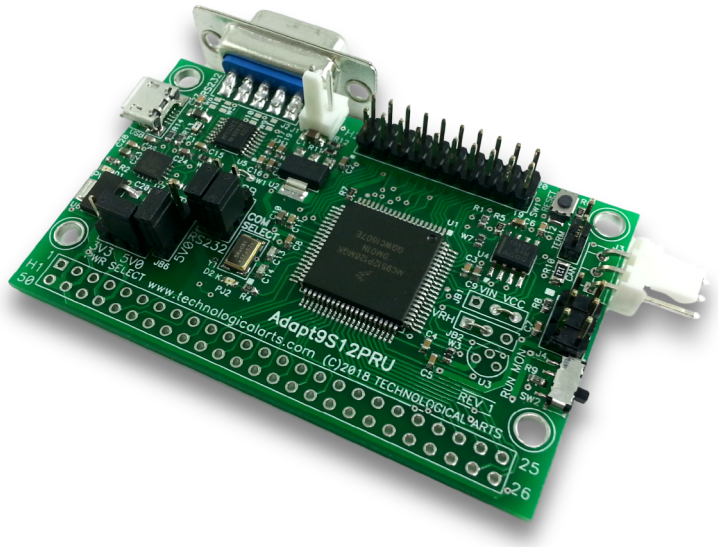
# Adapt9S12P Microcontroller Module with RS232 and USB Interface Options

## Description

Designed primarily for automotive, robotics, mechatronics, and industrial applications, this module implements a fully-functional and flexible 16-bit microcontroller circuit configuration in a convenient easy-to-use modular form factor. Based on the advanced 16-bit NXP/Freescale 9S12P microcontroller, it offers a good mix of resources and flexibility for a variety of applications, at a very attractive price. This module is offered with a range of I/O header styles, and is suitable for many educational and OEM applications.

The S12P microcontroller integrates an S12 core with program flash, data flash, and RAM memory blocks, complemented by a full range of essential peripheral modules including SCI, SPI, CAN, analog-to-digital converters, PWM, and multiple general purpose I/O pins, many of which support wakeup interrupt capabilities.




**Adapt9S12PRU-NC**

## Module Features

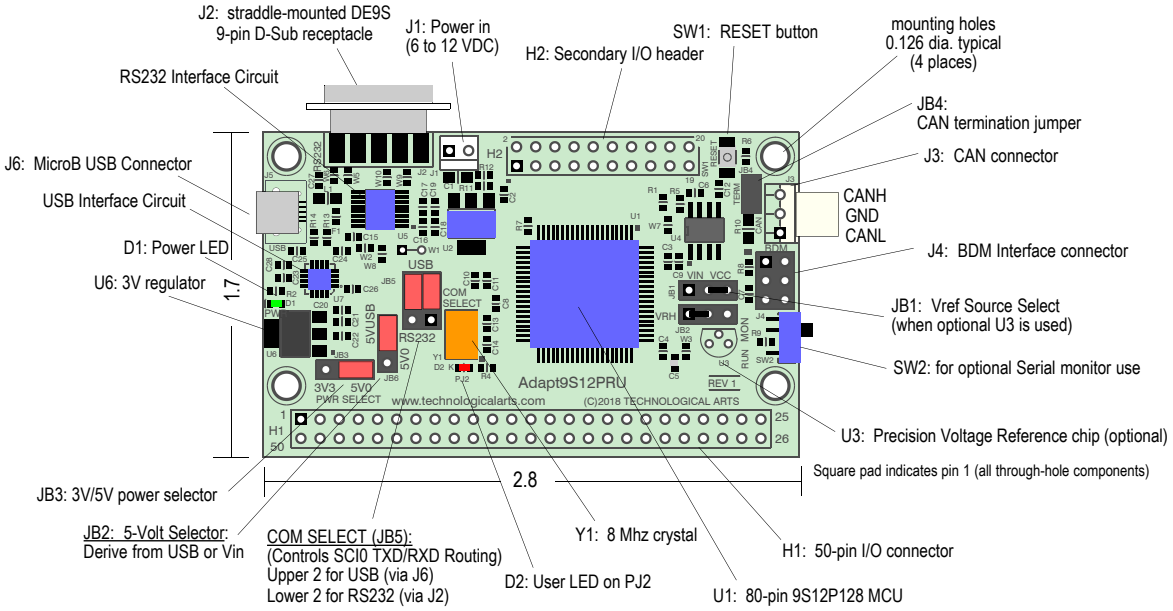
- highly integrated S12P128 microcontroller
- industry-standard on-board CAN transceiver
- RS232 and USB interface circuits on board
- jumper-selectable for either USB or RS232 serial
- option to power module via host USB port
- jumper-selectable 3V/5V operation
- extended temperature 8 MHz crystal
- standard 6-pin BDM connector for program/debug
- compatible with industry-standard BDM pods
- supported by CodeWarrior and Cosmic C compilers
- Adapt module form-factor (71mm x 43mm)
- 50-pin (2x25) primary I/O connector footprint (“H1”)
- choice of 12 connector styles for H1
- 20-pin (2x10) secondary I/O header pins (“H2”)
- functionally pin-compatible with other Adapt modules
- RoHS-compliant
- industrial temperature range (-40C to +85C)
- OEM pricing available for 25+ units

## 9S12P128 MCU Features

- powerful S12 CPU core
- 128K program flash memory with ECC
- 4K data flash memory with ECC
- 6K SRAM
- high-speed MSCAN module
- SPI module
- SCI module supporting LIN communications
- Timer module (TIM) supporting 16-bit input capture, output compare, counter, and pulse accumulator functions
- 10-channel, 12-bit ATD module, 3 us conversion time
- 6 x 8-bit or 3 x 16-bit PWM channels
- internal 1 MHz oscillator
- up to 32MHz bus frequency via PLL
- Autonomous Periodic Interrupt
- Key Wakeup interrupts on many pins
- 64 GPIO pins with programmable parameters
- low-power modes

# Adapt9S12PRU Module
## Features and Pin Configuration

Dimensions in inches




### H1 Pin Assignments

| PIN # | NAME | PIN # | NAME |
|---|---|---|---|
| 1 | PM2/MISO0 | 50 | GND |
| 2 | PM4/MOSI0 | 49 | GND |
| 3 | PM5/SCK0 | 48 | PS0/RXD0 |
| 4 | PM3SS0* | 47 | VCC |
| 5 | PS1/TXD0 | 46 | PE1/IRQ* |
| 6 | PT7/IOC7 | 45 | PE0/XIRQ* |
| 7 | PT6/IOC6 | 44 | RESET* |
| 8 | PT5/IOC5/PWM5/API_EXTCLK | 43 | PE7/ECLKX2 |
| 9 | PT4/IOC4/PWM4 | 42 | PA0 |
| 10 | PT3/IOC3 | 41 | PA1 |
| 11 | PT2/IOC2 | 40 | PA2 |
| 12 | PT1/IOC1 | 39 | PA3 |
| 13 | PT0/IOC0/PWM0 | 38 | PA4 |
| 14 | PB7 | 37 | PA5 |
| 15 | PB6 | 36 | PA6 |
| 16 | PB5 | 35 | PA7 |
| 17 | PB4 | 34 | PE2 |
| 18 | PB3 | 33 | PE4/ECLK |
| 19 | PB2 | 32 | PE3 |
| 20 | PB1 | 31 | GND |
| 21 | PB0 | 30 | VRH |
| 22 | PAD00/AN00 | 29 | PAD04/AN04 |
| 23 | PAD01/AN01 | 28 | PAD05/AN05 |
| 24 | PAD02/AN02 | 27 | PAD06/AN06 |
| 25 | PAD03/AN03 | 26 | PAD07/AN07 |

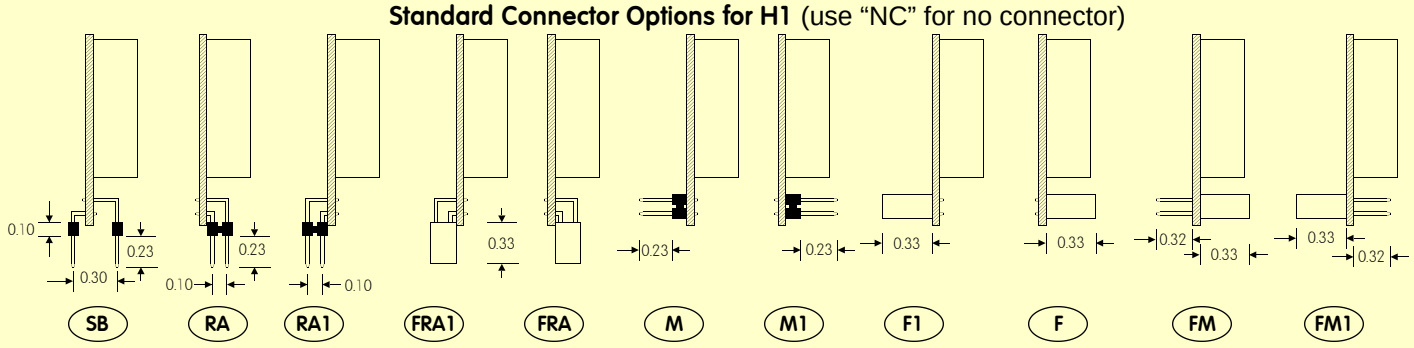
### H2 Pin Assignments

| PIN # | NAME | PIN # | NAME |
|---|---|---|---|
| 1 | NO CONNECTION | 2 | PS2 |
| 3 | PS3 | 4 | PE5 |
| 5 | PE6 | 6 | PAD08/AN08 |
| 7 | PAD09/AN09 | 8 | PJ6/KWJ6 |
| 9 | PJ7/KWJ7 | 10 | PJ1/KWJ1 |
| 11 | PJ0/KWJ0 | 12 | PP0/KWP0/PWM0 |
| 13 | PP1/KWP1/PWM1 | 14 | PP2/KWP2/PWM2 |
| 15 | PP3/KWP3/PWM3 | 16 | PP4/KWP4/PWM4 |
| 17 | PP5/KWP5/PWM5 | 18 | PP7/KWP7 |
| 19 | VCC | 20 | GND |

**Order Codes:**
- AD9S12PRU128-☐

(append H1 connector option code - see drawings, below)
- USBDMLT programming/debugging pod

**Standard Connector Options for H1** (use "NC" for no connector)

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