

MTX-IND Family

Outdoor industrial applications GSM/GPRS M2M Modem



Java programmable



GSM/GPRS Quad Band



I2C Optocoupled GPIO



USB 2.0 RS232/485/422



Analog inputs



Relay outputs



Extended Temperature Range



Outdoor IP65 compliant



Automatic restart after shutdown



RoHS & WEEE compliant Pb-free



The MTX-IND modem family are a new **GSM/GPRS** and **UMTS/HSPA** modems designed for **industrial environments** due to its extended operating temperature range and **IP65 enclosure**. The **Quad/Five Band** functionality allows it to operate at all relevant GSM frequencies. It has an intrinsic and powerful **TCP/IP** communication stack with Internet Services such: TCP, UDP, HTTP, FTP, SMTP, and POP3.

The MTX-IND modem contains all the necessary interfaces used in industrial applications: **USB**, **SPI/I2C**, 2 configurable **RS232/RS422/RS485** buses, **4 1P1C relays**, **optoisolated inputs/outputs**, **0-2.4V** or **0-20mA** analog **inputs**, etc. Together with the SIM card reader, it minimizes the need for further hardware components and facilitates integration. The auto power-on feature allows it to restart in case of faulty power conditions.

WiFi, Bluetooth, ZigBee or ISM RF (Wavenis) optional modules (among others) can be installed internally in the MTX-IND devices.

The MTX-IND modem include Java embedded programmability and a full range of I/Os. The unit can host and control your **Java J2ME application** allowing you to develop and embed your code directly onto the terminal to shorten time to market and reduce costs by avoiding external components.

MTX-IND Family

2G models

General features

- Quad-Band GSM 850/900/1800/1900MHz
- GPRS multi-slot class 12
- SIM Application Toolkit, 3GPP release 99
- Control via AT commands (Hayes, TS 27.007, TS 27.005)
- TCP/IP stack access via AT commands
- Internet services: TCP, UDP, HTTP, FTP, SMTP, POP3
- Supply voltage range:
 - DC: 9 to 30VDC (typ. 24VDC)
 - AC: 90-264VAC/120-370VDC (typ. 230VAC)
- Average power consumption (at 12V)
 - Idle mode (registered DRX=2): 17mA
 - Speech mode (average): 250mA
 - GPRS class 12 (average): 570mA
- Operating temperature range: -30°C to +80°C
- Dimensions, excluding connectors: 200 x 120 x 77mm
- Weight: <500 g
- Powered by Cinterion TC65i module
- Internal 1650mAh Li-Po battery

Interfaces

- GSM SMA M antenna connector
- Optional internal 5 band 2.5dBi antenna upon request
- USB 2.0 High Speed port up to 480Mbps
- SIM card interface 3V, 1.8V
- Plug-in 52-way (45 usable) 5mm pitch terminal block:
 - 2x digital input/outputs
 - 4x optoisolated inputs
 - 2x analog inputs
 - 1x analog output (PWM)
 - 1x I2C/SPI bus
 - 2x RS232/RS422/RS485 configurable ports
 - 4x form C switching contact relays
 - Speaker and microphone signals available (not amplified)
- 4 status LEDs (GSM status and user programmable)
- 4x IP68 cable glands

Specifications

- **GPRS**
 - GPRS class 12
 - Mobile station class B
 - PBCCH support
 - Coding schemes CS 1-4
- **CSD data transmission**
 - Up to 14.4kbit/s
 - V.110
 - Non-transparent mode
 - USSD support
- **SMS**
 - Point-to-point MO and MT
 - SMS cell broadcast
 - Text and PDU mode
- **Fax**
 - Group 3, class 1,2
- **Voice**
 - Triple-rate codec for HR, FR and EFR
 - Adaptive multi-rate AMR
 - Basic hands-free operation
 - Echo cancellation
 - Noise reduction
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Open application resources

- ARM® Core, Blackfin® DSP
- Memory: 400KB (RAM) and 1.7MB (Flash)
- Improved power-saving mode
- Internal watchdog

Java™ features

- CLDC 1.1 HI
- J2ME™ profile IMP-NG
- Secure data transmission with HTTPS, SSL and PKI

Over-the-air update

- Application SW: OTAP
- Firmware: FOTA (OMA compliant)

MTX-IND Family

3G models

General features

- World Wide Version (default)
 - UMTS/HSPA+: Five-Band
800/850/900/1900/2100MHz
 - GSM/GPRS/EDGE: Quad band
850/900/1800/1900MHz
- 3GPP Release 6, 7
- SIM Application Toolkit, 3GPP release 99
- Control via AT commands (Hayes, TS 27.007, TS 27.005)
- TCP/IP stack access via AT commands
- Internet services: TCP, UDP, HTTP, FTP, SMTP, POP3
- Supply voltage range:
 - DC: 9 to 30VDC (typ. 24VDC)
 - AC: 90-264VAC/120-370VDC (typ. 230VAC)
- Operating temperature range: -30°C to +85°C
- Dimensions, excluding connectors: 200 x 120 x 77mm
- Weight: <500 g
- Powered by Cinterion EHS6 module
- Internal 1650mAh Li-Po battery

Interfaces

- GSM SMA F antenna connector
- Optional internal 5 bands 2.5dBi antenna upon request
- USB 2.0 High Speed port up to 480Mbps
- SIM card interface 3V, 1.8V
- Plug-in 52-way (45 usable) 5mm pitch terminal block:
 - 2x digital input/outputs
 - 4x optoisolated inputs
 - 2x analog inputs
 - 1x analog output (PWM)
 - 1x I2C/SPI bus
 - 2x RS232/RS422/RS485 configurable ports
 - 4x form C switching contact relays
- 4 status LEDs (GSM status and user programmable)
- 4x IP68 cable glands

Special features

- USB interfaces support multiple composite modes and a Linux/Mac compliant mode
- Firmware update via USB/RS232
- Real Time Clock with alarm functionality
- Multiplexer according 3GPP TS 27.010
- RLS Monitoring (Jamming detection)
- Informal Network Scan

Specifications

- **HSPA (3GPP Release 6,7)**
 - DL 7.2Mbps, UL 5.7Mbps
 - HSDPA Cat.8 / HSUPA Cat.6 data rates
 - Compressed mode (CM) according to 3GPP TS25.212
- **UMTS (3GPP Release 4)**
 - PS data rate – 384 kbps DL, UL 384kbps
 - CS data rate – 64 kbps DL, UL 64kbps
- **HSPA (3GPP Release 6,7)**
 - DL 7.2Mbps, UL 5.7Mbps
 - HSDPA Cat.8 / HSUPA Cat.6 data rates
- **GPRS**
 - GPRS class 12
 - Mobile station class B
 - PBCCH support
 - Coding schemes CS 1-4
- **EGPRS**
 - Multislot class 12
 - EDGE E2 power class for 8PSK
- **CSD data transmission**
 - Up to 9.6kbps
 - V.110
 - Non-transparent mode
 - USSD support
- **SMS**
 - Point-to-point MO and MT
 - SMS cell broadcast
 - Text and PDU mode

Java™ features

- Oracle Java ME Embedded 3.2
- Compliant to CLDC 1.1 HI and IMP-NG standards
- Capable of running multiple MIDlets in parallel with inter-MIDlet communication
- Additional Java standards APIs:
 - JSR75 (FileConnection)
 - JSR177 (CRYPTO)
 - JSR280 (XML)
- Additional accessible periphery for Java applications
 - I/O pins, I2C, SPI interfaces, ADC/DAC
 - Serial interfaces (API): ASC0, ASC1, USB
- Memory space for Java applications
 - Flash File System: 8MB
 - RAM: 6MB
 - Just-in-Time (JIT) Compiler execution optimization

MTX-IND Family

	<i>MTX-IND-2G</i>	<i>MTX-IND-2G-WC25</i>	<i>MTX-IND-2G-WC500</i>	<i>MTX-IND-2G-WC25-LC</i>	<i>MTX-IND-2G-WC500-LC</i>	<i>MTX-IND-2G-BT-WT12</i>	<i>MTX-IND-2G-BLE</i>	<i>MTX-IND-2G-GPS</i>	<i>MTX-IND-3G</i>	<i>MTX-IND-3G-WC25</i>	<i>MTX-IND-3G-WC500</i>	<i>MTX-IND-3G-WC25-LC</i>	<i>MTX-IND-3G-WC500-LC</i>	<i>MTX-IND-3G-BT-WT12</i>	<i>MTX-IND-3G-BLE</i>	<i>MTX-IND-3G-GPS</i>
Cellular modem	2G	2G	2G	2G	2G	2G	2G	3G	3G	3G	3G	3G	3G	3G	3G	3G
RS232/485/422	x2	x2	x2	x1	x1	x2	x2	x2	x2	x2	x2	x1	x1	x2	x2	x2
USB	X	X	X			X	X	X	X	X			X	X	X	
I2C/SPI	*1	*1	*1			*1	*1	*1	*1	*1			*1	*1	*1	
ADC	x2	x2	x2			x2	x2	x2	x2	x2			x2	x2	x2	
DAC	x1	x1	x1			x1	x1	x1	x1	x1			x1	x1	x1	
Optoisolated IO	x6	x6	x6			x6	x6	x6	x6	x6			x6	x6	x6	
Relay	x4	x4	x4			x4	x4	x4	x4	x4			x4	x4	x4	
Coronis/Wavenis Wavcard		X	X	X	X					X	X	X	X			
Bluetooth 2.1						X							X			
Bluetooth 4.0 Low Energy							X							X		
GPS								X								X
Internal RF socket expansion	X							X								
Li-Po Battery	X	X	X			X	X	X	X	X			X	X	X	

*1: upon request

Ordering information

MTX-IND-2G

- Ordering code: 199801329

MTX-IND-2G-WC25

- Ordering code: 199801117

MTX-IND-2G-WC500

- Ordering code: 199801121

MTX-IND-2G-BT-WT12

- Ordering code: 199801355

MTX-IND-2G-BLE

- Ordering code: 199801356

MTX-IND-2G-GPS

- Ordering code: 199801321

MTX-IND-3G

- Ordering code: 199801358

MTX-IND-3G-WC25

- Ordering code: 199801359

MTX-IND-3G-WC500

- Ordering code: 199801360

MTX-IND-3G-BT-WT12

- Ordering code: 199801361

MTX-IND-3G-BLE

- Ordering code: 199801362

MTX-IND-3G-GPS

- Ordering code: 199801363

Other RF modules available upon request: XBEE (Digi), ISM 868/900MHz (Amber), WMBUS, WiFi