

# ILB BT ADIO MUX INSTALL

## Typical combinations of antennas and adapter cables



Application note  
107804\_en\_00

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## 1 Description

This application note shows you how to install the Wireless-MUX set indoors or outdoors with various accessories.

Accessories:

- Antennas
- Adapter cable
- Surge protection

Order No.	Designation	Antenna supplied as standard	Description
2884208	ILB BT ADIO MUX-OMNI	Omnidirectional antennas with 1.5 m cable	Wireless-MUX set, two modules, with 16 digital inputs, 16 digital outputs, 2 analog inputs, and 2 analog outputs (0 ... 20 mA, 0 ... 10 V)
2702875	ILB BT ADIO MUX	None	



### WARNING:

This application note does **not** replace the device-specific documents.  
Please follow the safety notes in the associated packing slips and data sheets.



Make sure you always use the latest documentation.  
It can be downloaded at [phoenixcontact.net/products](http://phoenixcontact.net/products).

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### 3 Installation indoors

#### 3.1 Omnidirectional antenna, 2 dBi

Included in scope of supply for ILB BT ADIO MUX-OMNI.

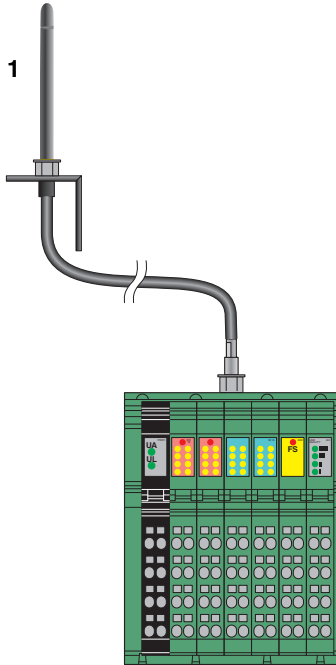


Figure 1 Omnidirectional antenna, 2 dBi

Item	Product	Description	Connection	Order No.
1	RAD-ISM-2400-ANT-OMNI-2-1-RSMA	Omnidirectional antenna, 2.4 GHz, 2 dBi, linear vertical, 1.5 m cable, IP65, 50 $\Omega$ impedance	RSMA (male)	2701362

### 3.2 Omnidirectional antenna with protection against vandalism, 3 dBi

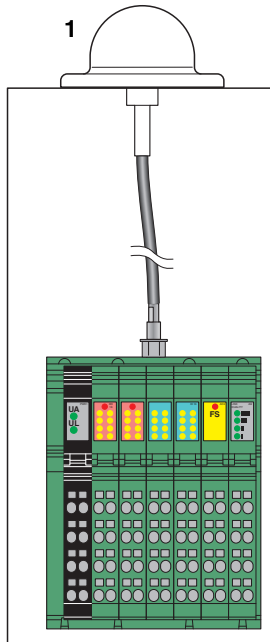


Figure 2 Omnidirectional antenna with protection against vandalism, 3 dBi

Item	Product	Description	Connection	Order No.
1	RAD-ISM-2400-ANT-VAN-3-0-RSMA	Omnidirectional antenna with protection against vandalism, 2.4 GHz, 3 dBi gain, IP55 degree of protection, 1.5 m cable length, h/v 360°/85° opening angle.  Appropriate mounting material is available for wall mounting.	RSMA (male)	2701358

### 3.3 Omnidirectional antenna, 2.5 dBi

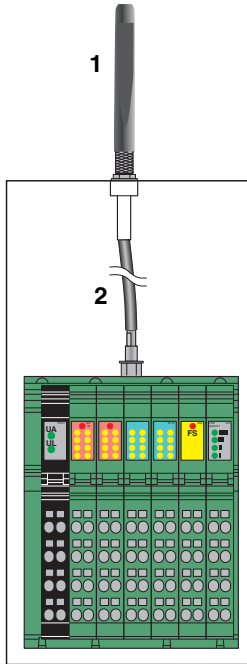


Figure 3 Omnidirectional antenna, 2.5 dBi

Item	Product	Description	Connection	Order No.
1	ANT-OMNI-2459-02	Omnidirectional antenna, 2.4 GHz/5 GHz, 2.5/5 dBi gain, linear vertical polarization, opening angle: h/v 360°/30° for 2.4 GHz, h/v 360°/16° for 5 GHz, IP68	N (male)	2701408
2	RAD-PIG-EF316-N-RSMA	Adapter cable, 50 cm pigtail, 50 Ω impedance	N (female) → RSMA (male)	2701402

3.4 Omnidirectional antenna, 6 dBi

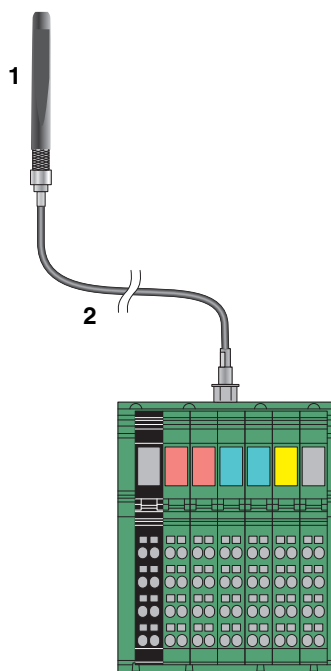


Figure 4 Omnidirectional antenna, 6 dBi

Item	Product	Description	Connection	Order No.
1	RAD-ISM-2400-ANT-OMNI-6-0	Omnidirectional antenna, 2.4 GHz, 6 dBi gain, linear vertical polarization, h/v 360°/30° opening angle, IP55 degree of protection	N (female)	2885919
	<b>Alternative:</b> RAD-2400-ANT-OMNI-6-0-SW	Omnidirectional antenna, 2.4 GHz, 6 dBi gain, linear vertical polarization, h/v 360°/20° opening angle, IP65 degree of protection, seawater-resistant	N (female)	2903219
2	RAD-PIG-RSMA/N-0.5	Antenna cable, 0.5 m length, 50 Ω impedance	N (male) → RSMA (male)	2903263
	<b>Alternative:</b> RAD-PIG-RSMA/N-1	Antenna cable, 1 m length		2903264
	RAD-PIG-RSMA/N-2	Antenna cable, 2 m length		2903265
	RAD-PIG-RSMA/N-3	Antenna cable, 3 m length	N (male) → RSMA (male)	2903266
	RAD-PIG-RSMA/N-5	Antenna cable, 5 m length		2702140

## 4 Installation outdoors



Use surge protection for installation outdoors.  
– CN-LAMBDA/4-5.9-BB, 2838490

### 4.1 Omnidirectional antenna, 6 dBi, with surge protection

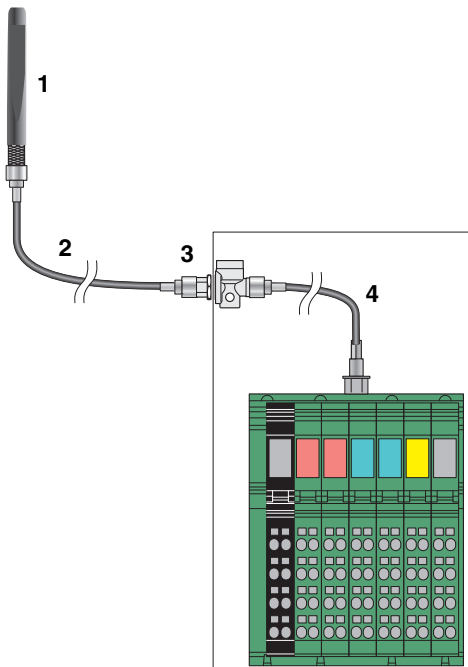


Figure 5 Omnidirectional antenna, 6 dBi, with surge protection

Item	Product	Description	Connection	Order No.
1	RAD-ISM-2400-ANT-OMNI-6-0	Omnidirectional antenna, 2.4 GHz, 6 dBi gain, linear vertical polarization, h/v 360°/30° opening angle, IP55 degree of protection	N (female)	2885919
	<b>Alternative:</b> RAD-2400-ANT-OMNI-6-0-SW	Omnidirectional antenna, 2.4 GHz, 6 dBi gain, linear vertical polarization, h/v 360°/20° opening angle, IP65 degree of protection, seawater-resistant	N (female)	2903219
2	RAD-CAB-EF393- 3M	Antenna cable, 3 m length, 50 Ω impedance		2867649
	<b>Alternative:</b> RAD-CAB-EF393- 5M	Antenna cable, 5 m length	N (male) →	2867652
	RAD-CAB-EF393-10M	Antenna cable, 10 m length	N (male)	2867665
	RAD-CAB-EF393-15M	Antenna cable, 15 m length		2885634
3	CN-LAMBDA/4-5.9-BB	Attachment plug with Lambda/4 technology as surge protection for coaxial signal interfaces.	N (female) → N (female)	2838490

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Item	Product	Description	Connection	Order No.
4	RAD-PIG-RSMA/N-0.5	Antenna cable, 0.5 m length, 50 $\Omega$ impedance		2903263
	<b>Alternative:</b>			
	RAD-PIG-RSMA/N-1	Antenna cable, 1 m length	N (male) →	2903264
	RAD-PIG-RSMA/N-2	Antenna cable, 2 m length	RSMA (male)	2903265
	RAD-PIG-RSMA/N-3	Antenna cable, 3 m length		2903266
	RAD-PIG-RSMA/N-5	Antenna cable, 5 m length		2702140

## 4.2 Directional antenna, 9 dBi, with surge protection

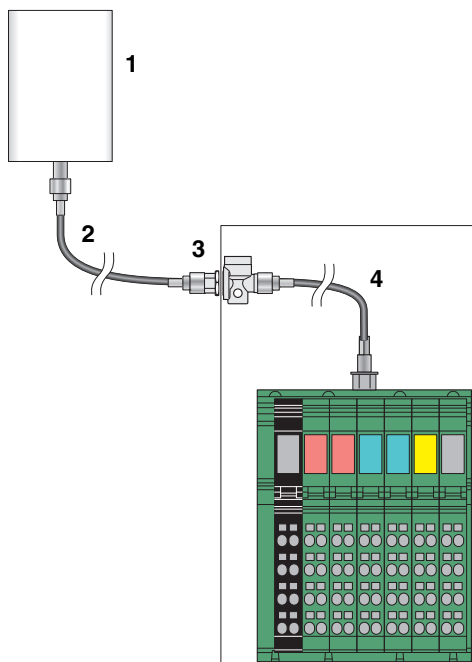


Figure 6 Directional antenna, 9 dBi, with surge protection

Item	Product	Description	Connection	Order No.
1	ANT-DIR-2459-01	Directional antenna, 2.4/5 GHz, 9 dBi gain, linear vertical polarization, h/v 75°/55° opening angle for 2.4 GHz, IP67 degree of protection	N (female)	2701186
2	RAD-CAB-EF393- 3M	Antenna cable, 3 m length, 50 Ω impedance	N (male) → N (male)	2867649
	<b>Alternative:</b> RAD-CAB-EF393- 5M	Antenna cable, 5 m length		2867652
	RAD-CAB-EF393-10M	Antenna cable, 10 m length		2867665
	RAD-CAB-EF393-15M	Antenna cable, 15 m length		2885634
3	CN-LAMBDA/4-5.9-BB	Attachment plug with Lambda/4 technology as surge protection for coaxial signal interfaces.	N (female) → N (female)	2838490
4	RAD-PIG-RSMA/N-0.5	Antenna cable, 0.5 m length, 50 Ω impedance	N (male) → RSMA (male)	2903263
	<b>Alternative:</b> RAD-PIG-RSMA/N-1	Antenna cable, 1 m length		2903264
	RAD-PIG-RSMA/N-2	Antenna cable, 2 m length		2903265
	RAD-PIG-RSMA/N-3	Antenna cable, 3 m length		2903266
	RAD-PIG-RSMA/N-5	Antenna cable, 5 m length		2702140



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