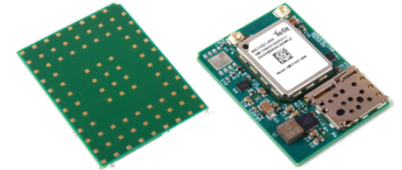# Janus Products Presentation

## Plus - Introducing CellBridge™ – Our New Family of Global CAT-M1/NB2 Products

What We Do

Janus Remote Communications provides state-of-the-art wireless products and services, including Custom Design Solutions to the global IoT marketplace

Our Products are most often used in: **Remote Monitoring Applications**

- Industrial
- Public Infrastructure
- Logistics
- Energy / Utilities
- Transportation
- Building / Construction
- Retail / Consumer
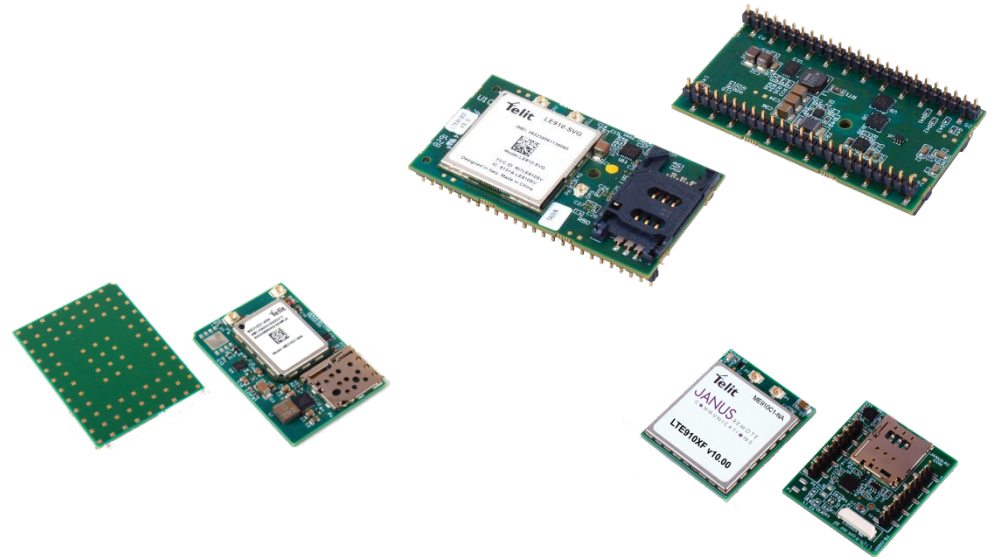
THE CONNOR-WINFIELD CORPORATION

Janus Remote Communications is a Division of The Connor-Winfield Corporation

RoHs

ISO

CORPORATE & MANUFACTURING FACILITIES

GPS, Wireless and Timing & Frequency Custom Mfg.
95,000 sq. ft. Aurora, IL

Corporate Headquarters & R&D –
37,000 sq. ft. Aurora, IL

The Connor-Winfield Corporation is a privately held, US based electronic product manufacturer. After incorporation in 1963, Connor-Winfield focused primarily on designing and manufacturing quartz based timing circuits and oscillators for use in a wide variety of electronics applications. In the 1990's, Connor-Winfield expanded into other product areas while maintaining a continued focus on its core timing roots.
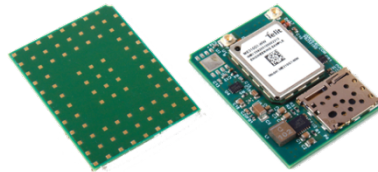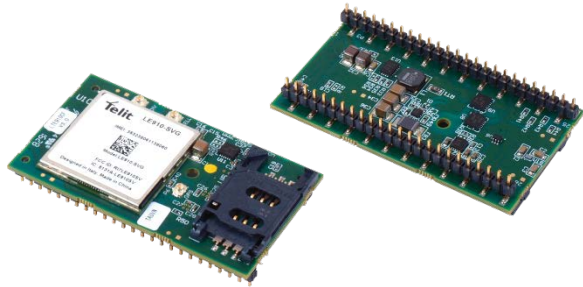
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JANUS REMOTE COMMUNICATIONS

IoT Hardware and Solutions

Janus Modems & Gateway Products

Janus IoT Building Block Solutions

Embedded Cellular Modems

IoT Building Blocks

Janus continues to provide the most flexible, carrier-certified embedded solutions with our CF, XF and SMT embedded cellular devices. They provide quick and efficient integration into IoT applications.

- Footprint Compatible Terminals

- Carrier Certified End Devices

- CF, XF and SMT footprints

    - CF – Our Flagship Common Footprint Series

    - XF – Industry Standard 20 Pin Connector

    - SMT – 4G LGA Global Cellular Modem

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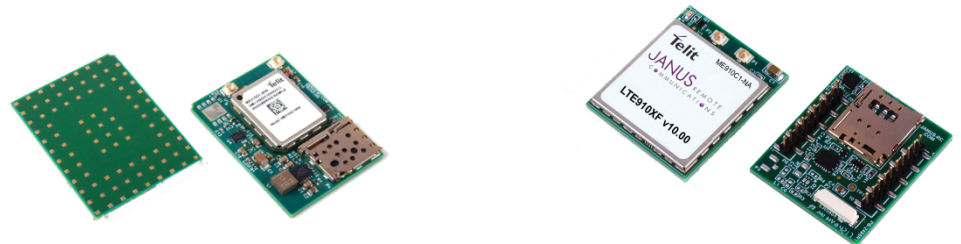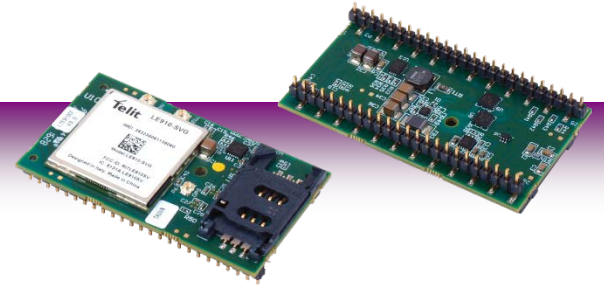
SMT Global LTE Embedded Modem

The Janus CellBridge SMT allows end users to assemble "end device" certified embedded cellular modems right onto application PCBs. No more hand assembly. No more modem pin connection issues in the field. Our CellBridge SMT units are designed to be placed during the primary pick & place assembly process, like all other primary BOM components.

- Janus SMT Platform (89-Pin LGA)
- Janus P/N LTE910SMT v1.00
- LTE CAT-M1/NB2 Firmware
- End Device Certified
- Telit ME310G1-WW (World Wide) Module
- Telit OneEdge Tools
    - Security
    - Connectivity
    - Management
    - Location
    - Application Processor

CellBridge™

JANUS REMOTE COMMUNICATIONS
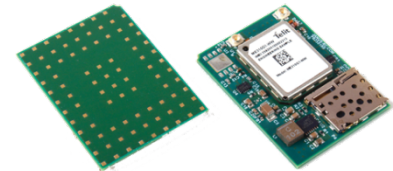
CF (Common Footprint) Overview

The Janus line of Common Footprint (CF) socket modems are PTCRB and carrier "end device" certified for use in all 2G, 3G, and 4G cellular communication network applications.

- **PCB Mount**

- **Size: 2.5" x 1.4" x 0.325"**

- **Temp Range: -40°C to 85°C**

- **Input Voltage: 3.0 to 5.25Vdc**

- **LTE, HSPA+, EVDO, CDMA**

Carrier Certified End Products

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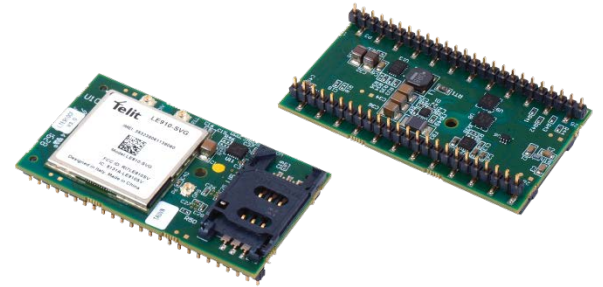
CF Socket Modems Comparison (Common Footprint)

Specs / Parameter		LTE910CF CAT1 v15.00	LTE910CFX CAT1 v1.00 ThreadX	LTE910CF CAT-M1/NB2 v20.00
Power Supply	Input Voltage Range	4.75 - 5.25 Vdc	4.75 - 5.25 Vdc	4.75 - 5.25 Vdc
	Registered Idle Current Draw*	15mA	15mA	12mA
	Power Savings Current Draw*	2mA	2mA	0.05 to 1.0 mA (depends on paging cycle)
Hardware	Screw Mounting Hole	Yes	Yes	Yes
	Cellular Technology - Primary / Fallback	LTE (CAT 1) / 3G	LTE (CAT 1) / 3G and 2G	LTE (CAT-M1/NB2) / EGPRS 2G
	Max Data Rate down/up (Mbps)	10 / 5	10 / 5	CAT-M1: 1 Mbps/588 Kbps; NB2: 160/120 Kbps
	2G Bands	N/A	B2, B3, B5, B8	B2, B3, B5, B8
	3G Bands	B2, B4, B5	B1, B2, B4, B5, B6, B8, B19	N/A
Cellular	4G Bands	B2, B4, B5, B12, B13, B14, B66, and B71	B1, B2, B3, B4, B5, B7, B8, B8, B9, B12, B13, B14, B18, B19, B20, B25, B26, B28	B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B25, B26, B27, B28, B66, B71, B85
	Rx Diversity	Rx & MIMO DL 2x2	Rx & MIMO DL 2x2	N/A
	SIM Card	Mini (2FF size)	2 x Micro (3FF size)	2 x Micro (3FF size)
	Certification	PTCRB, AT&T, Verizon	PTCRB, AT&T, Verizon	PTCRB, AT&T, Verizon, RED
GPS	GPS / GNSS Support	GPS, Galileo, GLONASS, Beidou	GPS, Galileo, GLONASS, Beidou	GPS, Galileo, GLONASS, Beidou
UART	UART Interfaces	AT Command / AUX Tx/Rx	AT Command / AUX Tx/Rx	AT Command / AUX Tx/Rx
	UART Voltage	2.85 or user selected	2.85 or user selected	2.85 or user selected
	UART Baud Rate	115200 Default	115200 Default	115200 Default
USB	USB Interfaces	MODEM (2x), ADB, RmNet, NMEA (GPS), SAP, RNDIS, DIAG, MBIM	MODEM (2x), ECM, RmNet, SER, DIAG	MODEM, DIAG, ECM
Software	TCP/IP	UDP/TCP/FTP/SMTP stack; MQTT support	UDP/TCP/FTP/SMTP stack; MQTT support	UDP/TCP/FTP/SMTP stack; MQTT support
	Application Programming	Telit AppZone C	Telit AppZone C	Telit AppZone C
I/O	GPIO	2x GPIO @ 1.8 Vdc; 5x GPIO @ user Vdc	2x GPIO @ 1.8 Vdc; 5x GPIO @ user Vdc	2x GPIO @ 1.8 Vdc; 5x GPIO @ user Vdc
	LED Indicator Signal Outputs	GPIO_01 - optional Cellular Status; Any GPIO can be user controlled as an LED signal	GPIO_01 - optional Cellular Status; Any GPIO can be user controlled as an LED signal	GPIO_01 - optional Cellular Status; Any GPIO can be user controlled as an LED signal
	DAC	0	0	0
	ADC	1	1	1
	I2C (Via AT Commands)	Yes	Yes	Yes
	I2C Voltage	1.8 Vdc	1.8 Vdc	1.8 Vdc
Audio	Audio Interface	DVI (PCM or I2S)	N/A	N/A
	Audio Signal Voltage	1.8 Vdc	N/A	N/A

* Average Current: may be higher in fallback modes.

XF (X Footprint) Overview

The Janus line of XF* embedded cellular modems, based on the industry standard 20-pin footprint, are specifically designed to provide customers with cost-effective products that are easily integrated into new and existing designs. The XF embedded footprint modems are available for all 2G, 3G, and 4G LTE networks worldwide.

- **Industry Standard 20-pin Connector Footprint Design***
- **PCB Mount**
- **Size: 1.14" x 1.3" x 0.256"**
- **Temp Range: -40˚C to 85˚C**
- **Input Voltage: 3.4 to 5.5 Vdc**
- **LTE, HSPA+, EVDO, CDMA**

**Carrier Certified
End Products**

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*XF Socket Modems Comparison

Specs / Parameter		LTE910XFX CAT 1 v1.00 ThreadX	LTE910XF CAT-M1/NB2 v20.00 Global
	JANUS REMOTE COMMUNICATIONS		
Power Supply	Input Voltage Range	3.4 – 5.25 Vdc	2.5 – 5.25 Vdc
	Registered Idle Current Draw**	13mA	8mA
	Power Savings Current Draw**	2mA	2mA
Cellular	Cellular Technology - Primary	LTE (CAT-1)	LTE (CAT-M1/NB2)
	Fallback	EGPRS 2G	EGPRS 2G
	Max Data Rate down/up (Mbps)	10 / 5	CAT-M1: 1 Mbps / 588 Kbps; NB2: 160 / 120 Kbps
	2G Bands	B2, B3, B5, B8	B2, B3, B5, B8
	3G Bands	B1, B2, B4, B5, B6, B8, B19	N/A
	4G Bands	B1, B2, B3, B4, B5, B7, B8, B8, B9, B12, B13, B14, B18, B19, B20, B25, B26, B28	B1, B2, B3, B4, B5, B8, B12, B13, B18 B19, B20, B25, B26, B27, B28, B66, B71, B85
	Rx Diversity & MIMO	Rx & MIMO DL 2x2	N/A
	Antenna Connector	U.FL	U.FL
	SIM Card	Micro (3FF size)	Micro (3FF size)
	Certification	PTCRB, AT&T, Verizon	PTCRB, AT&T, Verizon, RED
GPS	GPS / GNSS Support	GPS, Galileo, GLONASS, Beidou, QZSS	GPS, Galileo, GLONASS, Beidou, QZSS
	GPS Antenna Connection	U.FL	U.FL
UART	UART Interface	AT Command	AT Command
	UART Voltage	3.4 - 5.25Vdc	3.4 - 5.25 Vdc
	UART Baud Rate	115200 Default	115200 Default
USB	USB Interfaces	MODEM (2x), ADB, RmNet, NMEA (GPS), SAP, RNDIS, DIAG, MBIM	MODEM, DIAG, ECM
Software	TCP/IP	UDP/TCP/FTP/SMTP stack; MQTT support	UDP/TCP/FTP/SMTP stack; MQTT support
	Application Programming	Telit AppZone C	Telit AppZone C
I/O	GPIO	2 (GPIO_2-3)	2 (GPIO_2-3)
	LED Indicator Signal Outputs	GPIO_01 - optional Cellular Status	GPIO_01 - optional Cellular Status
	DAC	0	0
	ADC	1	1

* XF Footprint is an Industry Standard 20 Pin Connector Footprint | ** Average Current: may be higher in fallback modes.

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2024-2

Janus Socket Modems Applications

- **Digital Remote Signage (especially construction)**
- **Parking Kiosks**
- **Trail Cameras**
- **Pipeline Monitoring**
- **Remote Environmental Monitoring**
- **Industrial Equipment**

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Gateway and Terminal Products

IoT Building Blocks

Janus provides a number of carrier certified enclosed gateways and terminals for customers to easily implement into their end applications. These products provide cost effective solutions for any technical challenges.

- Serial, USB and Ethernet Connectivity
- Carrier Certified End Devices
- Rugged Enclosures
- -40 to 85°C Operating Temp
- Standard DC Voltage Inputs
- Linux, Python, C/C++

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Janus T2 Gateway Terminus

IoT Gateways – Pre-Certified

Our second generation Standard Terminus (T2) products are highly adaptable, cost-effective cellular gateways. Available in 2G, 3G, and 4G LTE cellular versions, the T2 products are ideal for use in all wireless applications that require processing power. External connectors allow the customer to choose the precise antenna for their application needs

- **Serial and USB (OTG) connectivity**
- **4-20 mA current loops**
- **Accelerometer**
- **Built in FPU**
- **Built in DSP**
- **Input Power Range of 7-28 VDC**
- **External Antenna Connectors**
- **Incorporates our Plug-In Modems**
- **Rugged Ryton Plastic Enclosure**

Janus T2 Product Applications

- **Water Monitoring**
- **Trash Compactor Monitoring**
- **Security System Monitoring**
- **Custom Vehicle Tracking/Monitoring**
- **Elevator Monitoring**
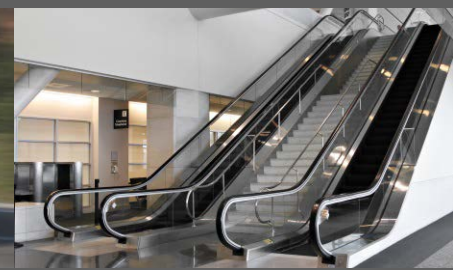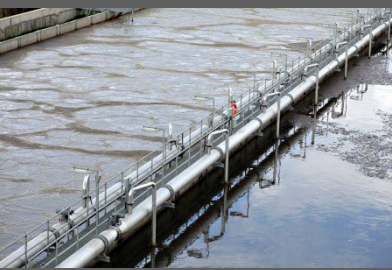
Terminus T3 Modem

Hardware as a Solution

High Performance at a Low Cost
Designed specifically for cost-sensitive modem applications, the Terminus T3 incorporates Janus Embedded Modems in a small metal housing with standard power, I/O, and antenna connections. The unit's low cost and outstanding features and functions make the Terminus T3 the device of choice for all cost sensitive terminal applications.

- **Input voltage of 5 Vdc**
- **USB Connectivity**
- **RS-232 Serial Connectivity**
- **RS-485 Serial Connectivity**

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Janus T3 Product Applications

- **Simple Vehicle Tracking**

- **Power Line Monitoring**

- **Generator Monitoring**

- **Farm Equipment Monitoring**

- **Remote Weather Station Monitoring**

400AP SBC Gateway Terminals

The Janus 400AP is a powerful, Single Board Computer with Cellular Technology housed in an aluminum enclosure. Available in 2G, 3G, and 4G LTE cellular versions, the 400AP products are ideal for use in all wireless applications that require advanced processing and robust connectivity. External connectors allow the customer to choose the precise antenna for their application needs.

- **Single Board Computer (SBC)**
- **Carrier certified, application ready**
- **Incorporates an ARM processor**
- **Flash & RAM Memory**
- **128 MB of NAND Flash**
- **64 MB of SDRAM**
- **Externally Exposed RS-232 & RS-485 Ports**
- **Two CAN Interfaces (2 Channel)**
- **Embedded GPS**
- **Four Exposed GPIOs**

IoT Gateways – Pre-Certified

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Janus 400AP Product Applications

- **Electric vehicle monitoring and tracking**
- **Medical equipment data processing and telemetry**
- **Rental vehicle monitoring and tracking**
- **Utilities (water/Electric) monitoring and data processing**
- **Remote Industrial systems monitoring and control**

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Janus Gateway Products Comparison

Modem	Voltage Range	Operating Temp	Network	MCU	OS	GNSS	GPIO	ADC	DAC	Dimension	Enclosure	Connectivity	Certifications
LTE910T3 v20.00	5 Vdc	-40˚ to 85˚C	LTE CAT-M2/NB2	App. Processor	Telit AppZone	Yes	0	0	0	5.21 x 2.35 x 1.18"	Aluminum Enclosure	USB / Serial	PTCRB; AT&T Verizon; FCC IC; RED
LTE910T3X v1.00	5 Vdc	-40˚ to 85˚C	LTE CAT 1	N/A	N/A	Yes	0	0	0	5.21 x 2.35 x 1.18"	Aluminum Enclosure	USB / Serial	PTCRB; AT&T Verizon; FCC; IC
LTE910T3 v15.00	5 Vdc	-40˚ to 85˚C	LTE CAT 4	N/A	N/A	No	0	0	0	5.21 x 2.35 x 1.18"	Aluminum Enclosure	USB / Serial	PTCRB; AT&T Verizon; FCC; IC
LTE910T2 v20.00	7-32 Vdc	-40˚ to 85˚C	LTE CAT-M2/NB2	Cortex M4	Bare Metal	Yes	14	8	2	2.60 x 3.75 x 1.2"	Ryton Enclosure	USB / Serial 50 Pin / CAN	PTCRB; AT&T Verizon; FCC IC; RED
LTE910T2X v1.00	7-32 Vdc	-40˚ to 85˚C	LTE CAT 1	Cortex M4	Bare Metal	Yes	14	8	2	2.60 x 3.75 x 1.2"	Ryton Enclosure	USB / Serial 50 Pin / CAN	PTCRB; AT&T Verizon; FCC; IC
LTE910T2 v15.00	7-32 Vdc	-40˚ to 85˚C	LTE CAT 1	Cortex M4	Bare Metal	Yes	14	8	2	2.60 x 3.75 x 1.2"	Ryton Enclosure	USB / Serial 50 Pin / CAN	PTCRB; AT&T Verizon; FCC; IC
LTE400AP v20.00	7-26 Vdc	-40˚ to 85˚C	LTE CAT-M2/NB2	Arm9	Linux	Yes	4	2	0	3.15 x 4.27 x 1.18"	Aluminum Enclosure	Ethernet Serial / USB	PTCRB; AT&T Verizon; FCC IC; RED
LTE400AP v15.00	7-26 Vdc	-40˚ to 85˚C	LTE CAT 1	Arm9	Linux	Yes	4	2	0	3.15 x 4.27 x 1.18"	Aluminum Enclosure	Ethernet Serial / USB	PTCRB; AT&T Verizon; FCC; IC
LTE400APX v1.00	7-26 Vdc	-40˚ to 85˚C	LTE CAT 1	Arm9	Linux	Yes	4	2	0	3.15 x 4.27 x 1.18"	Aluminum Enclosure	Ethernet Serial / USB	PTCRB; AT&T Verizon; FCC; IC

JANUS REMOTE COMMUNICATIONS

CellBridge™ Family

The new Janus CellBridge family of Global CAT-M1/NB2 solutions provide our IoT customers with powerful new hardware, software and connectivity tools.

[Embedded Global CellBridge Products](#)

CellBridge™ Family
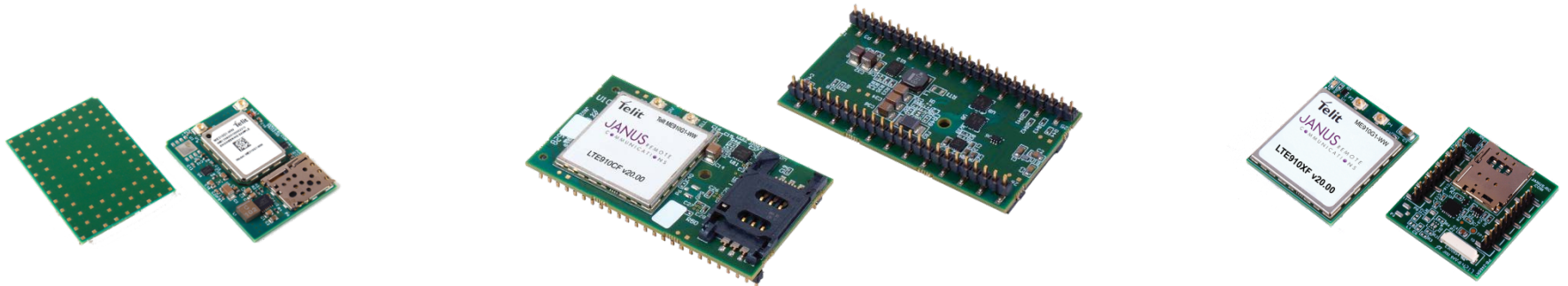
Based on the Telit ME310G1-WW and ME910G1-WW modules with OneEdge™ tools, CellBridge enclosed products assist customers in quickly and easily integrating "End Device" certified Cellular modems, Terminals and Gateways into their applications.

Enclosed Global CellBridge Products

Janus Global Embedded Products

- **LTE310SMT v1.00 LGA SMT Embedded Modem**

- **LTE910CF v20.00 Common Footprint Embedded Modem**

- **LTE910CFX v1.00 CAT1 Common Footprint Embedded Modem**

- **LTE910XF v20.00 "X" Footprint Embedded Modem**

- **LTE910XFX v1.00 CAT1 "X" Footprint Embedded Modem**

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Janus Global Enclosed Products

- **LTE910T3 v20.00 T3 Enclosed Cellular Terminal**

- **LTE910T3X v1.00 CAT-1 Enclosed Cellular Terminal**

- **LTE910T2 v20.00 Enclosed Gateway with Cortex M4 Processing Power**

- **LTE910T2X v1.00 CAT-1 Enclosed Gateway with Cortex M4 Processing Power**

- **LTE400AP v20.00 Enclosed SBC with USB, Ethernet, Serial Connectivity**

CellBridge™ – Telit OneEdge™

- **Telit IoT AppZone** can run code and applications directly inside the Telit module.

- **Lightweight M2M Protocol** enables comprehensive device management, FOTA updates and application enablement of low-power devices with the goal of more robust and secure connections.

- **Telit simWISE™**, a module-embedded SIM technology, enables reduced footprint, streamlined manufacturing and logistics, secure communications for connected devices.

- **Telit's Connection Manager** automates operations for connection to cellular networks.

- **Location Services** provide the position of devices even in the absence of a GNSS connection.

SMT Global LTE Embedded Modem

LTE310SMT – V1.00

- **Janus SMT Platform (89-Pin LGA)**
- **Janus P/N LTE910SMT v1.00**
- **LTE CAT-M1/NB2 Firmware**
- **End Device Certified**
- **Telit ME310G1-WW (World Wide) Module**
- **Telit OneEdge Tools**
  - Security
  - Connectivity
  - Management
  - Location
  - Application Processor

CellBridge™
Global Cellular Modem Solutions

LTE Bands:
B1, B2, B3, B4, B5, B8,
B12, B13, B18, B19,
B20, B25, B26, B27,
B28, B66, B71 and B85

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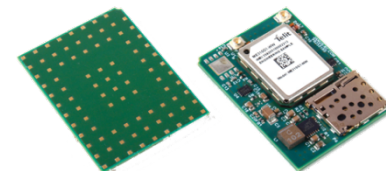
CF Global LTE Embedded Modem
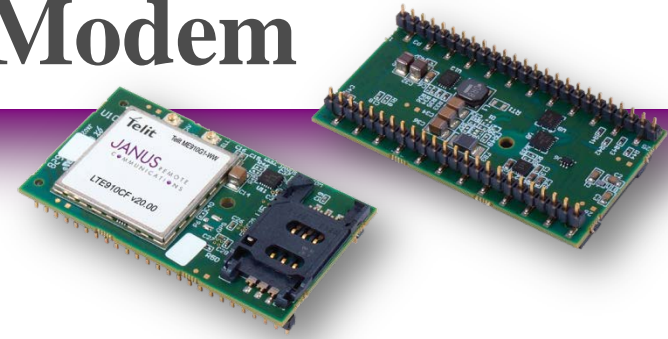
LTE910CF v20.00

- **LTE CAT-M1/NB2 Firmware**
- **Janus Common Footprint Platform (49-Pin DIP)**
- **End Device Certified**
- **Telit ME910G1-WW (World Wide) Module**
- **Telit OneEdge Tools**
  - Security
  - Connectivity
  - Management
  - Location
  - Application Processor

CellBridge™

LTE Bands:
B1, B2, B3, B4, B5, B8,
B12, B13, B18, B19,
B20, B25, B26, B27,
B28, B66, B71 and B85

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Telit ONEEDGE®

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CFX Global LTE Embedded Modem

LTE910CFX v1.00

- **Janus Common Footprint Platform (49-Pin DIP)**
- **LTE CAT-M1/NB2 Firmware**
- **End Device Certified**
- **Telit ME910G1-WW (World Wide) Module**
- **Telit OneEdge Tools**
  - Security
  - Connectivity
  - Management
  - Location
  - Application Processor

CellBridge™

LTE Bands:
B1, B2, B3, B4, B5, B8,
B12, B13, B18, B19,
B20, B25, B26, B27,
B28, B66, B71 and B85

JANUS REMOTE COMMUNICATIONS

Telit ONEEDGE®

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XF Global LTE Embedded Modem

LTE910XF v20.00

- **Janus "X" Footprint Platform (20-Pin DIP)**
- **LTE CAT-M1/NB2**
- **End Device Certified**
- **Telit ME910G1-WW (World Wide) Module**
- **Telit OneEdge Tools**
  - Security
  - Connectivity
  - Management
  - Location
  - Application Processor

CellBridge™

LTE Bands:
B1, B2, B3, B4, B5, B8,
B12, B13, B18, B19,
B20, B25, B26, B27,
B28, B66, B71 and B85

JANUS REMOTE COMMUNICATIONS

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XFX Global LTE Embedded Modem

LTE910XFX v1.00

- **Janus "X" Footprint Platform (20-Pin DIP)**
- **LTE CAT-M1/NB2**
- **End Device Certified**
- **Telit ME910G1-WW (World Wide) Module**
- **Telit OneEdge Tools**
  - Security
  - Connectivity
  - Management
  - Location
  - Application Processor

CellBridge™

LTE Bands:
B1, B2, B3, B4, B5, B8,
B12, B13, B18, B19,
B20, B25, B26, B27,
B28, B66, B71 and B85

JANUS REMOTE COMMUNICATIONS

Telit ONEEDGE®

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CellBridge™ Global LTE Modems

- **Available in Embedded or Enclosed Versions**
- **LTE CAT-M1/NB2 Firmware**
- **End Device Certified**
- **Telit ME910G1-WW or ME310G1-WW (World Wide) Modules**
- **Telit OneEdge Tools**
  - Security
  - Connectivity
  - Management
  - Location
  - Application Processor

CellBridge™

LTE Bands:
B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B25, B26, B27, B28, B66, B71 and B85

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Telit ONEEDGE®

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Who Uses Janus Products and Services

- Companies with little or no wireless experience – whose products or services would benefit from wireless connectivity

- Companies that require a quick and easy wireless implementation

- Companies with products that currently incorporate a wireless solution going into product redesign

- Companies with low volume demand that might not be able to achieve PTCRB, carrier, FCC, CE, or other certifications due to great expense

- Companies that might require engineering assistance

JANUS REMOTE COMMUNICATIONS

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Janus Website

- General Navigation
- Product Pages
  - Documentation
  - Downloads
  - App Notes, Technical Papers, etc.
- Media
- Support
- Contact Us
- Partners
- Janus Store

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JANUS REMOTE COMMUNICATIONS

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General Information

For Opportunities, who to contact:

Contact Gordon for standard products.
Contact Bill for custom products and higher volumes customers.

How are samples and demos handled:

Contact Gordon for sample orders and demo loaners.
Per our policy, all loaned out equipment be returned in a timely manner for other customers.

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Need More Info?

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