

Plug-In N-PLC Module

Designed for Industrial Control and Automation Systems

The SM2400A-MOD2-FCC is a Narrowband Power-Line Communications (N-PLC) module to extend AC / DC line communications to various systems. Utilizing the highly versatile SM2400A modem, the module offers an OFDM-based communication scheme (G3-PLC FCC), extremely robust proprietary mode (XXR) that balance high data rates with most robust communications in noisy conditions. Supports transparent UART-to-PLC mode or Full Serial Command API for rapid application development.

Accelerates system development and minimizes design risk with production-ready plug-in module.

Features

Power-line Communications over AC (275V) or DC (400V) lines

Operates over FCC band:
155 kHz - 490 kHz

Supports multiple N-PLC schemes:

- High-speed low latency OFDM mode (G3-PLC FCC)
- Extreme noise immune mode (XXR)

Supported Protocols:

- Transparent UART to PLC passthrough mode
- Fully featured Serial Command API

UART micro-controller interface

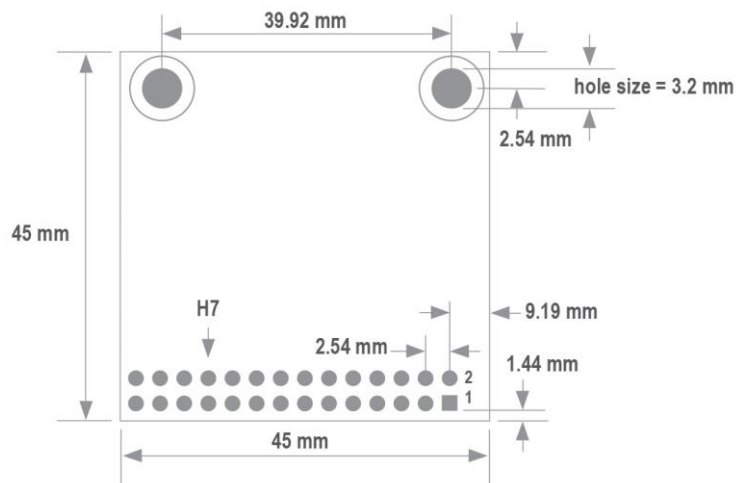
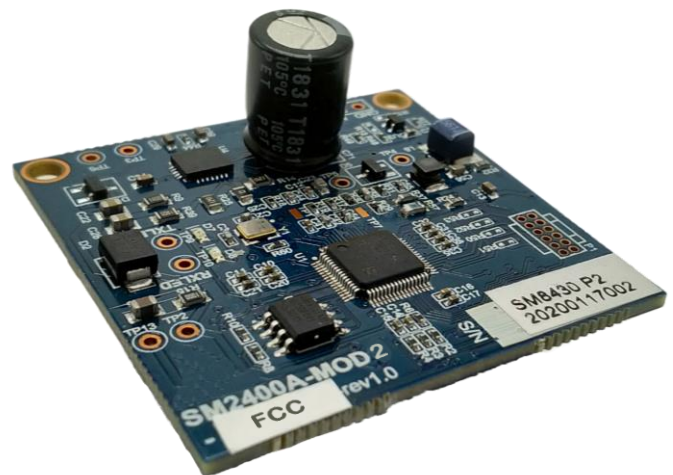
Low power consumption

3.3V (5V) tolerant I/O

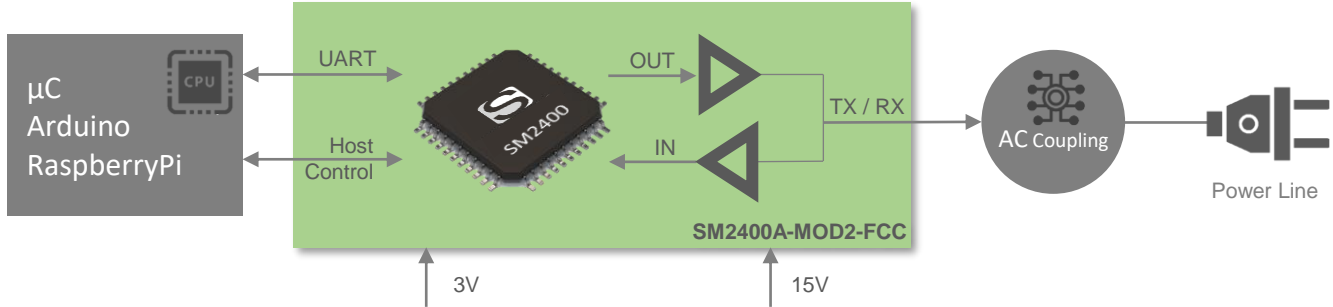
Dimensions: 45mm x 45mm

Communication Data Rates (max)

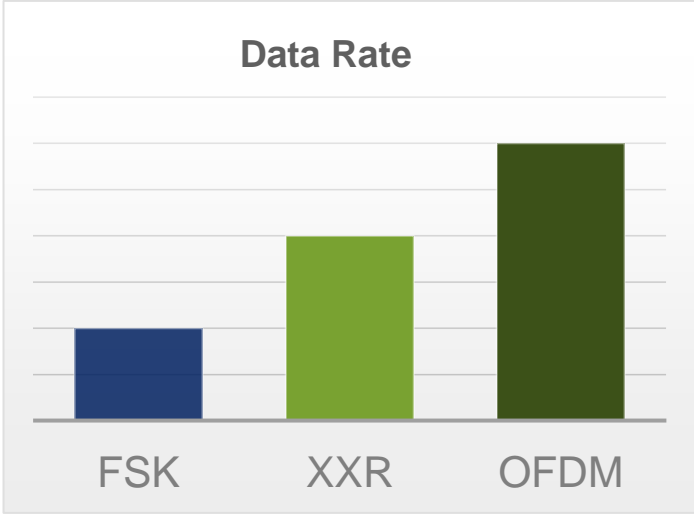
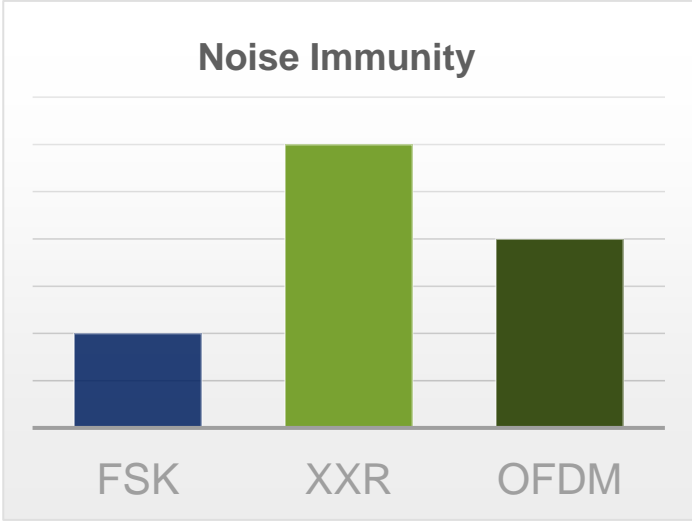
OFDM	- 466 kbps
XXR	- 5 kbps



Functional Diagram



28-Pin Connector H7					
Pin#	Name	Description	Pin#	Name	Description
1	UART_HSO	UART I/F handshake out	15	GND	GND
2	UART_HSI	UART I/F handshake in	16	GND	GND
3	UART_RDI	UART receive data in	17	TX_PLC_LV_N	TX_PLC_LV_-
4	UART_TDO	UART transmit data out	18	TX_PLC_LV_P	TX_PLC_LV_+
5	MODE0	Boot mode pin latched on reset.	19	COREIO12	Used for zero crossing detection
6	MODE1		20	COREIO15	Host interrupt request signal
7	MODE2		21	SPIS_SSb	Host SPI Slave I/F select
8	RESETb	Reset pin	22	SPIS_IN	Host SPI Slave I/F data in
9	AFE_VCC	15V Input	23	SPIS_OUT	Host SPI Slave I/F data out.
10	AFE_VCC	15V Input	24	SPIS_SCK	Host SPI Slave I/F clock
11	RX_PLC_LV_N	RX_PLC_LV_-	25	COREIO10	GPIO
12	RX_PLC_LV_P	RX_PLC_LV_+	26	COREIO00	GPIO
13	3V3	3V3 Input	27	COREIO14	GPIO
14	3V3	3V3 Input	28	COREIO13	GPIO



Small and Simple Networks Ultimate Robustness

XXR

Extremely robust in noisy power line environments

- Highest immunity to impulse noise
- Highest immunity to tonal interference, such as switching noise
- Ideal for long distance communications

Simple to manage as point-to-point or mesh

High Data Rates, Low Latencies, Full Networking Capabilities

OFDM / G3-PLC

High data rates

- Long packets capability
- Lower latency

Supports large networks

- Full routing
- CSMA
- Lower power

Technical Specifications

- 15V DC input voltage
- 3.3V (5V) tolerant I/O
- Communication line voltage: up to 275 VAC / 400 VDC
- Sensitivity: 38dBµV
- Link budget: -90dB

Turnkey Solution

Fast Time-to-Market