



# Quick Start Guide

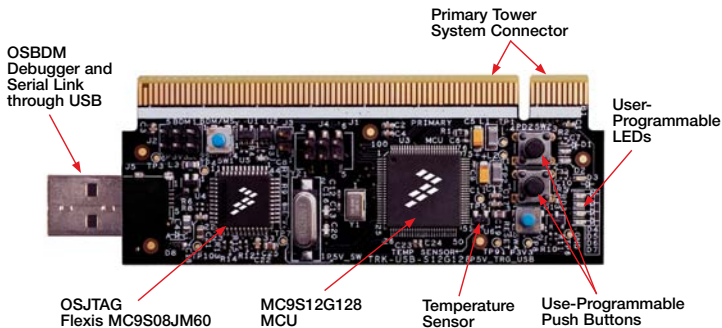
**TRK-USB-S12G128**

StarterTRAK USB for  
Automotive Applications



**StarterTRAK**

# Get to Know the TRK-USB-S12G128



## TRK-USB-S12G128 Freescale StarterTRAK USB

The TRK-USB-S12G128 kit is part of our StarterTRAK USB development platform. It is designed for you to easily and inexpensively give the Freescale 16-bit S12G MCU family a test drive. This board can also be used in conjunction with the Freescale Tower System, allowing you to rapidly prototype designs with a growing portfolio of reconfigurable, modular tools.

# TRK-USB-S12G128 Features

- MC9S12G128 MCU
- Temperature sensor
- Primary Tower System connector
- Three user-programmable LEDs
- Two user-programmable push buttons
- OSBDM debugger and serial connection through USB

# Step-by-Step Installation Instructions

This quick start guide details how to set up the TRK-USB-S12G128 board and run some demo projects on the device.

## 1 Install Software and Tools

- Download and install the CodeWarrior Development Studio for HCS12(X) Microcontrollers (Classic). Available at **[freescale.com/TRK-USB-S12G128](http://freescale.com/TRK-USB-S12G128)**

## 2 Connect Device to Computer

- Connect the USB board into an available port and allow the computer to automatically install the device drivers for the OSBDM module. CDC device drivers are required and may be obtained via the P&E Micro website (see Note 1 on next page). Once installed, you are ready to start coding and using the device.

### 3 Download Supporting Documentation

- Download the documentation, lab materials and the S12G reference manual from the downloads tab at **[freescale.com/TRK-USB-S12G128](https://www.freescale.com/TRK-USB-S12G128)**

### 4 Explore Further

- The StarterTRAK board includes pre-installed code that demonstrates the two push buttons, three LEDs and temperature sensor. One LED will toggle continuously. One push button will turn on the second LED while the second push button will turn it off. The third LED will turn on when heat is applied to the temperature sensor by placing a finger over it for several seconds.

More S12G128 example code can be found online in the application note AN4455: MC9S12G128/A240 Demonstration Lab Training located at **[freescale.com/TRK-USB-S12G128](https://www.freescale.com/TRK-USB-S12G128)**

## On-Board Connections

The following tables show the available signals and connections of the TRK-USB-S12G128 board.

### Jumpers

Jumper	Setting	Description
J3	1-2	Forces OSBDM to start up in BOOTLOADER mode for firmware updates
	Open	Disable BOOTLOADER mode

### Other Connections

MCU Pin	Signal
PD5	D2 Yellow LED
PD6	D3 Green LED
PD7	D1 Orange LED
PP7	SW2
PP6	SW3
PAD1	Temperature Sensor

## Tower System Interface Connections

PCI Connector	MCU Pin	Signal		PCI Connector	MCU Pin	Signal
A1	N/A	5 V		B1	N/A	5 V
A2	N/A	GND		B2	N/A	GND
A3	N.C			B3	N.C	
A4	N.C			B4	N/A	ELE_PS_SENSE
A5	N/A	GND		B5	N/A	GND
A6	N/A	GND		B6	N/A	GND
A7	N.C			B7	88	PS6/CLK0
A8	N.C			B8	N.C	
A9	81	PD3		B9	59	PS7
A10	94	PD4		B10	57	PS5
A11	95	PD5		B11	86	PS4
A12	N.C			B12	N.C	
A13	N.C			B13	N.C	
A14	N.C			B14	N.C	

PCI Connector	MCU Pin	Signal		PCI Connector	MCU Pin	Signal
A15	N.C			B15	N.C	
A16	N.C			B16	N.C	
A17	N.C			B17	N.C	
A18	N.C			B18	N.C	
A19	N.C			B19	N.C	
A20	N.C			B20	N.C	
A21	N.C			B21	96	PD6
A22	N.C			B22	97	PD7
A23	N.C			B23	28	PB3
A24	N.C			B24	N.C	
A25	N.C			B25	N.C	
A26	N/A	GND		B26	N/A	GND
A27	61	PAD3		B27	69	PAD7
A28	59	PAD2		B28	67	PAD6
A29	57	PAD1		B29	65	PAD5
A30	55	PAD0		B30	63	PAD4
A31	N/A	GND		B31	N/A	GND
A32	N.C			B32	N.C	
A33	45	PT1		B33	43	PT3



PCI Connector	MCU Pin	Signal		PCI Connector	MCU Pin	Signal
A34	46	PT0		B34	44	PT2
A35	50	PB7		B35	49	PB6
A36	N/A	3.3 V		B36	N/A	3.3 V
A37	32	PP3		B37	36	PP7
A38	31	PP2		B38	35	PP6
A39	30	PP1		B39	34	PP5
A40	29	PP0		B40	33	PP4
A41	82	PS0		B41	92	PM0/CAN_RXD
A42	83	PS1		B42	93	PM1/CAN_TXD
A43	84	PS2		B43	N.C	
A44	85	PS3		B44	3	PJ4/DSP11_SIN
A45	N/A	VSSA		B45	2	PJ5/DSP11_SOUT
A46	N/A	VDDA		B46	100	PJ7/DSPI0_CS1
A47	4	PA0		B47	N.C	
A48	5	PA1		B48	1	PJ6_DSP11_SCK
A49	n/a	GND		B49	N/A	GND
A50	6	PA2		B50	N.C	
A51	7	PA3		B51	N.C	
A52	16	PA4		B52	N.C	

PCI Connector	MCU Pin	Signal		PCI Connector	MCU Pin	Signal
A53	17	PA5		B53	N.C	
A54	18	PA6		B54	N.C	
A55	19	PA7		B55	N.C	
A56	N.C			B56	N.C	
A57	N.C			B57	N.C	
A58	39	PT7		B58	N.C	
A59	40	PT6		B59	N.C	
A60	41	PT5		B60	N.C	
A61	42	PT4		B61	48	PB5
A62	8	MCU_RESET_B		B62	47	PB4
A63	N.C			B63	N.C	
A64	25	PB0/ECLK		B64	N.C	
A65	N/A	GND		B65	N/A	GND
A66	N.C			B66	N.C	
A67	N.C			B67	N.C	
A68	N.C			B68	N.C	
A69	N.C			B69	N.C	
A70	N.C			B70	N.C	
A71	N.C			B71	N.C	

PCI Connector	MCU Pin	Signal		PCI Connector	MCU Pin	Signal
A72	N.C			B72	N.C	
A73	N.C			B73	N.C	
A74	N.C			B74	N.C	
A75	N.C			B75	N.C	
A76	N.C			B76	N.C	
A77	N.C			B77	N.C	
A78	N.C			B78	N.C	
A79	N.C			B79	N.C	
A80	N.C			B80	N.C	
A81	N/A	GND		B81	N/A	GND
A82	N/A	3.3 V		B82	N/A	3.3 V

## Support

Visit [freescale.com/support](http://freescale.com/support) for a list of phone numbers within your region.

## Warranty

Visit [freescale.com/warranty](http://freescale.com/warranty) for complete warranty information.

**For more information, visit**  
[freescale.com/TRK-USB-S12G128](http://freescale.com/TRK-USB-S12G128)

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