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Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Wireless

Radioline antenna accessories

Content

- Concept: New antenna assembly for simple access
- Table: product overview

Examples

- Antennas and assembly
 - RAD-2400-IFS
 - RAD-900-IFS

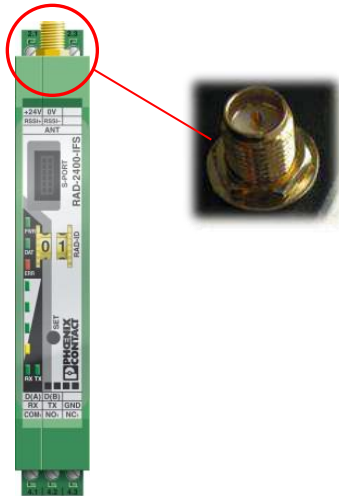
Addendum

- Designing a long-distance link
- Antenna installation
- Connectors – technical details



Radioline

Every new Phoenix Contact wireless device has the RSMA(F) connector



Wireless module

RSMA (female) antenna connectors on all new wireless devices



Antenna - cable

One cable type (RSMA male – N male) in different lengths (0.5...3 m)



Antenna

N (female) connector on antenna

Antennas and cables for Radioline 2.4 GHz

overview 1/2

Article	RAD-ISM-2400-ANT-OMNI-2-1-RSMA	RAD-ISM-2400-ANT-VAN-3-0-RSMA	ANT-OMNI-2459-02	RAD-ISM-2400-ANT-OMNI-6-0	RAD-ISM-2459-ANT-FOOD-6-0	RAD-ISM-2400-ANT-OMNI-6-0-SW		ANT-DIR-2459-01
Order No.	2701362	2701358	2701408	2885919	2692526	2903219		2701186
Picture								
Frequency	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz		2.4 GHz
Gain	2 dBi	3 dBi	2.5 dBi	6 dBi	>3 dBi	6 dBi		9 dBi
Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical		Vertical
HPBW horizontal	 360°	 360°	 360° (2.4/5 GHz)	 360°	 360°	 360°		 75° (2.4 GHz) 55° (5 GHz)
HPBW vertical	 75°	 85°	 30°	 30°	 30°	 20°		 55° (2.4 GHz) 55° (5 GHz)
Connector	RSMA (m)	RSMA (m)	N (m)	N (f)	N (f)	N (f)		N (f)
Protection class	IP65	IP55	IP68	IP65	IP68	IP65		IP67
Temperature range	-20...+65°C	-40...+80 °C	-40...+70°C	-40...+75°C	-40...+80°C	-40...+70°C		-40...+80°C
Dimensions	82,5 x 7,8 mm	86 x 43 mm	180 x 23 mm	250 x 22 mm	92 x 52 mm	330 x 20 mm		80 x 101 x 35 mm
	Incl. fixed cable 1,5 m	Fixed cable 1,5 m	Mount on switching cabinet, use cable No. 2701402	Wall and mast mount	Incl. separate cable N/m- SMA/m (needs adapter)	Designed to operate in saltwater environments		Wall and mast mount

HPBW = Half Power Band Width = opening angle

Antennas and cables for Radioline 2.4 GHz

overview 2/2

Article	RAD-ISM-2400- ANT-PAR-19-0		RAD-PIG-RSMA/N-x	CN-UB-70DC-6-BB	RAD-CAB-LMR**
Order No.	2867885		290326 3 /4 /5 /6	2803166	5606124 /5 /6
Picture					
Frequency	2.4 GHz		Up to 5 GHz	Up to 6 GHz	Up to 6 GHz
Gain	19 dBi		-1.2 dB/m @ 5 GHz	-	-7.6, -3.9, -3.13 dB per 100 feet
Polarization	Vertical		-	-	-
HPBW horizontal	 17°		-	-	-
HPBW vertical	 11°		-	-	-
Connector	N (f)		RSMA (m)- N (m)	N (f) – N (f)	N (m) – N (m)
Protection class	IP65		-	IP68	-
Temperature range	-20...+70°C		-40...+85°C	-40...90°C	-40...105°C
dimensions	610 x 419 mm		0,5 or 1 or 2 or 3 m	24 x 24 x 47 mm	10, 20 and 25 feet
	Wall and mast mount		Cable between wireless module and antenna or surge arrester	Antenna surge suppression	Antenna cables

HPBW = Half Power Band Width = opening angle

Various antennas for different applications – all using the same connector

Omni 2.4/5 GHz
No. 2692526



N (f)

Omni 2.4 GHz
No. 2885919



N (f)

Directional 2.4/5 GHz
No. 2701186



N (f)

Omni 2.4 GHz saltwater
No. 2903219



N (f)

N (m)



RSMA (m)



RSMA (f)



RAD-2400-IFS
Art. No. 2901541

RAD-PIG-RSMA/N-x

RAD-PIG-RSMA/N-0.5	No. 2903263	length 0.5 m
RAD-PIG-RSMA/N-1	No. 2903264	length 1 m
RAD-PIG-RSMA/N-1	No. 2903265	length 2 m
RAD-PIG-RSMA/N-3	No. 2903266	length 3 m

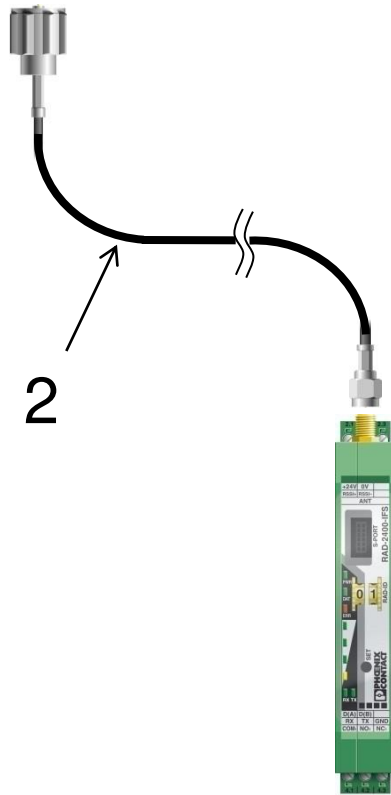
One cable type connects Radioline to all these antennas



Antenna for omnidirectional radiation with improved gain

Bill of materials

Index	Part number	Part name	Description	Quantity
1	2885919	RAD-ISM-2400-ANT-OMNI-6-0	Omnidirectional antenna with 6 dBi gain 2.4 GHz N(f)	1
2	2903263/4/5/6	RAD-PIG-RSMA/N-0.5/1/2/3	N(m) to RSMA(m) antenna cable 0.5/1/2/3 m	1
3	2901541	RAD-2400-IFS	Radioline 2.4 GHz	1



2.4 GHz

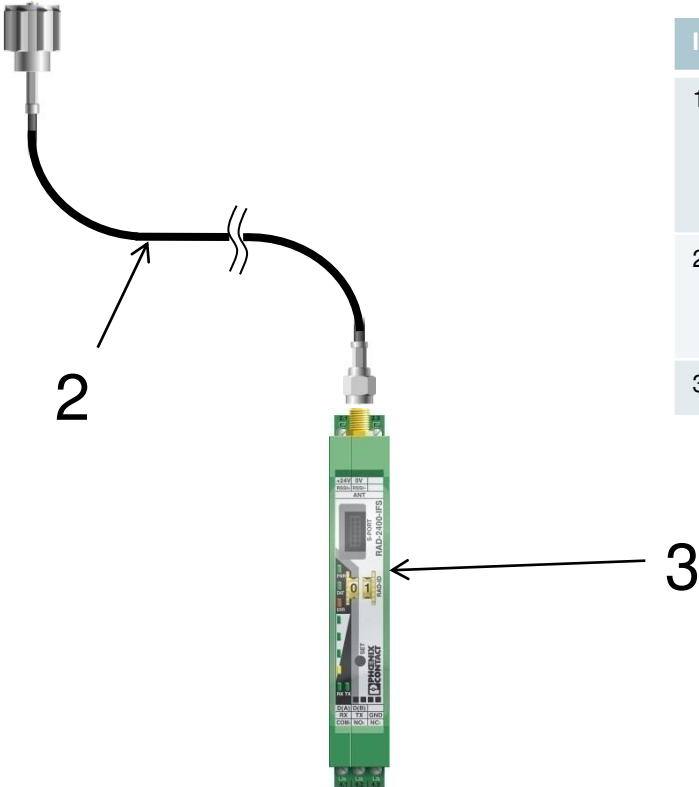
Antenna for directional radiation with improved gain



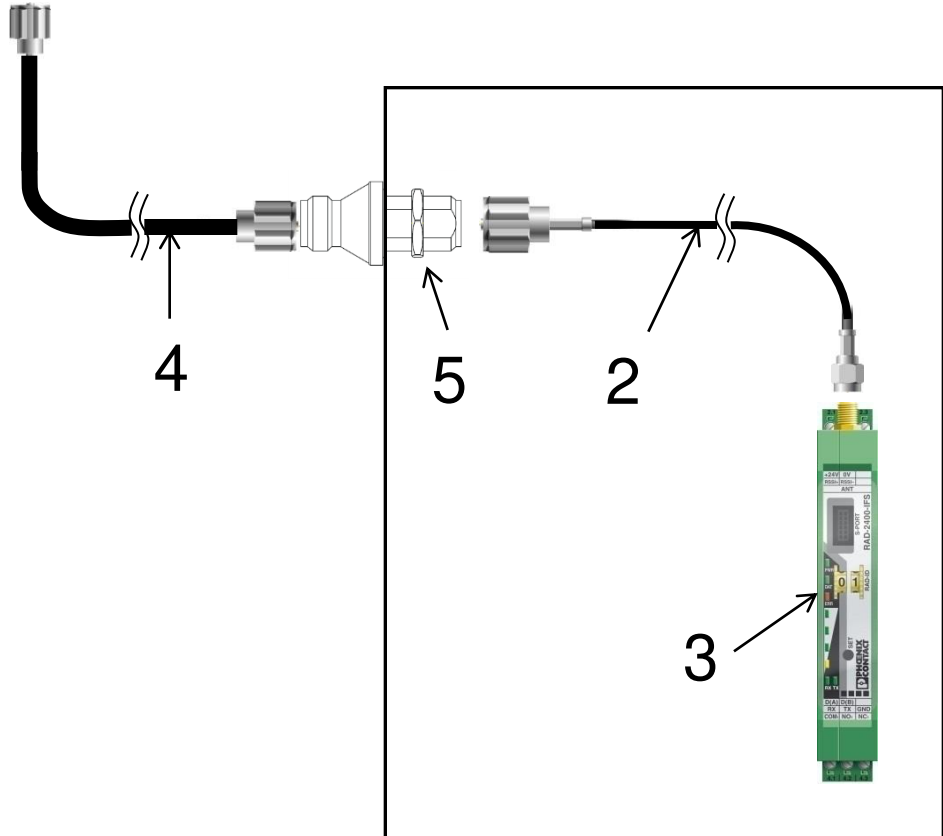
Bill of materials

Index	Part number	Part name	Description	Quantity
1	2701186	ANT-DIR-2459-01	Panel directional antenna with 9 dBi gain 2.4 GHz IP67 N(f)	1
2	2903263/4/5/6	RAD-PIG-RSMA/N-0.5/1/2/3	N(m) to RSMA(m) antenna cable 0.5/1/2/3 m	1
3	2901541	RAD-2400-IFS	Radioline 2.4 GHz	1

2.4 GHz



Antenna for directional radiation prolonged cable with surge protection



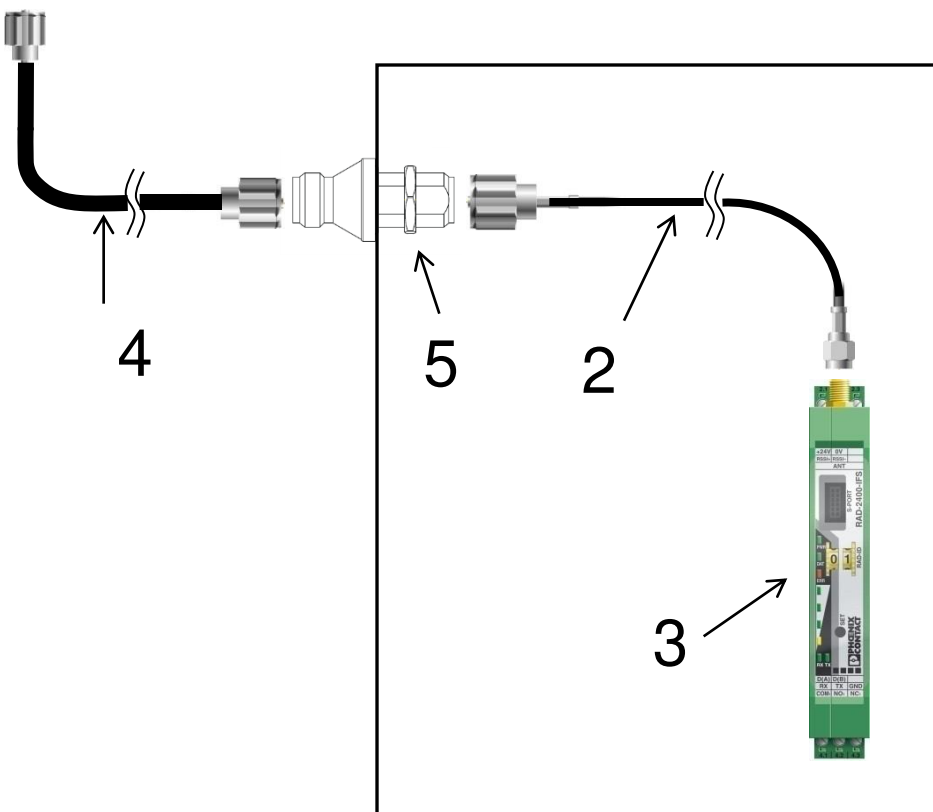
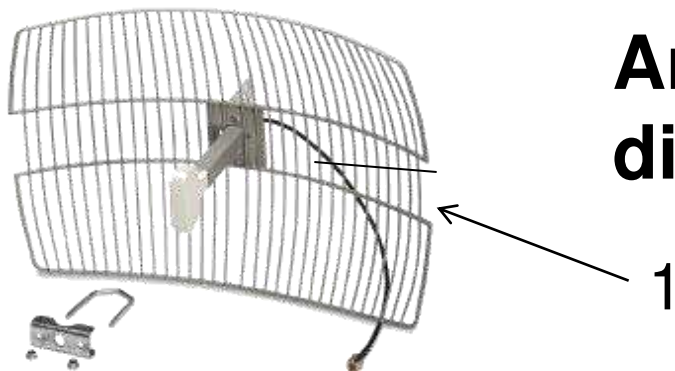
Mounting inside switching cabinet

Bill of materials

Index	Part number	Part name	Description	Quantity
1	2701186	ANT-DIR-2459-01	Panel-directional antenna with 9 dBi gain 2.4 GHz IP67 N(f)	1
2	2903263/4/5/6	RAD-PIG-RSMA/N-0.5/1/2/3	N(m) to RSMA(m) antenna cable 0.5/1/2/3 m	1
3	2901541	RAD-2400-IFS	Radioliner 2.4 GHz	1
4	5606124 5606125 5606126	RAD-CAB-LMR**	N(m) to N(m) antenna cable 10, 20, 25 foot	1
5	2803166	CN-UB-70DC-6-BB	Coaxial surge protection	1

2.4 GHz

Antenna for directional long distance communication



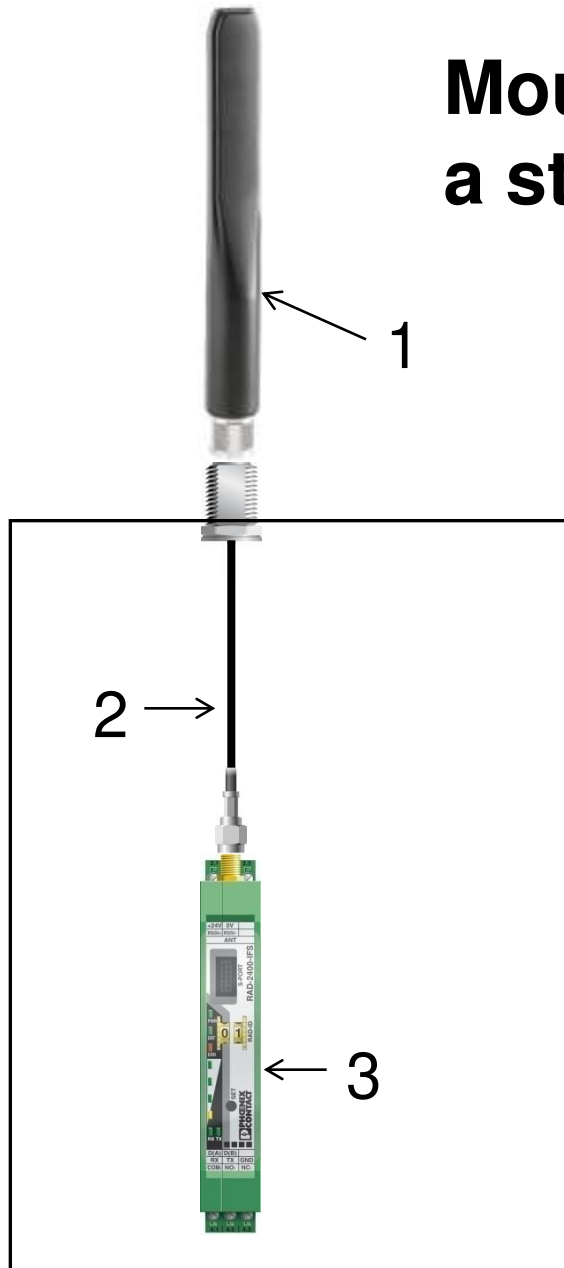
Mounting inside switching cabinet

Bill of materials

Index	Part number	Part name	Description	Quantity
1	2867885	RAD-ISM-2400-ANT-PAR-19-0	Parabolic antenna with 19 dBi gain 2.4 GHz IP65 N(f)	1
2	2903263/4/5/6	RAD-PIG-RSMA/N-0.5/1/2/3	N(m) to RSMA(m) antenna cable 0.5/1/2/3 m	1
3	2901541	RAD-2400-IFS	Radioline 2.4 GHz	1
4	5606124 5606125 5606126	RAD-CAB-LMR**	N(m) to N(m) antenna cable 10, 20, 25 foot	1
5	2803166	CN-UB-70DC-6-BB	Coaxial surge protection	1

2.4 GHz

Mounting the RAD-2400-IFS inside a standard switching cabinet

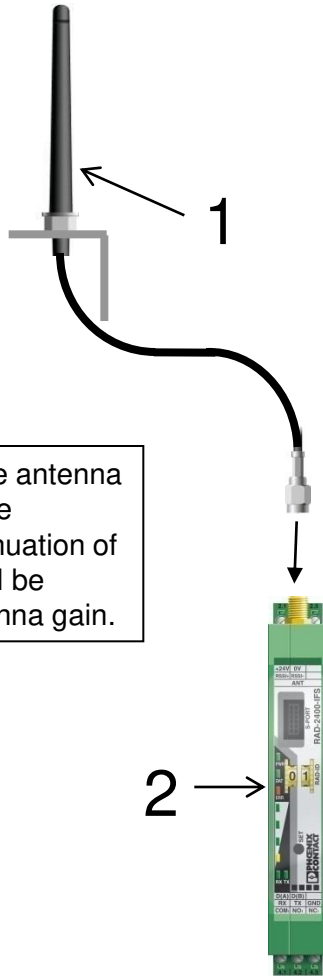


Bill of materials

Index	Part number	Part name	Description	Quantity
1	2701408	ANT-OMNI-2459-02	Omnidirectional antenna with 2.5 dBi gain, 2.4 GHz, IP68, N(m)	1
2	2701402	RAD-PIG-EF316-N-RSMA	N(f) to RSMA(m) antenna cable (bulkhead)	1
3	2901541	RAD-2400-IFS	Radioline 2.4 GHz	1

2.4 GHz

Mounting the omnidirectional antenna everywhere with a mounting bracket



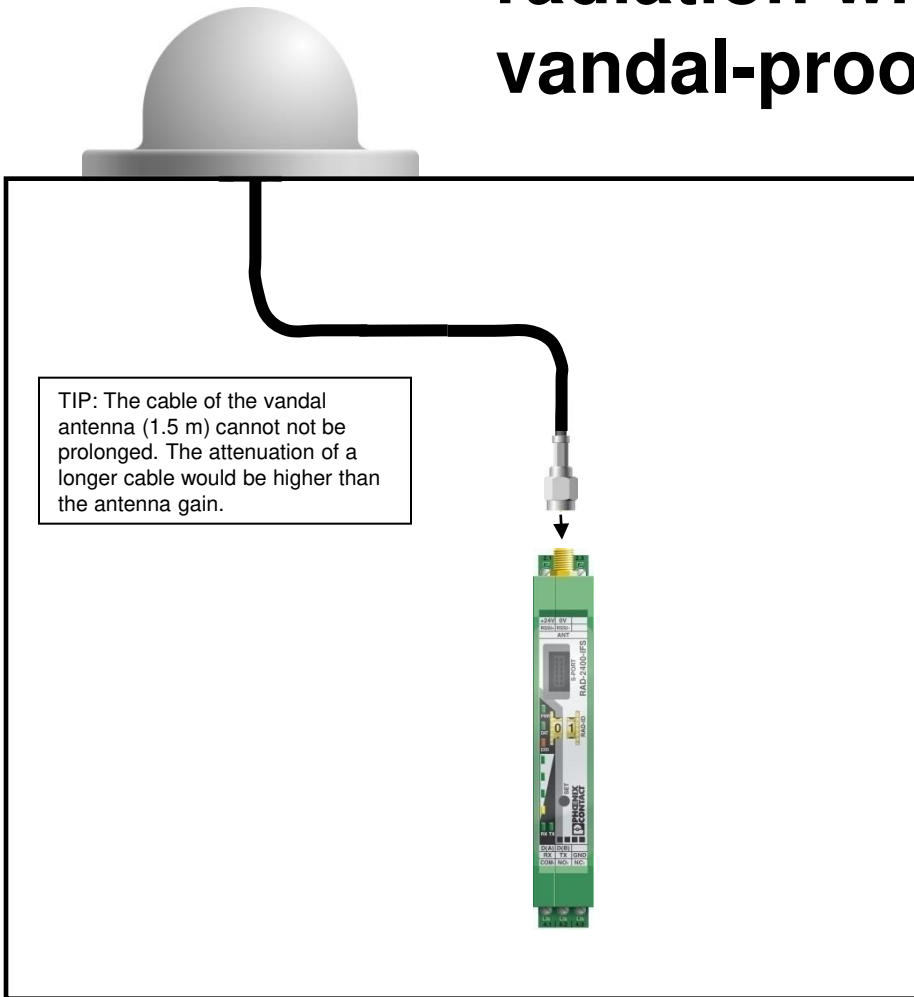
TIP: The cable of the antenna (1.5 m) cannot not be prolonged. The attenuation of a longer cable would be higher than the antenna gain.

Bill of materials

Index	Part number	Part name	Description	Quantity
1	2701362	RAD-ISM-2400-ANT-OMNI-2-1-RSMA	Omnidirectional antenna with 2 dBi gain 2.4 GHz RSMA(m) IP65	1
2	2901541	RAD-2400-IFS	Radioline 2.4 GHz	1

2.4 GHz

Antenna for omnidirectional radiation with standard gain and vandal-proof design

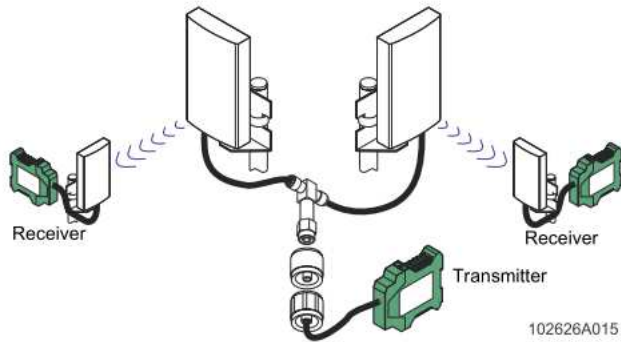


Bill of materials

Index	Part number	Part name	Description	Quantity
1	2701358	RAD-ISM-2400-ANT-VAN-3-0-RSMA	Omnidirectional antenna with 3 dBi gain 2.4 GHz RSMA(m) IP55	1
2	2901541	RAD-2400-IFS	Radioline 2.4 GHz	1

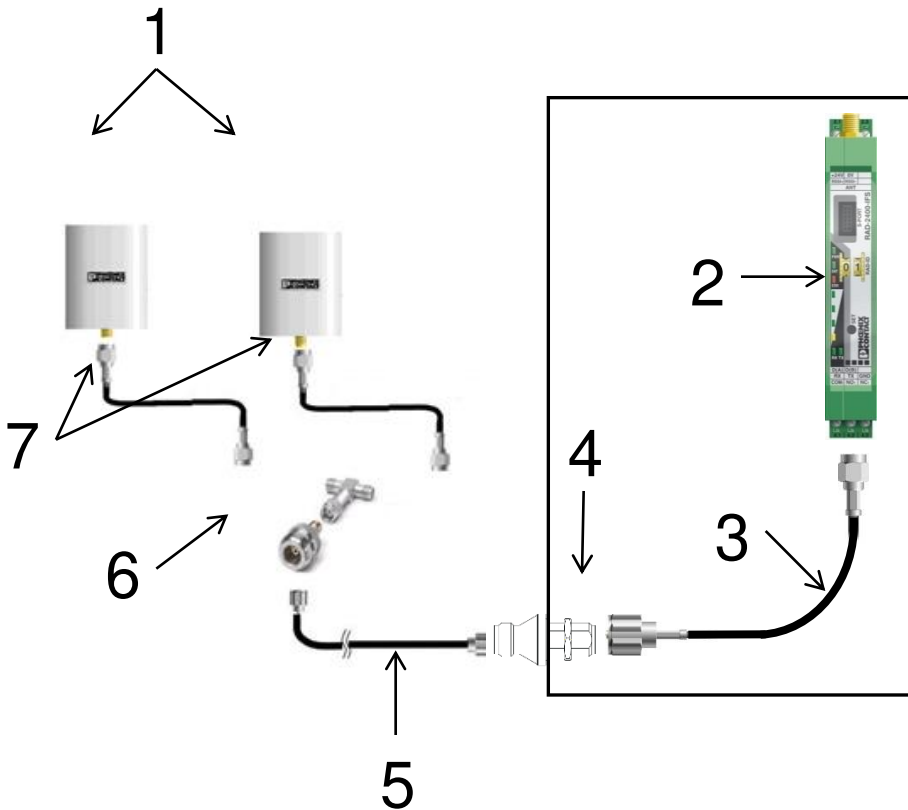
2.4 GHz

Antenna splitter sets for repeater applications



Bill of materials

Index	Part number	Part name	Description	Quantity
1	2867610	RAD-ISM-2400-ANT-PAN-8-0	Panel-directional antenna with 8 dBi gain 2.4 GHz SMA(f) IP55	2
2	2901541	RAD-2400-IFS	Radioline 2.4 GHz	1
3	2903263/4/5/6	RAD-PIG-RSMA/N-0.5/1/2/3	Antenna cable N(m) to RSMA(m) 0.5/1/2/3 m	1
4	2803166	CN-UB-70DC-6-BB	Coaxial surge protection	1
5	5606124 5606125 5606126	RAD-CAB-LMR**	N(m) to N(m) antenna cable 10, 20, 25 foot	1
6	2885595	RAD-ISM-2400-SPL-2-SMA	Antenna splitter: 2 SMA(f), 1 SMA(m)	1
7	2885618	RAD-PIG-EF316-SMA-SMA	Antenna cable SMA(m) to SMA(m) 0.5 m	2



2.4 GHz

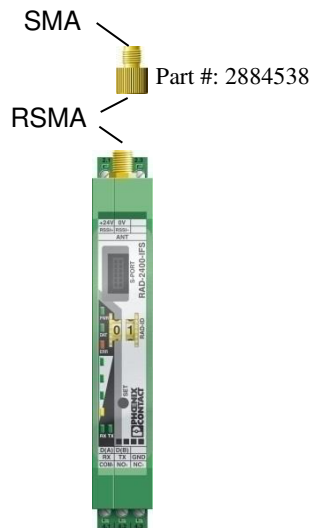
Can the classic antenna portfolio still be used?

Yes!

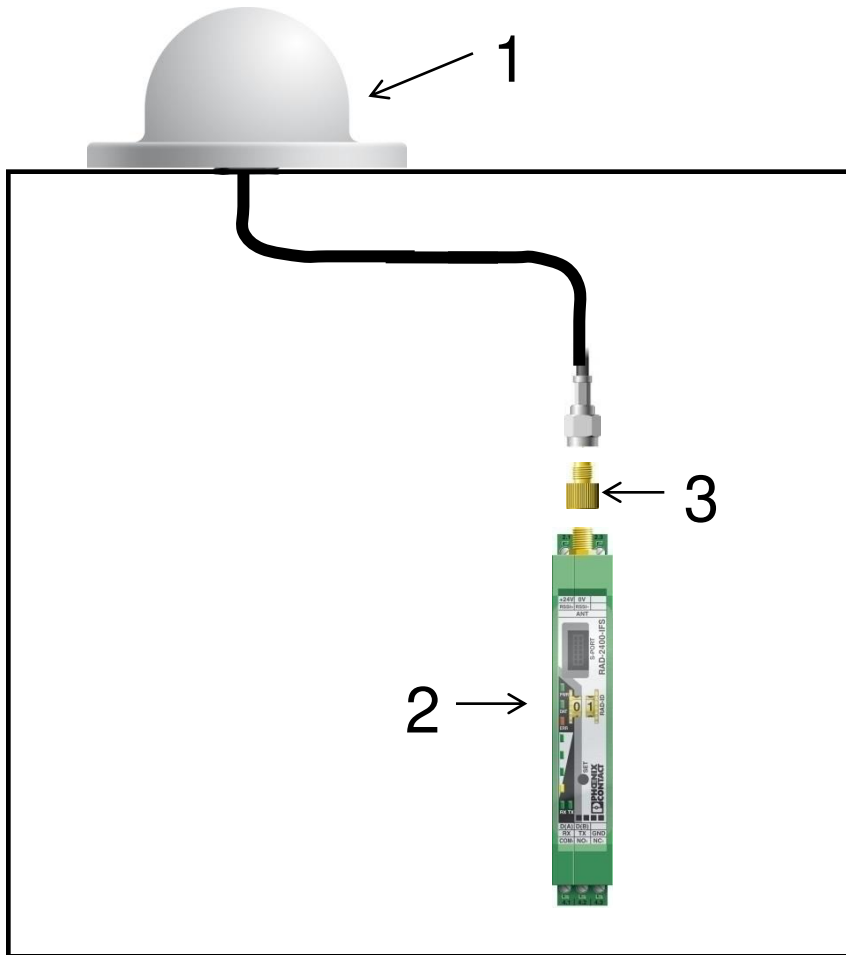
- Match the appropriate antenna with the correct frequency band

2.4 GHz

- One antenna cable adapter changes from RSMA to SMA



Vandal-proof, omnidirectional antenna mounted on switching cabinet or mobile device

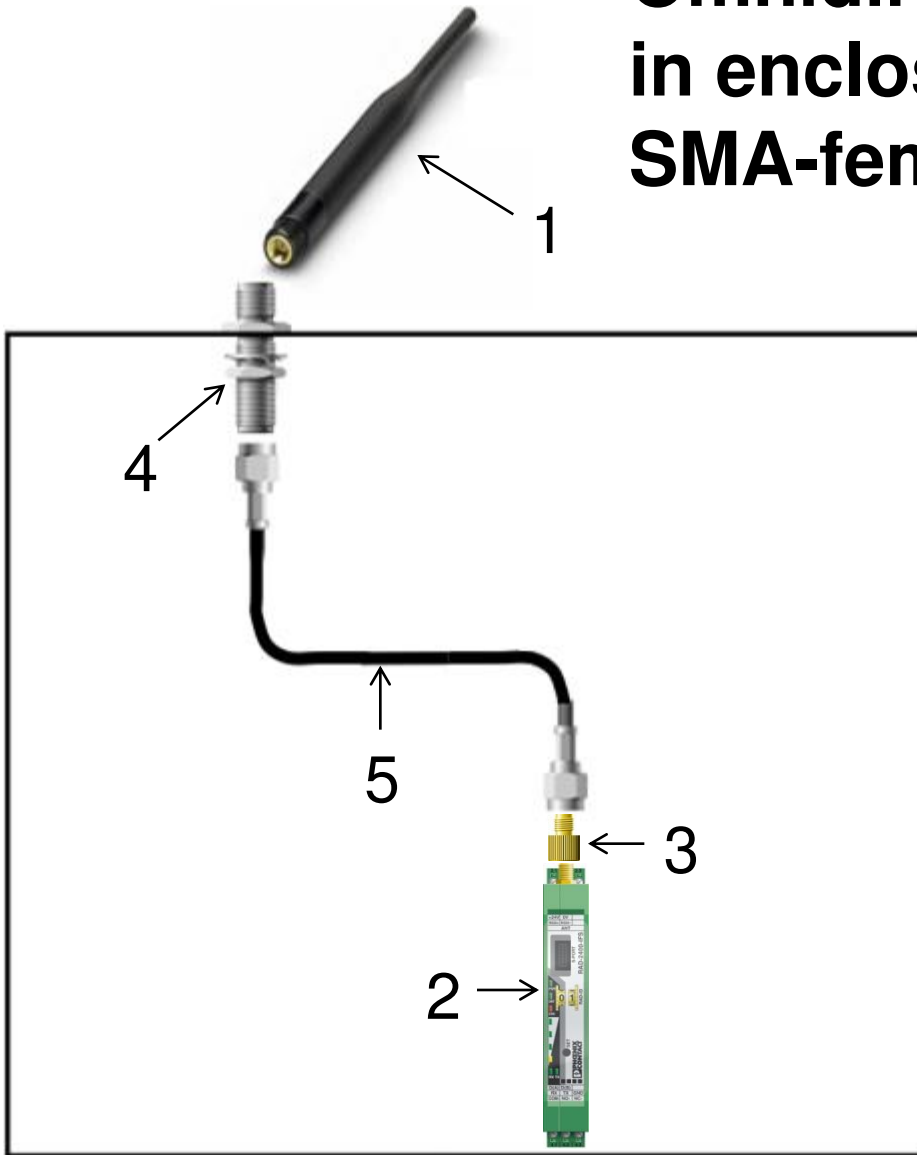


Bill of materials

Index	Part number	Part name	Description	Quantity
1	2885867	RAD-ISM-2400-ANT-VAN-3-0-SMA	Omnidirectional antenna with 3 dBi gain 2.4 GHz SMA(m) IP55	1
2	2901541	RAD-2400-IFS	Radioline 2.4 GHz	1
3	2884538	RAD-ADP-RSMA/F-SMA/F	Adapter for RSMA(f) to SMA(f)	1

2.4 GHz

Omnidirectional antenna (5 dBi) in enclosure with SMA-female to SMA-female bulkhead adaptor

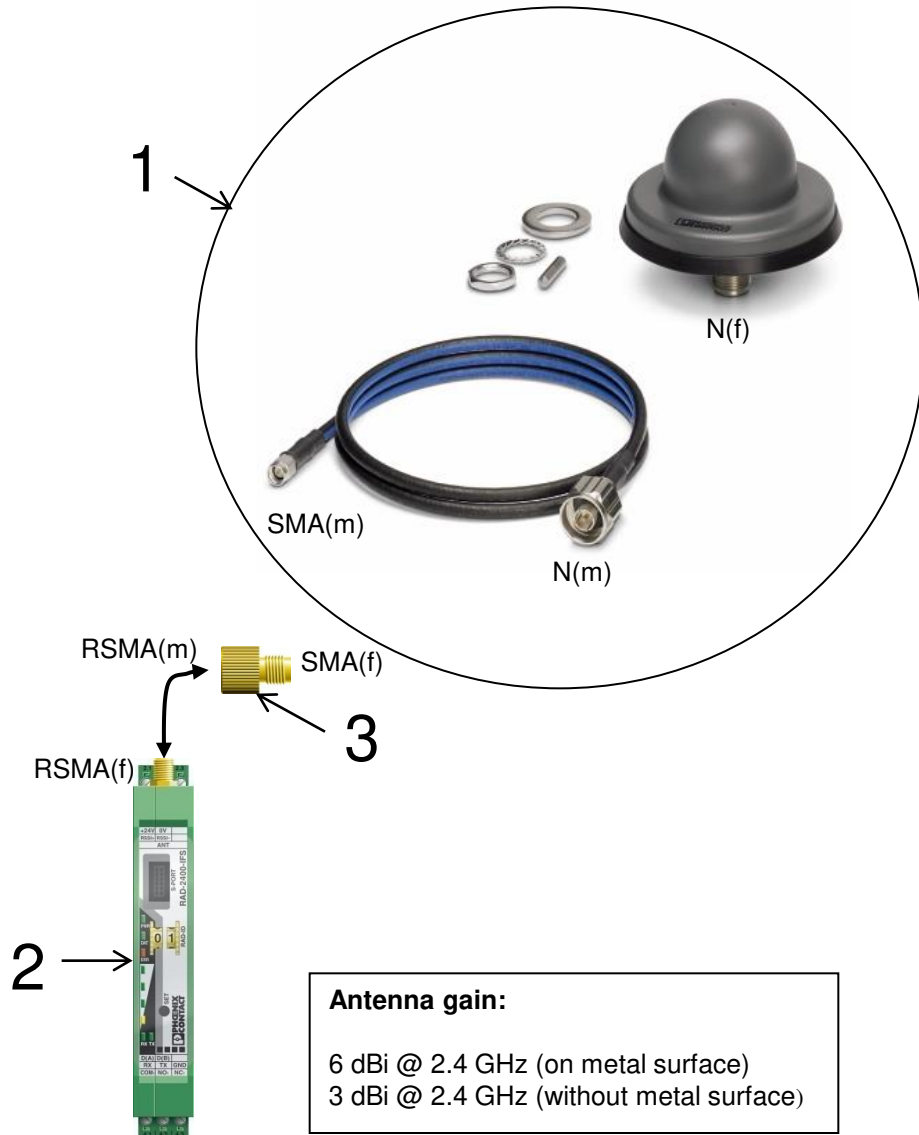


Bill of materials

Index	Part number	Part name	Description	Quantity
1	2884923	RAD-ISM-2400-ANT-OMNI-5-0	Omnidirectional antenna with 5 dBi gain 2.4 GHz SMA(m) IP55	1
2	2901541	RAD-2400-IFS	Radioline 2.4 GHz	1
3	2884538	RAD-ADP-RSMA/F-SMA/F	Adapter for RSMA(f) to SMA(f)	1
4	2884541	RAD-ADP-SAM/F-SMA/F	Adapter for SMA(F) to SMA(f)	1
5	2885618	RAD-PIG-EF-316-SMA/M-SMA/M	Antenna cable SMA(m) to SMA(m) 0.5 m	1

2.4 GHz

Vandal-proof, omnidirectional antenna to be mounted on switching cabinet or mobile device: IP68 for food and beverage

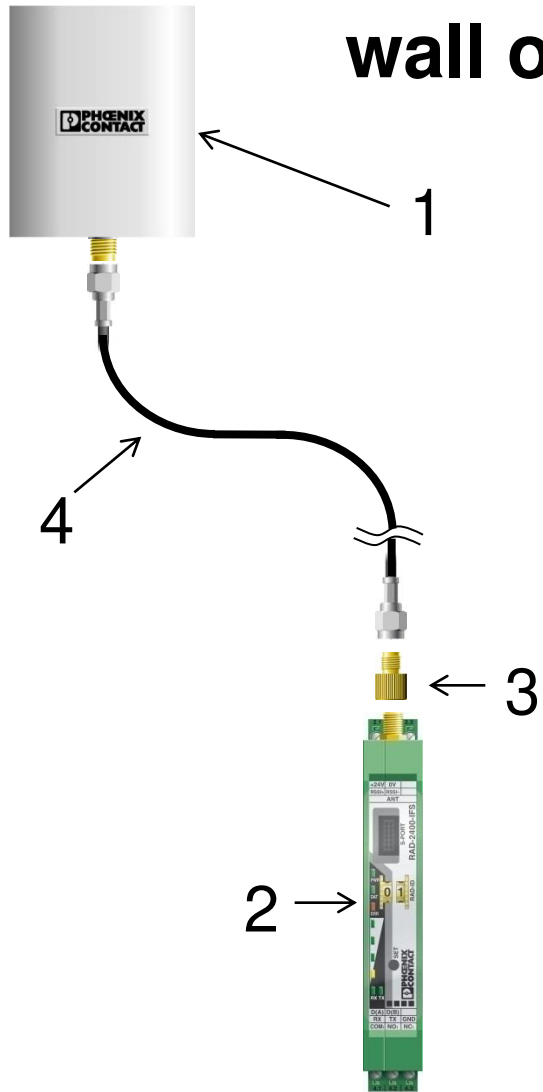


Bill of materials

Index	Part number	Part name	Description	Quantity
1	2692526	RAD-ISM-2459-ANT-FOOD-6-0	Omnidirectional antenna with 6 dBi gain 2.4 GHz SMA(m) IP68	1
2	2901541	RAD-2400-IFS	Radioline 2.4 GHz	1
3	2884538	RAD-ADP-RSMA/F-SMA/F	Adapter for RSMA(f) to SMA(f)	1

2.4 GHz

Directional antenna mounted on wall or mast
























Bill of materials

Index	Part number	Part name	Description	Quantity
1	2867610	RAD-ISM-2400-ANT-PAN-8-0	Panel-directional antenna with 8 dBi gain 2.4 GHz SMA(f) IP68	1
2	2901541	RAD-2400-IFS	Radioline 2.4 GHz	1
3	2884538	RAD-ADP-RSMA/F-SMA/F	Adapter for RSMA(f) to SMA(f)	1
4	2884512 2884525	RAD-CAB-EF142-3M/5M	Antenna cable SMA(m) to SMA(m) 3/5 m	1

2.4 GHz

Antennas and cables for Radioline 900 MHz







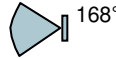
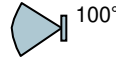
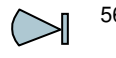
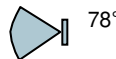
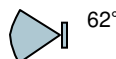
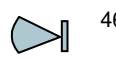
overview 2/2

Article	RAD-900-ANT-OMNI-2-2-RSMA	RAD-900-ANT-OMNI-2-N	RAD-ISM-900-ANT-OMNI-RPSMA	RAD-ISM-900-ANT-OMNI-0-N	RAD-ISM-900-ANT-OMNI-FG-3-N	RAD-ISM-900-ANT-OMNI-FG-6-N	RAD-ISM-900-ANT-OMNI-5
Order No.	2904801	2904802	2885676	5604160	2867791	2885579	2867199
Picture							
Frequency	900 MHz	900 MHz	900 MHz	900 MHz	902-928 MHz	900 MHz	900 MHz
Gain	2.15 dBi	2.15 dBi	2 dBi	2.15 dBi	5.15 dBi	8 dBi	7 dBi
Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
HPBW horizontal	 360°	 360°	 360°	 360°	 360°	 360°	 360°
HPBW vertical	 78°	 78°	 78°	 78°	 28°	 15°	 30°
Connector	RSMA (m)	N (f)	RPSMA (m)	N (f)	N (f)	N(f)	N (f)
Protection class	IP65	IP66	IP55	IP65	IP65	IP65	IP65
Temperature range	-40...+75°C	-40...+70°C	-20...+65°C	-40...+75°C	-40...+80°C	-40...+80°C	-40...+80°C
Dimensions	89 x 12 mm	89 x 38 mm	203 x 13 mm	89 x 3 mm	1120 x 60 mm	1800 x 60 mm	610 x 3 mm
	Fixed cable 6 m	Mounts on switching cabinet	Direct mount on radio	Fixed cable 76 mm	Fiber glass with wall mount kit	Fiber glass with wall mount kit	Wall and mast mount

HPBW = Half Power Band Width = opening angle

Antennas and cables for Radioline 900 MHz

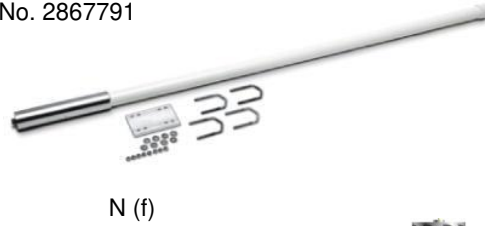
overview 2/2

Article	RAD-ISM-900-ANT-YAGI-3-N	RAD-ISM-ANT-YAGI-6.5-N	RAD-ISM-900-ANT-YAGI-10-N		RAD-PIG-RSMA/N-x	CN-UB-70DC-6-BB	RAD-CAB-LMR**
Order No.	2867801	2867814	5606614		290326 3 /4 /5 /6	2803166	5606124 /5 /6
Picture							
Frequency	900 MHz	900 MHz	900 MHz		up to 5 GHz	up to 6 GHz	up to 6 GHz
Gain	5 dBi	8.5 dBi	12.15 dBi		-1.2 dB/m @ 5 GHz	-	-7.6, -3.9, -3.13 dB per 100 feet
Polarization	Vertical	Vertical	Vertical		-	-	-
HPBW horizontal	 168°	 100°	 56°		-	-	-
HPBW vertical	 78°	 62°	 46°		-	-	-
Connector	N (f)	N (f)	N(f)		RSMA (m) – N (m)	N (f) – N (f)	N (m) – N (m)
Protection class	IP65	IP65	IP65		-	IP68	-
Temperature range	-40...+80°C	-40...+80°C	-40...+70°C		-40...+85°C	-40...+90°C	-40...105°C
dimensions	170 x 60 mm	170 x 60 mm	172 x 60.5 mm		0,5 or 1 or 2 or 3 m	24 x 24 x 47 mm	10, 20 and 25 feet
	Yagi directional antenna	Yagi directional antenna	Yagi directional antenna		Cable between wireless module and antenna or surge arrester	Antenna surge suppression	Antenna cables, Visit www.phoenixcontact.com/antennas for more lengths

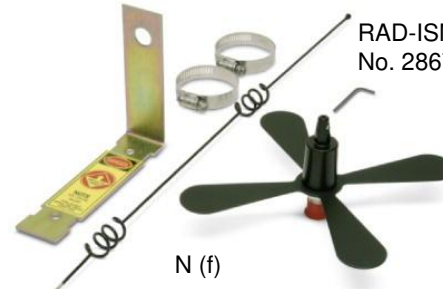
HPBW = Half Power Band Width = opening angle

Various antennas for different applications – all using the same connector (900 MHz)

RAD-ISM-900-ANT-OMNI-FG-3-N
No. 2867791



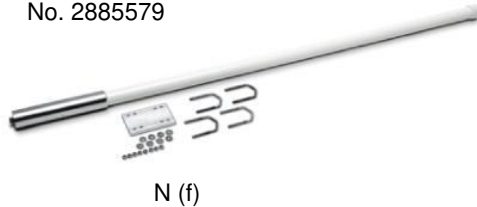
RAD-ISM-900-ANT-OMNI-5
No. 2867199



RAD-ISM-900-ANT-YAGI-3-N
No. 2867801



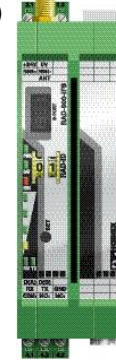
RAD-ISM-900-ANT-OMNI-FG-6-N
No. 2885579



N (m)

RSMA (m)

RSMA (f)



RAD-900-IFS
Art. No. 2901540

900 MHz

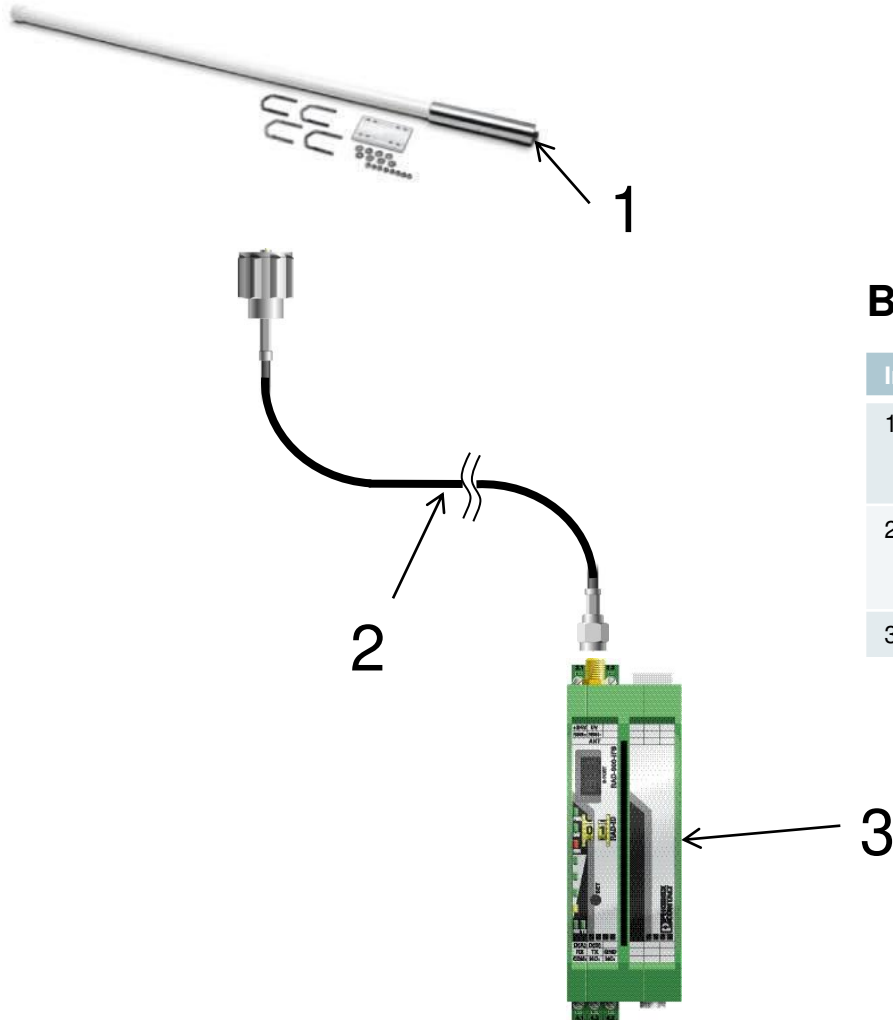
RAD-PIG-RSMA/N-x

RAD-PIG-RSMA/N-0.5	No. 2903263	length 0.5 m
RAD-PIG-RSMA/N-1	No. 2903264	length 1 m
RAD-PIG-RSMA/N-1	No. 2903265	length 2 m
RAD-PIG-RSMA/N-3	No. 2903266	length 3 m



One cable type connects Radioline to all these antennas

Antenna for omnidirectional radiation with improved gain (5 dBi)

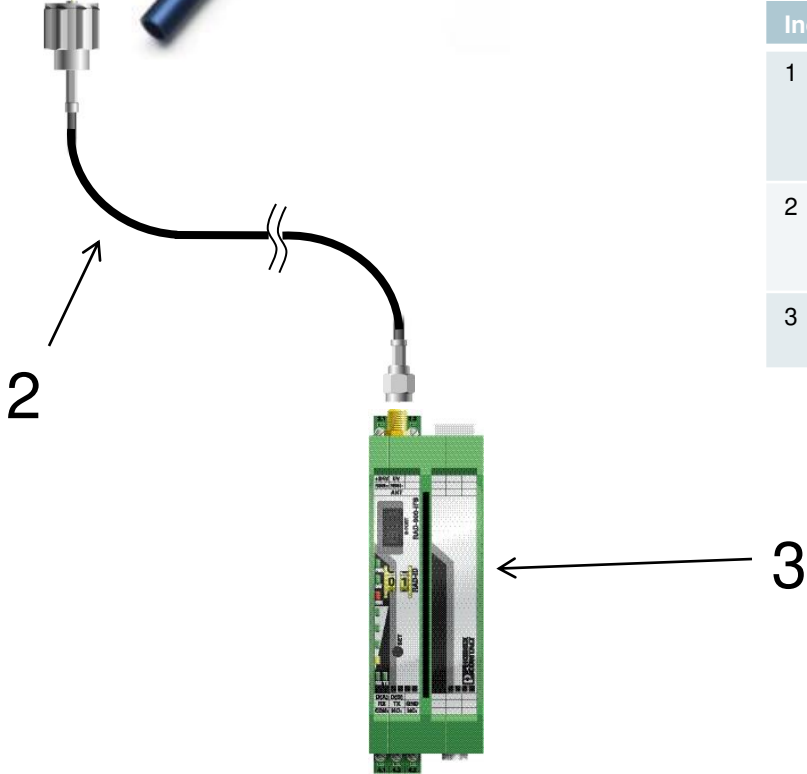


Bill of materials

Index	Part number	Part name	Description	Quantity
1	2867791	RAD-ISM-900-ANT-OMNI-FG-3-N	Omnidirectional antenna with 5 dBi gain 900 MHz N(f)	1
2	2903263/4/5/6	RAD-PIG-RSMA/N-0.5/1/2/3	N(m) to RSMA(m) antenna cable 0.5/1/2/3 m	1
3	2901540	RAD-900-IFS	Radioline 900 MHz	1

900 MHz

Antenna for directional radiation with improved gain (8.5 dBi)

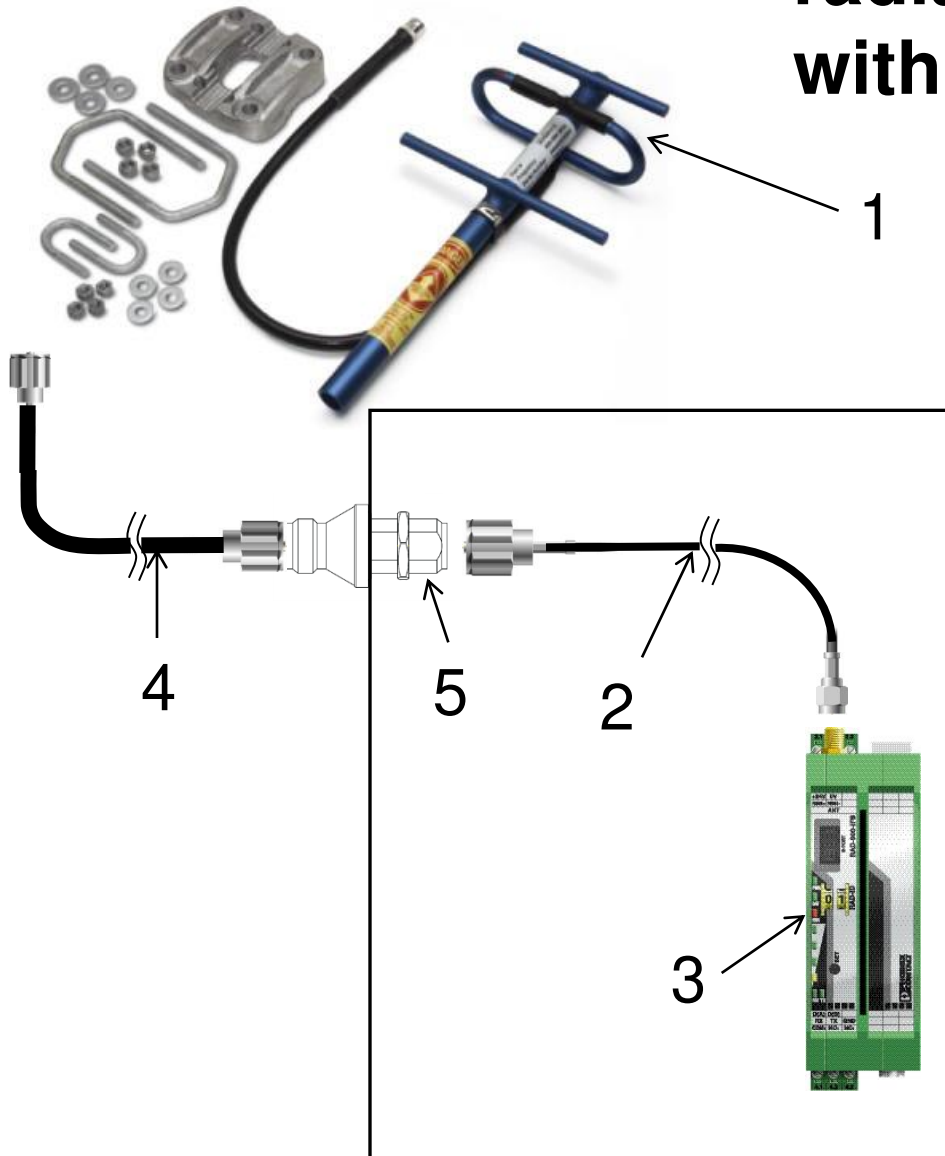


Bill of materials

Index	Part number	Part name	Description	Quantity
1	2867814	RAD-ISM-900-ANT-YAGI-6.5-N	Yagi directional antenna with 8.5 dBi gain 900 MHz N(f)	1
2	2903263/4/5/6	RAD-PIG-RSMA/N-0.5/1/2/3	N(m) to RSMA(m) antenna cable 0.5/1/2/3 m	1
3	2901540	RAD-2400-IFS	Radioline 900 MHz	1

900 MHz

Antenna for directional radiation prolonged cable with surge protection



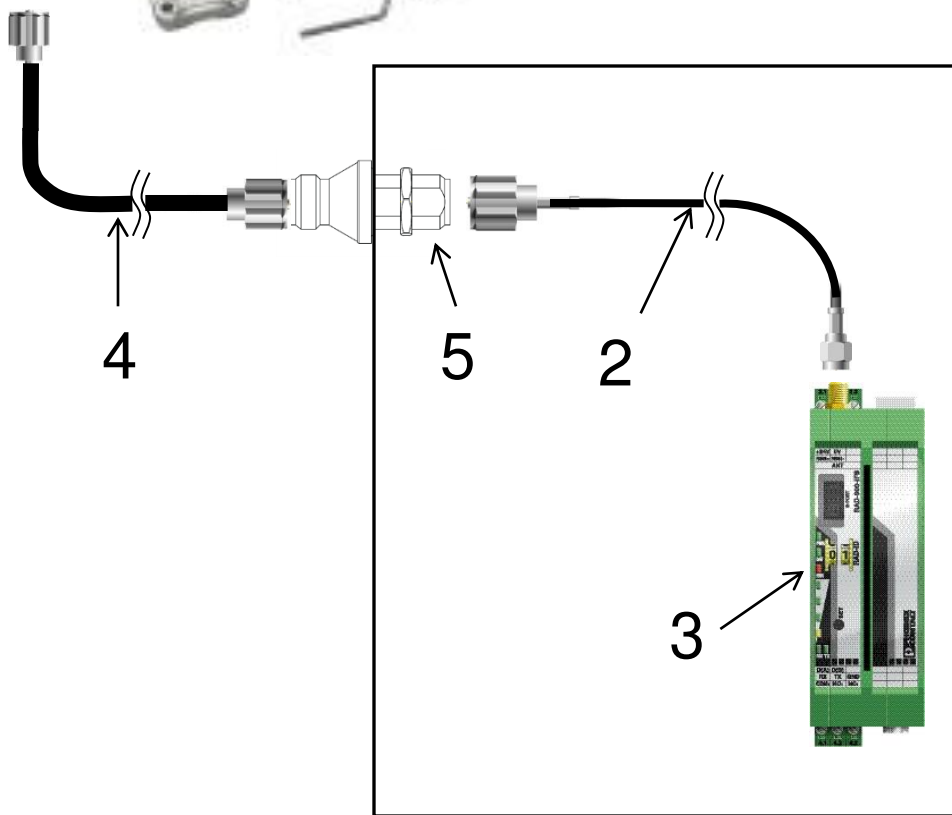
Mounting inside switching cabinet

Bill of materials

Index	Part number	Part name	Description	Quantity
1	2867814	RAD-ISM-900-ANT-YAGI-6.5-N	Yagi directional antenna with 8.5 dBi gain 900 MHz N(f)	1
2	2903263/4/5/6	RAD-PIG-RSMA/N-0.5/1/2/3	N(m) to RSMA(m) antenna cable 0.5/1/2/3 m	1
3	2901540	RAD-900-IFS	Radioline 900 MHz	1
4	5606124 5606125 5606126	RAD-CAB-LMR**	N(m) to N(m) antenna cable 10, 20, 25 foot	1
5	2803166	CN-UB-70DC-6-BB	Coaxial surge protection	1

900 MHz

Antenna for directional long distance communication



Mounting inside switching cabinet

Bill of materials

Index	Part number	Part name	Description	Quantity
1	5606614	RAD-ISM-900-ANT-YAGI-10-N	Yagi directional antenna with 12.15 dBi gain 900 MHz N(f)	1
2	2903263/4/5/6	RAD-PIG-RSMA/N-0.5/1/2/3	N(m) to RSMA(m) antenna cable 0.5/1/2/3 m	1
3	2901540	RAD-900-IFS	Radioline 900 MHz	1
4	5606124 5606125 5606126	RAD-CAB-LMR**	N(m) to N(m) antenna cable 10, 20, 25 foot	1
5	2803166	CN-UB-70DC-6-BB	Coaxial surge protection	1

900 MHz