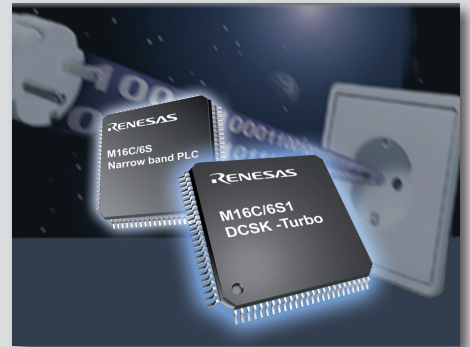


Power Line Communication

Renesas offers the most robust PLC solution on the market....

.... That's the outcome of a high number of laboratory tests and field trials and has been successfully proven in real installations around the world. The M16C/6S is a low cost MCU incorporating IT800 PLC technology based on a DCSK modulation scheme. This technology has been specifically designed to cope with typical power line phenomena and to keep communication even in extremely noisy environment. It has been selected by HomePlug as the baseline technology for the HomePlug C&C open standard and is provided by multiple suppliers. The M16C/6S1 "DCSK-Turbo" high speed derivative is a new device with data rates of up to 500 kbps.



Main Applications

Energy Management / Smart Grid

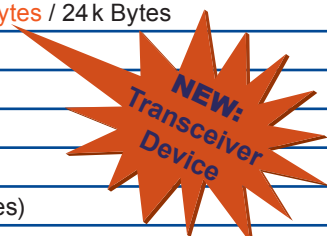
- Automatic meter reading / Automatic meter management
- Outage management
- Demand side management
- Theft detection and load control
- Appliance monitoring, HVAC control

Industrial-, Home-, Building-Automation

- Street lighting
- Device diagnostics and management
- Lighting / Emergency lighting
- Appliance monitoring
- Electrical vehicle charging

M16C/6S performance outline

Item	Performance
Number of basic instructions	91 instructions
Shortest instruction execution time	65.1 ns (f(BCLK)= 15.36MHz, Vcc=3.0V to 3.6V)
Memory ROM /RAM	96 kBytes / 24 k Bytes; 64 kBytes / 24 k Bytes
I/O ports	21
Input port P85	1-bit x1
Multifunctional timer	16-bit x 5 channels
Serial I/O	UART x 3 ; SI/O x 2
DMA	2 channels (trigger 18 sources)
Watchdog timer	15-bits x 1 (with prescaler)
Interrupt	21 internal, 3 external sources, 4 software sources, 7 levels
Power supply voltage	3.0V to 3.6V
Power consumption	70 mA (Vcc=VccA=3.3V, f(Xin)=5.12MHz)
Operating ambient temperature	-20 to 85°C; -40 to 85°C; -40 to 105°C
Package	64-pin plastic mold LQFP



Renesas offers all building blocks for your product ...

PHY features:

DCSK modulation (Differential Code Shift Keying); powerful error correction code and packet detection schemes; adjustable transmission modes with data rates of up to 7.5kbps; clock recovery algorithm allowing a low accuracy crystal; configurable to support w/w regulations (CENELEC, FCC, ARIB)

DLL features:

Network and node addresses; CSMA/CD; channel prioritization; adaptive back off; retransmission and acknowledgement mechanism; broadcast function; frame fragmentation and reassembly; packet filtering; line quality control; cross network communication; impostor detection.



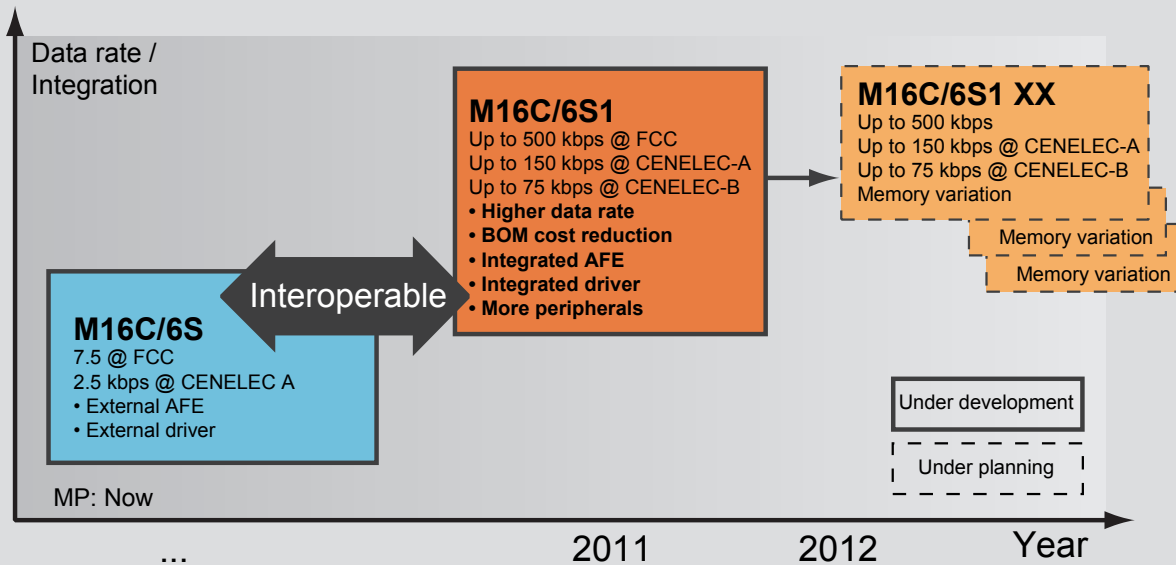
Serial I/F software:

Enables the M16C/6S to be used as transceiver device via the UART I/F.

Network layer (RUN-M[®]) features:

Join-On power-ON; intelligent failure handling (self healing capabilities); dynamic reconfiguration (network recovery by EEPROM); intelligent repeating mechanisms (always ensuring best quality and lowest communication overhead); multiple message types; line quality information for NWK statistics; impostor detection; adjustable gain control.

Renesas high-speed power line solution



Before purchasing or using any Renesas Electronics products listed herein, please refer to the latest product manual and/or data sheet in advance.

