SPINNER Nordic AB
Kråketorpsgatan 20
43153 Mölndal
SWEDEN
Phone: +46 31 7061670
info-nordic@spinner-group.com

SPINNER Telecommunication
Devices (Shanghai) Co., Ltd.
351 Lian Yang Road
Songjiang Industrial Zone
Shanghai 201613
P.R. CHINA
Phone: +86 21 577 45377
info-china@spinner-group.com

SPINNER UK Ltd.
Suite 8 Phoenix House
Golborne Enterprise Park,
High Street
Golborne, Warrington
WA3 3DP
UNITED KINGDOM
Phone: +44 1942 275222
info-uk@spinner-group.com

3/TM/01.2026