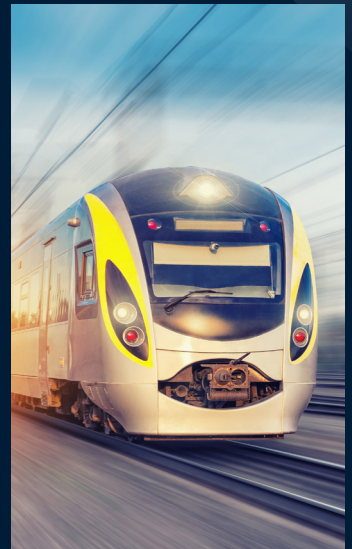




Taoglas and Westbase.io Mobile Antenna Solutions Guide



Semtech Edition

Real-time, always-on connectivity

Taoglas® is a leading enabler of digital transformation using IoT from initial strategy definition to design, build, deployment and managed services. As an approved partner to Westbase.io, combining Taoglas' advanced antenna designs with Semtech's market leading routers has never been easier.

By working with Westbase.io you can be confident that you will get the best performance in the industry for your 5G NR/Cat 20 LTE mobile networking solutions. Semtech designs high-performance routers for mission-critical applications. With Semtech's range of 4G LTE and 5G cellular routers you can accelerate the deployment of new applications with secure connectivity, location-based services, and remote management. When coupled with Taoglas' range of highly-sophisticated GNSS, 5G/4G cellular and Wi-Fi antennas you unlock dual-carrier connectivity for the best possible connections and always-on connectivity.

The following guide will remove the complexities involved in antenna selection. Easily choose from a vast range of advanced antenna solutions that are designed to be fully compatible with Semtech routers. This guide is a snapshot of Taoglas' vast portfolio and technology, so if your requirements differ from what is included please contact Westbase.io about what we can do for you.



High-performance 5G Antenna Solutions for Semtech XR90 Router with expansion cartridge

XR90

Front



LPWA Antenna (Fakra Bordeaux Violet Plug - Code D)

Back



Cellular Antenna (Fakra Bordeaux Violet Plugs - Code D)

GNSS Connector (Fakra Signal Blue Plug - Code C)

Wi-Fi Antenna Connector (Fakra Beige Plugs - Code Code I)

Bluetooth Antenna Connector (Fakra Water Blue Plug - Code Z)

Cellular Antenna (Fakra Bordeaux Violet Plugs - Code D)

AirLink XR90 with expansion cartridge			Requirements				
Taoglas Compatible Antenna Configurations			1 x GNSS	8 x Cellular	8 x Wi-Fi	1 x LPWA	1 x BLE
1	GuardianX MA9917 17-in-1		1 x GPS/GLONASS/Galileo	8 x 5G/4G	8 x Wi-Fi		
	TG.08 Hinged Fakra connector mount LPWA antenna					1 x LPWA	
	GW.05 Hinged Fakra connector mount BLE antenna						1 x BLE
2	Synergy MA1555 5-in-1		1 x Multi-band GNSS	4 x 5G/4G			
	GW.05 / TG.08 Hinged Fakra connector mount BLE / LPWA antennas					1 x LPWA	1 x BLE
	Guardian MA964 4-in-1				8 x Wi-Fi		
	Guardian MA963 4-in-1			4 x 5G/4G			
3	Raptor MAX MAX1015 15-in-1		1 x GPS/GLONASS	8 x 5G/4G	6 x Wi-Fi		
	TG.08 Hinged Fakra connector mount LPWA antenna					1 x LPWA	
	GW.05 Hinged Fakra connector mount BLE / Wi-Fi antennas				2 x Wi-Fi		1 x BLE

Cables and Connectors are customizable.

● GNSS ● Cellular ● Wi-Fi ● LPWA ● BLE

High-performance 5G Antenna Solutions for Semtech XR90 Router without expansion cartridge

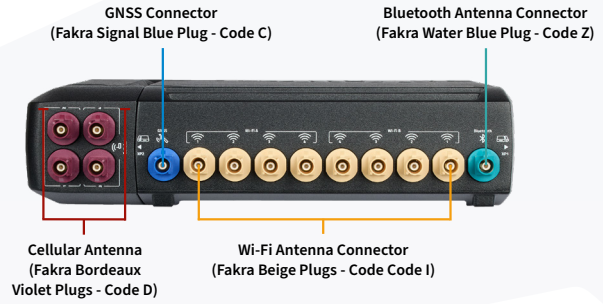
XR90

Front



LPWA Antenna (Fakra Bordeaux Violet Plug - Code D)

Back



GNSS Connector (Fakra Signal Blue Plug - Code C)

Bluetooth Antenna Connector (Fakra Water Blue Plug - Code Z)

Cellular Antenna (Fakra Bordeaux Violet Plugs - Code D)

Wi-Fi Antenna Connector (Fakra Beige Plugs - Code I)

AirLink XR90 without expansion cartridge			Requirements				
Taoglas Compatible Antenna Configurations			1 x GNSS	4 x Cellular	8 x Wi-Fi	1 x LPWA	1 x BLE
1	GuardianX MA9908 8-in-1				 8 x Wi-Fi		
	Synergy MA1505 5-in-1		 1 x GPS/GLONASS/BeiDou	 4 x 5G/4G			
	TG.08 Hinged Fakra connector mount LPWA antenna					 1 x LPWA	
	GW.05 Hinged Fakra connector mount BLE antenna						 1 x BLE
2	Synergy X MA1555 5-in-1		 1 x Active Multi-Band GNSS	 4 x 5G/4G			
	Guardian MA964 4-in-1				 8 x Wi-Fi		
	TG.08 Hinged Fakra connector mount LPWA antenna					 1 x LPWA	
	GW.05 Hinged Fakra connector mount BLE antenna						 1 x BLE

Cables and Connectors are customizable.

● GNSS ● Cellular ● Wi-Fi ● LPWA ● BLE

High-performance Antenna solutions for Semtech XR80 Router with expansion cartridge

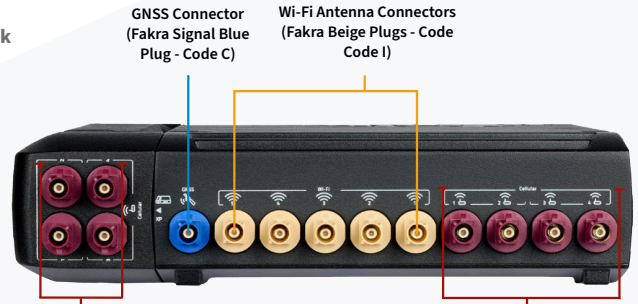
XR80

Front



LPWA Antenna (Fakra Bordeaux Violet Plug - Code D)

Back



Cellular Antenna (Fakra Bordeaux Violet Plugs - Code D)

Cellular Antenna (Fakra Bordeaux Violet Plugs - Code D)

GNSS Connector (Fakra Signal Blue Plug - Code C)

Wi-Fi Antenna Connectors (Fakra Beige Plugs - Code I)

AirLink XR80 with expansion cartridge				Requirements				
Taoglas Compatible Antenna Configurations				1 x GNSS	8 x Cellular	5 x Wi-Fi	1 x LPWA	
1	GuardianX MA9914 14-in-1			TG.08 Hinged Fakra connector mount LPWA antenna	1 x GPS/GLONASS/Galileo/BeiDou	8 x 5G/4G	5 x Wi-Fi	1 x LPWA
2	Synergy MA1510 10-in-1				1 x GPS/GLONASS/Galileo/BeiDou	4 x 5G/4G	5 x Wi-Fi	
	Guardian MA963 4-in-1			TG.08 Hinged Fakra connector mount LPWA antenna		4 x 5G/4G		1 x LPWA
3	Raptor MAX MAX1014 14-in-1				1 x GNSS	8 x 5G/4G	5 x Wi-Fi	
	GW.05.0E23 (x5) Dual-Band Wi-Fi			TG.08 Hinged Fakra connector mount LPWA antenna				1 x LPWA
4	Synergy MA1505 5-in-1				1 x GPS/GLONASS/Galileo/BeiDou	4 x 5G/4G		
	Guardian MA963 4-in-1					4 x 5G/4G		
	Guardian MA957 5-in-1			TG.08 Hinged Fakra connector mount LPWA antenna			5 x Wi-Fi	1 x LPWA
5	Synergy MA1505 5-in-1				1 x GPS/GLONASS/Galileo/BeiDou	4 x 5G/4G		
	Synergy MA1504 4-in-1					4 x 5G/4G		
	GW.05.0E23 (x5) Dual-Band Wi-Fi			TG.08 Hinged Fakra connector mount LPWA antenna			5 x Wi-Fi	1 x LPWA
6	Synergy X MA1555 5-in-1				1 x Active Multi-Band GNSS	2x 5G/4G	2 x Wi-Fi	
	TGX.04 4-in-1					4 x 5G/4G		
	GW.05.0E23 (x5) Dual-Band Wi-Fi			TG.08 Hinged Fakra connector mount LPWA antenna			5 x Wi-Fi	1 x LPWA

Cables and Connectors are customizable.

● GNSS ● Cellular ● Wi-Fi ● LPWA

High-performance Antenna solutions for Semtech XR80 Router without expansion cartridge

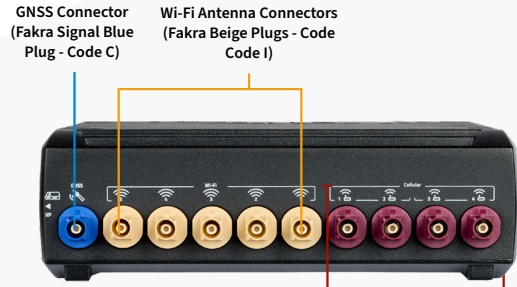
XR80

Front



LPWA Antenna (Fakra Bordeaux Violet Plug - Code D)

Back



GNSS Connector (Fakra Signal Blue Plug - Code C)

Wi-Fi Antenna Connectors (Fakra Beige Plugs - Code I)

Cellular Antenna (Fakra Bordeaux Violet Plugs - Code D)

AirLink XR80 without expansion cartridge			Requirements			
Taoglas Compatible Antenna Configurations			1 x GNSS	4 x Cellular	5 x Wi-Fi	1 x LPWA
1	Guardian MA952 5-in-1		● 1 x GPS/GLONASS/ Galileo/BeiDou	●●●● 4 x 5G/4G		
	GW.05.0E23 (x5) Dual-Band Wi-Fi				●●●●● 5 x Wi-Fi	● 1 x LPWA
2	Synergy X MA1555 5-in-1		● 1 x Active Multi-Band GNSS	●●●● 4x 5G/4G		
	GW.05.0E23 (x5) Dual-Band Wi-Fi				●●●●● 5 x Wi-Fi	● 1 x LPWA
3	MA8010 Raptor X 10-in-1		● 1 x GNSS L1/L5 Bands	●●●● 4 x 5G/4G	●●●●● 5 x Wi-Fi	
	Guardian MA957 5-in-1				●●●●● 5 x Wi-Fi	● 1 x LPWA
4	TGX.04 4-in-1			●●●● 4 x 5G/4G		
	AA.180		● 1 x GPS/GLONASS/ Galileo/BeiDou			
	Guardian MA957 5-in-1				●●●●● 5 x Wi-Fi	● 1 x LPWA
5	TGX.04 4-in-1			●●●● 4 x 5G/4G		
	AA.180 Single GNSS		● 1 x GPS/GLONASS/ Galileo/BeiDou			
	GW.05.0E23 (x5) Dual-Band Wi-Fi				●●●●● 5 x Wi-Fi	● 1 x LPWA
6	Gemini LMA101 (x 2) 5G/4G 600-6000MHz			●●●● 4 x 5G/4G		
	AA.180 Single GNSS		● 1 x GPS/GLONASS/ Galileo/BeiDou			
	GW.05.0E23 (x5) Dual-Band Wi-Fi				●●●●● 5 x Wi-Fi	● 1 x LPWA

Cables and Connectors are customizable.

● GNSS ● Cellular ● Wi-Fi ● LPWA

Featured Products

GuardianX Series

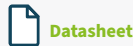
17-in-1 Combination Antenna

Features:

- 1 x GPS/GLONASS/Galileo
- 8 x 5G/4G MIMO (600MHz – 6GHz)
- 8 x Wi-Fi (2.4GHz/5.8 GHz)
- IP67 waterproof rating
- Dimensions: 360 x 160 x 20.5mm



The **GuardianX MA9917** is a low profile heavy-duty, external antenna. Available in both wall or adhesive mount versions.



Synergy Series

11-in-1 Combination Antenna

Features:

- 1 x GPS/GLONASS/BeiDou
- 4 x 5G/4G MIMO (600MHz-6GHz)
- 6 x Wi-Fi (2.4GHz/5.8GHz)
- IP67 waterproof rating
- Dimensions: Ø161 x 55mm



The **Synergy MA1511** is a robust, permanent mount antenna for vehicle roof installations with powerful cellular and Wi-Fi MIMO technology.



Guardian Series

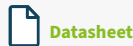
6-in-1 Combination Antenna

Features:

- 1 x GPS/GLONASS/Galileo/BeiDou
- 2 x 5G/4G MIMO (600-6000MHz)
- 3 x Wi-Fi (2.4GHz/5.8GHz)
- IP67 waterproof rating
- Dimensions: 146 x 134 x 20mm



The **MA931 Guardian** is designed for IoT gateway and router devices. A low-profile, plug and play antenna in a slimline package. Available in both wall or adhesive mount versions.



TGX.04

Cross Polarized Dipole Antenna

Features:

- 4 x 5G/4G MIMO (450MHz-6GHz)
- Omnidirectional coverage
- Multi-function bracket - Wall/Pole/Glass Mount
- IP67 waterproof rating
- Dimensions: 165 x 165 x 149mm



The **TGX.04** is a highly-sophisticated cross polarized MIMO antenna for real-time data and is unrivalled in its ability to cover all 5G/4G Sub 6GHz bands.



AA.180

Magnetic Mount Antenna

Features:

- GPS/GLONASS/Galileo/BeiDou
- Dual-pin patch patch for low axial ratio
- Robust, covert, low-profile enclosure
- IP67 waterproof rating
- Dimensions: 53 x 50 x 15mm



The **AA.180** external automotive antenna, ideal for robust, covert installations where durability and small size is paramount.



Gemini LMA101

Magnetic Mount Antenna

Features:

- 2 x 5G/4G
- 600-6000MHz
- High efficiency
- IP67 waterproof rating
- Dimensions: 164 x 164 x 36.5mm



The **Gemini LMA101** is a high efficiency antenna for use with all 5G/4G cellular routers and access points worldwide requiring MIMO connectivity.



Featured Products

Raptor X Series

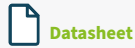
10-in-1 Permanent Mount Combination Antenna

Features:

- 1 x GNSS L1/L5 Bands
- 4 x 5G/4G LTE Cellular (600-6000MHz)
- 5 x Wi-Fi (2.4GHz/5.8 GHz/ 7.125GHz)
- IP69K Rated Enclosure
- IK10 Impact Rated Enclosure
- Dimensions: 350mm x 70mm x 39mm



The **MA8010 – Raptor X** has an extremely small form factor, much smaller than the market standard size. It can be customized to any requirements below 10-in-1 for specific router and customer configurations



Raptor MAX

16-in-1 Combination Antenna With Interchangeable Whip

Features:

- 8 x LTE MIMO (617 to 6000MHz)
- 1 x GPS/GLONASS
- 6 x Wi-Fi (2.4GHz/5.8GHz)
- 1 x LMR/TETRA
- IP67 waterproof rating
- Dimensions: 330 x 75.5 x 45.2mm



The **Raptor MAX MAX1016** next generation, super low-profile vehicle roof mount antenna eliminates the need for multiple antenna installations.



GW.05 Series

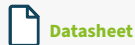
Dual-band Wi-Fi Terminal Mount Antenna

Features:

- 2.4/5.8GHz
- Wi-Fi/Bluetooth/Zigbee
- High Efficiency
- Compact form factor
- Dimensions: Ø5mm H: 69.6mm



The **GW.05** is the best all-around small Wi-Fi terminal antenna on the market and is available in FAKRA Code Z Water Blue or FAKRA Code I Beige



TG.08.0723

Hinged Fakra Connector Mount Antenna

Features:

- Cellular GPS/GLONASS/Galileo/BeiDou
- 360 degree rotatable
- High Efficiency
- Compact form factor
- Dimensions: Ø5mm H: 79.5mm



The **TG.08.0723** is a high efficiency monopole antenna for automotive telematics applications that provides wide coverage among cellular and GNSS frequencies .



Video Gallery

CLICK TO WATCH Senior Director of Sales, Kevin Blakely as he introduces the powerful Taoglas Synergy series and the Guardian X MA9917, the world's first 17-in-1 combination antenna.

Synergy Series



Check out our superstar **Synergy Series** - a range of next-generation, permanent-mount, combination antennas that are ideal for public safety applications that require highly sophisticated antennas for real-time, data streaming and next-level OEM automotive connectivity.

Its robust enclosure supports up to 11 antennas and you can have up to:

- 1 x GPS/GLONASS/Galileo
- 4 x 5G/4G MIMO (600-6000MHz)
- 6 x Wi-Fi (2.4/5.8GHz)

[Learn more here](#)

Guardian X MA9917



Taoglas is advancing the industry with the world's first 17-in-1 combination antenna - the **Guardian X MA9917**, the ultimate antenna to solve your mobile-connectivity challenges, with up to 17 antenna elements in one slimline package. Can be customised to any combination below 17-in-1.

Designed for the latest generation of 5G/4G routers, you can choose your desired antenna configuration with up to:

- 1 x GPS/GLONASS/Galileo
- 8 x 5G/4G MIMO (600-6000MHz)
- 8 x Wi-Fi 6 MIMO (2.4/5.8/7.125GHz)

[Learn more here](#)

Taoglas Antennas - Semtech Reference Guide

Taoglas Antenna Solution																
Type	Mount	Model#	Description	Image	RV55	RV50X	LX40	LX60	MP70	MG90	XR60	XR80	XR80 (Dual)	XR90		
5G/4G	Terminal Mount	TG.08.0113	Cellular/ GPS/GLONASS/Galileo/ BeiDou monopole antenna		●	●	●	●	●	●						
		TG.08.0723	Cellular GPS/GLONASS/Galileo/ BeiDou hinged Fakra connector mount antenna										●		●	
		TG.10.0113	Triton 4G terminal mount hinged SMA(M) antenna		●	●	●	●	●	●	●					
		TG.55.8113	5G/4G Terminal Mount Monopole Antenna		●	●	●	●	●	●	●					
	Adhesive Mount	GSA.8835	Phoenix GSA.8835 external 5G/4G IP67 waterproof antenna		●	●	●	●	●	●	●		○		○	
		MA963	Guardian MA963 4-in-1 5G/4G MIMO wideband adhesive mount antenna							●	●		○		○	
	Thru Hole	TLS.01	Shockwave TLS.01 5G/4G permanent mount antenna		●	●	●	●	●	●	●		○		○	
	Magnetic	LMA101	Gemini 5G/4G MIMO magnetic antenna 600-6000MHz (MIMO1&2)		●	●	●	●	●	●	●		○		○	
	Wall/Pole/ Glass Mount	TGX.45	TGX.45 - Wideband 5G/4G 2x MIMO cross polarised antenna with multi-mount bracket		●	●	●	●	●	●	●		○		○	
		TGX.04	Wideband 5G/4G 4 x MIMO cross polarised antenna with multi-mount bracket							●	●		○		○	
GNSS		AA.180	Magnetic Mount, low axial ratio dual-pin GNSS patch antenna		●	●	●	●	●	●		○		●		
Wi-Fi	Terminal Mount	GW.05.0E23	Dual-band Wi-Fi 2.4/5.8GHz terminal mount monopole antenna										●		●	
		GW.05.0ZZ23	Dual-band Wi-Fi 2.4/5.8GHz terminal mount monopole antenna											●		●
		GW.71.5153	Dual-band 2.4/5.8GHz terminal mount dipole antenna for ISM Band and WLAN IEEE 802.11a/b/g/h		●	●	●	●	●	●	●					
	Adhesive/Wall Mount	MA957	Guardian 5-in-1 adhesive mount Wi-Fi antenna with Wi-Fi 6 capability							●	●		○		○	
		MA920	Guardian 3-in-1 adhesive mount Wi-Fi MIMO (1,2&3) with Wi-Fi 6 capability		●	●	●	●	●	●	●		○		○	
Combination	Permanent Mount	MA1511	Synergy Series MA1511 11-in-1 combination antenna with GNSS, 4x 5G/4G and 6x Wi-Fi						●	●		○		○		
		MA1509	Synergy Series MA1509 9-in-1 combination antenna GNSS, 5x 5G/4G MIMO and 3x Wi-Fi MIMO						○	○	●	●			●	
		MA173	MA173.A.LBI.001 3-in-1 GNSS, LTE MIMO low-profile permanent mount antenna		●	●	●	●	●	●	●		○		○	
		MA8010	Raptor X 10-in-1 Permanent Mount Combination Antenna With GNSS L1/ L5, 4x 4G/5G MIMO and 5x Wi-Fi MIMO		○	○	○	○	○	○	○	●	○	○	○	
		MAX1016	Raptor Max High Performance 16-in-1 Combination Antenna with Interchangeable Whip 1x GPS/GLONASS/8x LTE MIMO/ 6x Wi-Fi MIMO/ 1x LMR/TETRA		○	○	○	○	○	○	○	○	○	●		○
	Adhesive or Desk/ Wall Mount	MA9917	GuardianX 17-in-1 adhesive mount combination antenna with GNSS, 8x 5G/4G MIMO and 8x Wi-Fi 6 MIMO							○	○		●		●	
MA9914	GuardianX MA9914 - 14-in-1, GNSS, 8x 5G/4G MIMO and 5x Wi-Fi MIMO							○	○		●		●			
MA931	Guardian MA931 6-in-1 adhesive mount 1x GNSS, 2x LTE MIMO, 3x Wi-Fi MIMO		●	●	●	●	●	●	●	●		○		○		

○ Can be configured to suit router

