MICROCONTROLLER

Technical Specifications

Microcontroller	Dual-core Xtensa LX6 processor
Clock Frequency	Up to 240 MHz
Operating Voltage	3.3V DC
Flash Memory	4 MB (onboard)
SRAM	512 KB
Wi-Fi	802.11 b/g/n (2.4 GHz)
Bluetooth	Bluetooth v4.2 BR/EDR and BLE (Bluetooth Low Energy)
GPIO Pins	30 pins (varies by board version)
Analog Inputs (ADC)	12-bit ADC up to 18 channels
Digital Inputs (DAC)	2 x 8-Bit DAC
Digital Interfaces	SPI, UART, PWM
Operating Temperature	-40°C to +85°C
USB Interface	Micro USB (for programming and power)
Power Consumption	Approx. 160 mA (Wi-Fi active mode)
Buttons	Dedicated EN (reset) and BOOT button
Accessories	6 female-female and 6 male-female jumpers with each module

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CELLULAR MODULE- SINGLE SIM WITH ANTENNA

Technical Specifications

Module	LTE Cat-1
Cellular Technology	LTE-FDD (Cat-1), backward compatible with GSM/GPRS/EDGE
Maximum Data Rate	Downlink up to 10 Mbps, Uplink up to 5 Mbps
Frequency Bands (typical variants)	LTE-FDD B1/B3/B5/B7/B8/B20 (actual bands depend on variant)
SIM Interface	Single SIM slot (1 x Nano SIM card socket)
Host Interfaces	UART, USB 2.0 (High Speed), I2C, SPI, PCM, GPIO, ADC
Supply Voltage	Typical 5-12 vdc
LED's	Power/Network led on board
Operating Temperature	-40°C to +85°C
Dimensions (module)	Approx. 24 ±5% × 24±5% × 2.3–2.4 ±5% mm
RF Transmission Power	GSM: class 4/1; LTE power class 3 (typ. 23 dBm)
Protocols & Stacks	TCP/IP (IPv4/IPv6), HTTP/HTTPS, FTP, MQTT, PPP, RNDIS, SSL/TLS
Firmware	Support for AT commands; FOTA / USB firmware update
Antenna	External LTE antenna included in supplied kit (IPEX or FPC type)
PTA Approved with tax paid.	
Note: Cellular module should be compatible with microcontroller	

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POWER ADAPTER — AC-DC 220VAC TO 5VDC, 2A

Technical Specifications

Input Voltage Range	AC 180V – 240V, 50/60Hz
Output Voltage	5 VDC (regulated)
Output Current	2.0 Ampere (minimum continuous)
Output Power	10 Watts (nominal)
Efficiency	≥ 80% (at full load)
Output Regulation	±5% maximum
Storage Temperature	-20°C to +85°C
Cable Length	1.0 meter (from adapter body to DC plug)
Plug Type	Standard 2-pin AC plug (EU type or compatible)
Output Protection	Short-circuit, overload, and over-voltage protection
Power Factor	≥ 0.5 (typical)
Enclosure Type	Fully enclosed plastic housing

DC CURRENT SENSOR/ TRANSMITTER

Technical Specifications

Primary Rated Current	0-100 Amp
Power Supply	24 VDC
Rated Output	0-5 VDC, 4-20 mA
Hole Diameter	35 mm or 38mm
Accuracy	1%
Linearity	0.50%
Response time	<200ms
Offset Voltage	<20mV
Current Consumption	<25mA + output current
Operating Temperature	-10 C to 70 C
Installation Method	Standard 35mm rail + plain screw fixation

DC VOLTAGE SENSOR/ TRANSMITTER

Technical Specifications

Input Range	0-50 VDC
Power Supply	24 VDC
Rated Output	0-5 VDC, 4-20 mA
Linearity	0.10%
Offset Voltage	<10mV
Current Consumption	<25mA + output current
Operating Temperature	-10 C to 70 C
Installation Method	Standard 35mm rail + plain screw fixation

SPI TO ETHERNET MODULE

Technical Specifications

Network Protocols	IPv4, TCP, UDP, ICMP, ARP, IGMP, PPPoE, IPv4 ARP
Ethernet Interface	10/100 Mbps IEEE 802.3 compliant via RJ45 with integrated magnetics
Host Interface	SPI (Serial Peripheral Interface) — supports SPI mode 0 and 3
SPI Clock Frequency	Typical operation 10 - 40
Voltage Supply	3.3 V DC (module-level). Specify if module includes onboard 5V regulator
Logic Levels	3.3 V TTL
Power Consumption	50-200 mA during active Tx/Rx
Connectors	1 × RJ45 (integrated magnetics) with LEDs; SPI header pins for SCK, MOSI, MISO, CS, RESET, INT, 3.3V, GND
Indicators	Link and Activity LEDs on RJ45 (TX/RX, LINK)
Operating Temperature	Commercial: 0°C to +70°C.
Storage Temperature	-40°C to +85°C
Humidity	10% to 90% non-condensing (operational)
Sockets	Up to 8 independent hardware sockets

ENCLOSURE BOX

Specifications

External Dimensions	100 mm (L) ±10% x 100 mm (W) ±10% x 75 mm (H) ±10%
Material	High-quality ABS or Polycarbonate (UV resistant)
Lid Type	Screw-type cover with four stainless steel screws
Sealing	Pre-fitted rubber/silicone gasket for waterproofing
Rubber Bung	Minimum 4 Flexible grommet for cable entry with holes on box
Mounting Type	Wall mount with internal mounting pillars
Thickness	Approx. 3–4 mm (wall and lid)

RTC (REAL TIME CLOCK) MODULE WITH CELL

Technical Specifications

Interface	I^2C (SDA, SCL) – up to 400 kHz
Operating Voltage	3.3V to 5.5V DC
Logic Level Compatibility	3.3V and 5V logic compatible
Timekeeping Accuracy	±2 ppm (0°C to +40°C); ±3.5 ppm (-40°C to +85°C)
Time Format	24-hour or 12-hour with AM/PM indication
Calendar Range	Year 2000 to 2099 with automatic leap-year correction
Battery Backup	CR2032 (3V) lithium coin cell or equivalent
Current Consumption	Typical 100 nA on battery backup; <200 µA during active I^2C operation
Operating Temperature	-40°C to +85°C (industrial grade)
Communication Pins	SDA, SCL, VCC, GND
Square-Wave Output	Programmable frequencies: 1Hz, 1.024kHz, 4.096kHz, 8.192kHz
Module Dimensions	Approx. 38 mm ±5% × 22 mm ±5%× 14 mm ±5%
Mounting Type	Through-hole pin header or PCB mount
Backup Time	Up to several months with CR2032 coin cell

BOQ

Sr. No.	Description	Quantity	Unit	Make/Model	Unit Price	Total price
01	Microcontroller Board (As per specs)	22	Each			
02	PTA Approved GSM Cellular Module with antenna (As per specs)	12	Each			
03	Power adopter AC-DC 220VAC-5VDC 2 Amp (As per specs)	34	Each			
04	DC Current sensor (As per specs)	10	Each			
05	DC Voltage sensor (As per specs)	10	Each			
06	SPI to Ethernet Module (As per specs)	10	Each			
07	RTC Module with cell (As per specs)	10	Each			
08	Enclosure Box (As per specs)	24	Each			

Total Price:

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Special Terms & Conditions

- Warranty period of all Equipments should be at least one month.
- Bidder should provide PTA approved communication modules.
- All equipments should be new, used or refurbished equipments will not be accepted.