



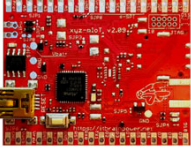


xyz-mIoT by itbrainpower.net specific features per model part number

PN – category	Description	Image	Usage
XYZMIOT209#BG96-UFL-xxxxxxx <i>Low Power LTE modem</i>	<p>MODEM - Quectel BG96 - LTE CATM1 + NB IoT + EGPRS + GNSS 3GPP E-UTRA Release 13</p> <p>Bands: FDD LTE - B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28 TDD LTE - B39 [CAT M1 only] GSM - 850/900/1800/1900 MHz</p> <p>Speeds: CAT M1 - up to Max 300Kbps (DL), Max. 375Kbps (UL) NB IoT - up to Max. 32Kbps (DL), Max. 70Kbps (UL) EDGE/GPRS - up to Max. 296Kbps (DL), Max. 236.8Kbps (UL) / Max. 107Kbps (DL), Max. 85.6Kbps (UL)</p> <p>GNSS: Galileo, GPS, GLONASS, BeiDou/Compass, QZSS</p> <p>equipped with u.FL connector - GSM, u.FL connector - GNSS</p> <p>SENSORS - by PN suffix coding (xxxxxxx)</p> <ul style="list-style-type: none"> XYZMIOT209#BG96-UFL-0000000 - no embedded sensors - SKU: ITBP-4003 XYZMIOT209#BG96-UFL-1100000 - HDC2010 and DRV5032 - SKU: ITBP-4002 XYZMIOT209#BG96-UFL-1100100 - CCS811, HDC2010 and DRV5032 - SKU: ITBP-4001 		Global
XYZMIOT209#BG96-SMA-xxxxxxx <i>Low Power LTE</i>	Same as above, but with SMA F connector - GSM and u.FL connector - GNSS		Global
XYZMIOT209#BC95G-UFL-xxxxxxx <i>Low Power LTE modem</i>	<p>MODEM - Quectel BC95G - NB IoT only</p> <p>Bands: LTE - B1/B3/B8/B5/B20/B28**</p> <p>Speeds: NB IoT Single Tone / Multi Tone** - Max. 25.2Kbps (DL), Max. 15.625 / 54 Kbps (UL)</p> <p>equipped with u.FL connector</p> <p>SENSORS - by PN suffix coding (xxxxxxx)</p> <ul style="list-style-type: none"> XYZMIOT209#BC95G-UFL-0000000 - no embedded sensors - SKU: ITBP-4006 XYZMIOT209#BC95G-UFL-1100000 - HDC2010 and DRV5032 - SKU: ITBP-4005 XYZMIOT209#BC95G-UFL-1100100 - CCS811, HDC2010 and DRV5032 - SKU: ITBP-4004 		Global
XYZMIOT209#BC95G-SMA-xxxxxxx <i>Low Power LTE modem</i>	Same as above, but with SMA F connector		Global
XYZMIOT209#EG91E-UFL-xxxxxxx <i>LTE / 4G modem</i>	<p>MODEM - Quectel EG91E - LTE / 4G LTE IoT/M2M-optimized CAT1 3GPP E-UTRA Release 11</p> <p>Bands: FDD LTE - B1/B3/B7/B8/B20/B28A** WCDMA - B1/B5/B8 GSM - B1/B8</p> <p>Speeds: LTE-FDD - up to Max 10Mbps (DL)/Max 10Mbps (UL) DC-HSDPA: - Max 42Mbps (DL); HSUPA: Max 5.76Mbps (UL); WCDMA: Max 384Kbps (DL)/Max 384Kbps (UL) EDGE/GPRS - up to Max. 296Kbps (DL), Max. 236.8Kbps (UL) / Max. 107Kbps (DL), Max. 85.6Kbps (UL)</p> <p>equipped with u.FL connector</p> <p>SENSORS - by PN suffix coding (xxxxxxx)</p> <ul style="list-style-type: none"> XYZMIOT209#EG91E-UFL-0000000 - no embedded sensors - SKU: ITBP-4012 		Europe*
XYZMIOT209#EG91E-SMA-xxxxxxx <i>LTE / 4G modem</i>	Same as above, but with SMA F connector		Europe*
XYZMIOT209#M95FA-UFL-xxxxxxx <i>2G (GSM / GPRS) modem</i>	<p>MODEM - Quectel M95FA - 2G [GSM / GPRS / EDGE]</p> <p>GSM - 850/900/1800/1900 MHz</p> <p>Speeds: EDGE/GPRS - up to Max. 296Kbps (DL), Max. 236.8Kbps (UL) / Max. 107Kbps (DL), Max. 85.6Kbps (UL)</p> <p>equipped with u.FL connector</p> <p>SENSORS - by PN suffix coding (xxxxxxx)</p> <ul style="list-style-type: none"> XYZMIOT209#M95FA-UFL-0000000 - no embedded sensors - SKU: ITBP-4009 XYZMIOT209#M95FA-UFL-1100000 - HDC2010 and DRV5032 - SKU: ITBP-4008 XYZMIOT209#M95FA-UFL-1100100 - CCS811, HDC2010 and DRV5032 - SKU: ITBP-4007 		Global
XYZMIOT209#M95FA-SMA-xxxxxxx <i>2G (GSM / GPRS) modem</i>	Same as above, but with SMA F connector - GSM, u.FL connector - GNSS		Global
XYZMIOT209#NOMODEM-000-xxxxxxx <i>NO embedded modem</i>	<p>MODEM - no embedded modem</p> <p>SENSORS - by PN suffix coding (xxxxxxx)</p> <ul style="list-style-type: none"> XYZMIOT209#NOMODEM-000-0000000 - no embedded sensors - SKU: ITBP-5002 XYZMIOT209#NOMODEM-000-1100000 - HDC2010 and DRV5032 - SKU: ITBP-5001 		-

xyz-mIoT by itbrainpower.net specific features per model part number - continuation

Part number	Accessories description
gSPS101#4V(DDR)V	g-SPS 4V adapter board external plug-able switching power supply, 5-19V input, 4V output, 650mA sustained and max 2A pulse. 20.3x34.29mm. Use in "without LiPol/stand-alone" u-GSM boards configuration.
gSPS101#5V(LiPOL)	g-SPS 5V adapter board external plug-able switching power supply, 6-19V input, 5V output, 650mA sustained and max 2A pulse. 20.3x34.29mm. Use in "with LiPol battery" u-GSM boards configuration, when main power supply voltage is bigger than 5V.
ITBP-EMB2-UFL#100	embedded GSM antenna, 850Mhz->2250Mhz, u.FL connector and 100mm cable
ITBP-UFL-SMAF#100	u.FL to SMA female panel 100mm pigtail
ITBP-UFL-SMAF#085	u.FL to SMA female panel 85mm pigtail
ITBP-GSM-ANT-SMA90D#001	mini GSM/UMTS antenna, 0-1db, rod type, SMA F, 90 degree, no cable
SCAP1F5V#001	super capacitor for itbrainpower modular modems - 1F, 5V, ESR 150 mOhm
ITBP-LiPOL-CON#TP01	Lithium Polymer battery connector

* EUROPE and other countries having compatible frequency networks (Europe, Middle East, Asia and Africa)

** under development

xyz-mIoT by itbrainpower.net w. modem (EG91E, BG96, BC95G or M95FA), common features, GSM side

- NANO size SIM socket push pull
- 1.27 mm pitch soldering pads for external SIM card socket
- embedded SIM support
- modem UART port soldering pads for AT debug
- modem power separation mechanism (MCU controlled)
- modem USB soldering pads (only for EG91E, BG96)
- GNSS active antenna powering control (MCU controlled – only for BG96)

xyz-mIoT by itbrainpower.net all models, common features – summary

- AT SAMD21G Cortex®-M0+ 32bit low power ARM micro-controller
- flash memory - 256kBytes (MCU)
- SRAM - 32Kbytes
- clock - 32.768kHz (crystal controlled) RTCC/WDT, 48Mhz
- mini USB type B - Programming + debug ports. Can be used for powering.
- power inputs: USB, Vraw (4.8-7V for modem versions, 3.3-7V for basic IoT version)
- max. DC current per digital output pin - 7mA
- max. available current on 3.3V pad (from LDO) - 75mA minus the total current sink by output ports
- 13 x digital ports [12 ports PWM capable]
- 8 external interrupts
- 1 x UART hardware port
- 1 x I2C port
- 1 x SPI port
- all digital ports are 3.3V compliant
- 5 x analog inputs (10/12bits)
- integrated battery / super -capacitor charger
- supported batteries - LiPO / LiION single cell min. 250mAh or super-capacitor >1F/>5V having ESR <150mOhm
- super compact format - 1.4"x1.8" (35.56 x 45.72mm)
- low power design – down to 35-40uA total shield sleep current support**

** measured at 25 C, RTCC and GPIO interrupt wake routines, crystal controlled RTCC and clock, two UART and I2C. No embedded sensors variant was used for this test.