8-bit Development Tools



Demonstration Boards (DEMO): Demonstration boards are cost-effective development tools that allow users to program and debug application code with basic I/O functions and peripherals. Designers save on design time and costs with these demo boards targeted at specific HC(S)08/RS08 MCUs. CodeWarrior Development Studio for HC(S)08/RS08, Special Edition is included along with the board.



MON08 Multilink (USBMULTILINK08E):

The MON08 Multilink is a cost-effective development tool for all HC08 MCUs, and provides in-circuit debugging and programming through the standard MON08 serial debug/breakpoint interface. CodeWarrior Development Studio for HC(S)08/RS08, Special Edition is included along with the MON08 Multilink.



BDM Multilink (USBMULTILINKBDME):

e BDM Multilink is a cost-effective development tool for RS08, HCS08 and HCS12 MCUs, and provides real-time, in-circuit flash programming, emulation and debugging through the BDM interface. CodeWarrior Development Studio for RS08, HC(S)08 and HC(S)12, Special Edition is included along with the BDM Multilink.



Evaluation Boards (EVB):

Evaluation boards allow users to program and debug advanced application code with expanded I/O functions and peripherals. HC(S)08 EVBs may include advanced features including zero insertion force (ZIF) sockets, LCDs and large prototype areas. CodeWarrior Development Studio for RS08, HC(S)08 and HC(S)12, Special Edition is included along with the board.



Freescale Semiconductor's In-Circuit Emulator (FSICE): The Freescale Semiconductor In-Circuit Emulator (FSICE) is a high-performance emulator system for HC08 MCUs. In addition to incorporating the debug features of traditional emulators, the FSICE system adds advanced features such as the USBMULTILINK08E cable for in-circuit flash programming, Ethernet interface for remote debugging and a real-time bus analyzer. The kit consists of the FSICE base station, the corresponding MCU emulator module (EM), all the cables and adapters needed and CodeWarrior Development Studio for HC(S)08/RS08, Special Edition.



Cyclone Pro (CYCLONEPROE):

Cyclone Pro provides all the capabilities of the USBMULITLINKBDME and USBMULTILINK08E plus USB/Ethernet serial interfaces. In addition, the Cyclone Pro has the ability to function as a stand-alone programmer with push buttons and LEDs to control operations. Cyclone Pro is the universal debugging and real-time emulation tool for all RS08, HC(S)08 and HC(S)12 MCUs. CodeWarrior Development Studio for HC(S)08/RS08 and HC(S)12, Special Edition is included along with Cyclone Pro.



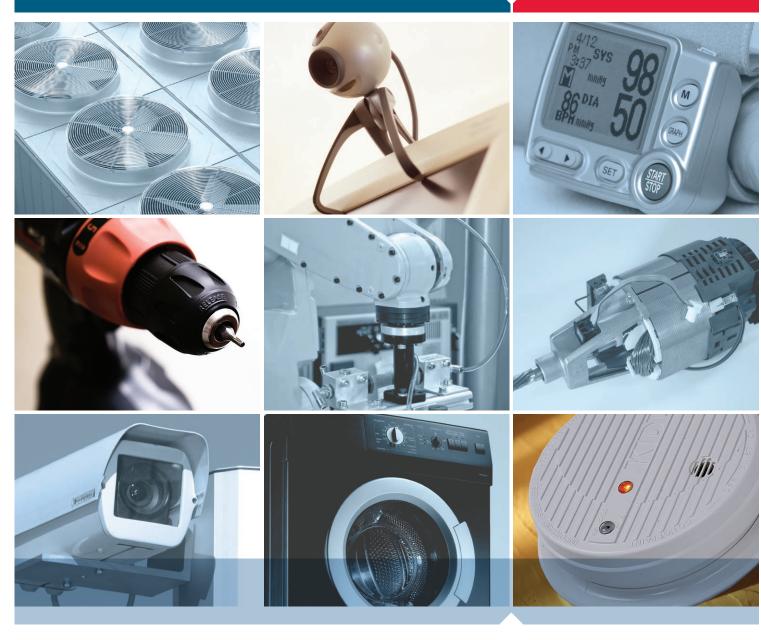
CodeWarrior Development Studio for HC(S)08/RS08 Special Edition: CodeWarrior Development Studio is a comprehensive special edition tool set for fast and easy MCU development. This tool suite provides the capabilities required by every engineer in the development cycle to exploit the capabilities of the RS08 and HC(S)08 architectures. Some of the features include full-chip simulation, flash programming and ProcessorExpert technology, which provides automatic C-code generation for most HC(S)08 on-chip peripherals.



USB Mini Board for Freescale's Low-End 8-bit Microcontrollers (USBSPYDER08): To aid fast and easy development for embedded systems engineers working on our low-end microcontrollers, Freescale has developed the cost-effective, high-performance USB debug tool—the USBSPYDER08. With the USBSPYDER08 you can spy into your application software, debug 8 leg 8-bit microcontrollers before you have your application board and kill bugs in your application software. This complete package delivers a cost-effective, yet powerful way to develop your products and speed time to market.

Learn More: For more information about 8-bit family products, please visit www.freescale.com/8bit.





The Entry Point on the Controller Continuum—Only from Freescale

The Perfect 8-bit Compilation

Product summary



					ADC Cha	nnels	SCI							Pac	ckage			D	ev Tools		Applications/Additional Features	
Devic	e	Flash	RAM	USB	10-bit	12-bit	SE	SPI	I ² C CO	СОМР	Timer	Clock Type	DFN/QFN		TSSOP	SOIC	DIP	DEMO		BDM	*All RS08, S08 and HC08 products include COP, LVI, POR and KBI	Price
MC9RS0	08KA8	8 KB	254B		12				1	J	1 x 2-ch., MTIM	ICS				8	8	V		1	More integration, new RS08 core with small MCUs	\$0.60
MC9RS0	08KA4	4 KB	126B		12				1	1	1 x 2-ch., MTIM	ICS				8	8	1		1	More integration, new RS08 core with small MCUs	\$0.55
MC9RS0	08KA2	2 KB	62B							√	MTIM	ICS	6			8	8	√		√	Ultra-low end, new RS08 core for small MCUs	\$0.35
MC9RS0		1 KB	62B							√	MTIM	ICS	6			8	8	√		√	Ultra-low end, new RS08 core for small MCUs	\$0.32
MC9R0S		12 KB	256B		12		1		1	1	2 MTIM, 2-ch. TPM	ICS			16	16/20		√		√	New RS08 core for small MCUs	\$0.71
MC9RS0		8 KB	256B		12/8		1		1	1	2 MTIM, 2-ch. TPM	ICS			16	16/20		√		√	New RS08 core for small MCUs	\$0.67
MC9RS0		4 KB	128B		12/8		1		1	1	2 MTIM, 2-ch. TPM	ICS			16	16/20				√	New RS08 core for small MCUs	\$0.62
MC9RS0		2 KB	128B		4		1	4	1	1 /	2 MTIM, 2-ch. TPM	ICS	8	40		8		√		√ /	New RS08 core for small MCUs	\$0.46
MC9RS0		8 KB 4 KB	256B 256B		8		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	1		√	1 + 2-ch. 2 + 2-ch.	ICS w/FLL ICS w/FLL	48	48		28		√		V .	Integrated Liquid Crystal Display (LCD) driver with high segment count Integrated Liquid Crystal Display (LCD) driver with high segment count	\$0.99 \$0.90
MC9S08		128 KB	8 KB		16		2	2	1		6 + 6 + 2-ch.	ICG w/FLL	48	80, 64		20		1		1	High integration, flash programmable to 5V	\$2.67
MC9S08		96 KB	6 KB		16		2	2	J		6 + 6 + 2-ch.	ICG w/FLL	48	80, 64				./		1	High integration, flash programmable to 5V	\$2.48
MC9S08		60 KB	2 KB		16		2	1	J		6 + 2 + 2-ch.	ICG w/FLL	48	64, 44, 32						J	High integration, flash programmable to 5V	\$1.98
MC9S08	BAC48	48 KB	2 KB		16		2	1	J		6 + 2 + 2-ch.	ICG w/FLL	48	64, 44, 32				J		J	High integration, flash programmable to 5V	\$1.91
MC9S08	BAC32	32 KB	2 KB		16		2	1	J		6 + 2 + 2-ch.	ICG w/FLL	48	64, 44, 32						1	High integration, flash programmable to 5V	\$1.84
MC9S08	BAC16	16 KB	1 KB		8		2	1	J		6 + 2-ch.	ICG w/FLL	48	44, 32			42	√		1	High integration, flash programmable to 5V	\$1.56
MC9S08	BAC8	8 KB	1 KB		8		2	√	√		6 + 2-ch.	ICG w/FLL	48	44, 32			42	√		1	High integration, flash programmable to 5V	\$1.45
MC9S08		60 KB	2 KB		16		2	J	1		6 + 2-ch.	ICG w/FLL	48	64, 44				1		1	High integration, flash programmable to 5V	\$2.62
MC9S08		48 KB	2 KB		16		2	- √ -	J		6 + 2-ch.	ICG w/FLL	48	64, 44				√		√	High integration, flash programmable to 5V	\$2.41
MC9S08		32 KB	2 KB		16		2	1	√		6 + 2-ch.	ICG w/FLL	48	64, 44				√		1	High integration, flash programmable to 5V	\$1.99
MC9S08		16 KB	1 KB		16		2	1	√	,	4 + 2-ch.	ICG w/FLL	48	64, 44	00.55					√	High integration, flash programmable to 5V	\$1.85
MC9S08		32 KB	1K		16/12		√	1	√	V	1 x 4-ch., 1 x 2-ch.	ICS			28, 20			√			Embedded SLIC and on-chip EEPROM	\$1.87
MC9S08		16 KB	1K		16/12		√ 1	1	√	√	1 x 4-ch., 1 x 2-ch. 2-ch. + 6-ch. TPM. MTIM16	ICS		20	28, 20		20	√		1	Embedded SLIC and on-chip EEPROM	\$1.60
MC9S08 MC9S08		16 KB 8 KB	1024B 768B		12-ch., 8 bit		1				2-ch. + 6-ch. TPM, MTIM16 2-ch. + 6-ch. TPM, MTIM16	ICS ICS		32 32			32 32	1		1	5V general purpose entry-level MCU 5V general purpose entry-level MCU	\$0.94 \$0.87
MC9S08		60 KB	4 KB		12-CΠ., δ DIL		1	1	1		3 + 5-ch.	ICG		64			32	√	1	V /	High performance, flash programmable down to 1.8V	\$3.55
MC9S08		32 KB	2 KB		8		J	./	./		3 + 5-ch.	ICG		64				./	./	./	High performance, flash programmable down to 1.8V	\$2.65
MC9S08		60 KB	4 KB		8		1	1	1		2 + 2-ch.	ICG	48	44			42	./	1	1	High performance, flash programmable down to 1.8V	\$3.28
MC9S08		32 KB	2 KB		8		J	1	J		2 + 2-ch.	ICG	48	44			42	J	J	1	High performance, flash programmable down to 1.8V	\$2.38
MC9S08		16 KB	2 KB		8		J	J	J		3 + 2-ch.	ICG	48, 32	44			42	J	J	J	High performance, flash programming down to 1.8V	\$1.65
MC9S08	BGT8A	8 KB	1 KB		8		J	J	J		3 + 2-ch.	ICG	48, 32	44			42			J	Flash programming down to 1.8V, small package	\$1.36
MC9S08	3JM60	60 KB	4K	2.0		12	2	2	1	√	1 x 2-ch., 1 x 6-ch.	MCG with PLL and FLL	48	64, 44				√		J	USB S08 device with high performance and integration	\$2.60
<u>a</u> MC9S08	3JM32	32 KB	2K	2.0		12	2	2	1	1	1 x 2-ch., 1 x 6-ch.	MCG with PLL and FLL	48	64, 44				1		1	USB S08 device with high performance and integration	\$1.87
∞ MC9S08	BJM16	16 KB	1K	2.0		12	2	2	√	J	1 x 4-ch., 1 x 2-ch.	MCG with PLL and FLL	48	44, 32				√		J	USB S08 device with high performance and integration	\$1.62
8 MC9S08		8 KB	1K	2.0		12	2	2	√	√	1 x 4-ch., 1 x 2-ch.	MCG with PLL and FLL	48	44, 32				√		√	USB S08 device with high performance and integration	\$1.57
<u>m</u> MC9S08		16 KB	512B	2.0			1	1			1 x 2-ch., MTIM	MCG with PLL and FLL	24			20		√		√	USB S08 device with high performance and integration	\$1.27
MC9S08		8 KB	512B	2.0		_	1 1	1	,	,	1 x 2-ch., MTIM	MCG with PLL and FLL	24	22.21		20				√	USB S08 device with high performance and integration	\$1.06
MC9S08		60 KB	4 KB			8	1	2	1	√	2 + 2-ch.	ICG w/FLL		80, 64				√		√	Integrated Liquid Crystal Display (LCD) driver with high segment count	\$3.52
MC9S08		36 KB	2.5 KB				√	2	1	√	2 + 2-ch.	ICG w/FLL		80, 64				√		- V	Integrated Liquid Crystal Display (LCD) driver with high segment count	\$2.99
음 MC9S08	BLL64	60 KB	4 KB			10	2	1	√	√	2 + 2-ch.	ICS w/FLL		80, 64				\checkmark		√	Integrated Liquid Crystal Display (LCD) driver with 1.8V to 3.6V op range and high segment count	\$2.31
MC9S08	31136	36 KB	2.5 KB			10	2	1	.1	.1	2 + 2-ch.	ICS w/FLL		80, 64				.1		./	Integrated Liquid Crystal Display (LCD) driver with 1.8V to 3.6V op range and high	\$1.96
							_		V	v ,			10							V	segment count	·
MC9S08		16 KB	2 KB			8	√	1		√	2 + 2-ch.	ICS w/FLL	48	64, 48				√		√	Integrated Liquid Crystal Display (LCD) driver with high segment count	\$1.59
MC9S08 MC9S08		8 KB 4 KB	2 KB 256B		4	8	 	1	√	-\-\-	1 + 2-ch. 1-ch., MTIM	ICS w/FLL ICS	48	48		8	0	<u>√</u>		√	Integrated Liquid Crystal Display (LCD) driver with high segment count	\$1.50 \$0.63
MC9S08		2 KB	160B		4					√ /	1-ch., MTIM	ICS	8			8	8	√		1	Low-end S08 device with 1.8V to 3.6V op range Low-end S08 device with 1.8V to 3.6V op range	\$0.63
MC9S08		8 KB	512B		4	8	1			1	1 + 1-ch.	ICS	24		16	16, 28	16			٧	Ultra-low power S08 device with 1.8V to 3.6V op range	\$0.39
MC9S08		4 KB	256B			8	J			J	1 + 1-ch.	ICS	24		16	16, 28	16	./			Ultra-low power S08 device with 1.8V to 3.6V op range	\$0.03
MC9S08		4 KB	256B		4	<u> </u>	V			V	2 + 3-ch.	ICS				8	8	J		1	Low-end, flash programmable to 5V	\$0.64
MC9S08		2 KB	128B		4						2 + 3-ch.	ICS				8	8	J		J	Low-end, flash programmable to 5V	\$0.60
MC9S08		128 KB	8 KB			24	2	2	2	2	1 + 6-ch., 2 + 3-ch.	ICS	48	80, 64, 44				1	1	J	Ultra-low power S08 device with 1.8V to 3.6V op range	\$2.42
MC9S08		96 KB	6 KB			24	2			2	1 + 6-ch., 2 + 3-ch.	ICS	48	64, 44				J	J	1	Ultra-low power S08 device with 1.8V to 3.6V op range	\$2.30
MC9S08	BQE64	64 KB	4 KB			24	2	2	2	2	1 + 6-ch., 2 + 3-ch.	ICS	48	80, 64, 44, 32				√	1	1	Ultra-low power S08 device with 1.8V to 3.6V op range	\$2.13
MC9S08	BQE32	32 KB	2 KB		10 (12-bit)		2	1	1	2	1 + 6-ch., 2 + 3-ch.	ICS	48	44, 32		28		J		J	Ultra-low power S08 device with 1.8V to 3.6V op range	\$1.68
MC9S08		16 KB	1 KB		10 (12-bit)		2	1	1	2	1 + 6-ch., 2 + 3-ch.	ICS	48	44, 32		28		J		J	Ultra-low power S08 device with 1.8V to 3.6V op range	\$1.48
MC9S08	BQE8	8 KB	512B		, ,	10	1	1	1	2	2 + 3-ch.,	ICS w/FLL		32	16	20, 28	16			J	Ultra-low power S08 device with 1.8V to 3.6V op range	\$1.08
MC9S08	BQE4	4 KB	256B			10	1	1	1	2	2 + 3-ch.,	ICS w/FLL		32	16	20, 28	16	1		1	Ultra-low power S08 device with 1.8V to 3.6V op range	\$0.94
MC9S08		8 KB	512B		8		J	1	1	J	2-ch., MTIM	ICS	8, 16, 24		16	8	16	1		1	High performance, low voltage, small package	\$0.75
MC9S08		4 KB	256B		8		J	J	1	V	2-ch., MTIM	ICS	8, 16, 24		16	8	16, 8	1		1	High performance, low voltage, small package	\$0.70
MC9S08		8 KB	512B		10		↓				1 + 2-ch., 1 + 1-ch.	ICS			16	28	28	√			Low-end S08 device with 2.7V to 5.5V op range	\$0.85
MC9S08		4 KB	256B		10		√			,	1 + 2-ch., 1 + 1-ch.	ICS			16	28	28	√,		,	Low-end S08 device with 2.7V to 5.5V op range	\$0.77
MC9S08		32 KB	1 KB		16		√	1		√	2 x 2-ch., MTIM	ICS			28, 20, 16	28		√		√ ,	Low-end S08 device with 2.7V to 5.5V op range	\$1.47
MC9S08		16 KB	1 KB		16		√ 1	1		√ /	2 x 2-ch., MTIM	ICS			28, 20, 16	28		√ ,		1	Low-end S08 device with 2.7V to 5.5V op range	\$1.31
MC9S08 MC9S08		8 KB 4 KB	512B 256B		12 12		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	$\frac{1}{1}$	1	1	2 + 2-ch. 2 + 2-ch.	ICS ICS	24		20 16	8	20	√		1	Low-end S08 device with 2.7V to 5.5V op range Low-end S08 device with 2.7V to 5.5V op range	\$0.96 \$0.86
MC9S08		16 KB	512B		16/12		J I	1	./	1	2 + 2-cn. 2 x 2-ch.	ICS	24		20, 16 28, 20	0	20	J		٧	Embedded SLIC and on-chip EEPROM	\$1.54
MC9S08		8 KB	512B		16/12		./	./	1	./	2 x 2-ch.	ICS			28, 20			./			Embedded SLIC and on-chip EEPROM Embedded SLIC and on-chip EEPROM	\$1.54
11.00000		16 KB	1024B		12		1	1	1	1	2-ch. + 6-ch. TPM, MTIM16	ICS		32	20, 20		32	J		1	5V general purpose MCU with flexibility	\$1.42
MC9S08	00 0 0																			v		

Device	Flas.	DANS	LICE	ADC Ch	annels	SCI	CDI	120	СОМР	Timer	Ola ala Tana		Pa	ckage			De	ev Too	ls	Applications/Additional Features	
	Flash	RAM	USB	10-bit		(UART)	SPI		JOMP		Clock Type	DFN/QFN	QFP/LQFP	TSSOP	SOIC	DIP	DEMO	EVB	BDM	*All RS08, S08 and HC08 products include COP, LVI, POR and KBI	Price
MC9S08DN60	60 KB	4 KB		16		1	1	1	1	8-ch.	OSC		64, 48, 32				1	1	1	S08 5V device with EEPROM	\$2.84
MC9S08DN48	48 KB	2 KB		16		1	J	1	1	8-ch.	OSC		64, 48, 32				1	1	1	S08 5V device with EEPROM	\$2.65
MC9S08DN32	32 KB	2 KB		16		1	1	1	1	8-ch.	OSC		64, 48, 32				1	1	1	S08 5V device with EEPROM	\$2.47
MC9S08DN16	16 KB	1 KB		16		J	J	J	J	8-ch.	OSC		64, 48, 32				J	J	J	S08 5V device with EEPROM	\$2.28
MC9S08DV128	128 KB	8 KB		16		J	J	J	J	8-ch.	OSC		64, 48, 32				J	J	J	S08 5V device with CAN	\$3.45
MC9S08DV96	96 KB	6 KB		16		J	J	J	J	8-ch.	OSC		64, 48, 32				J	J	J	S08 5V device with CAN	\$3.16
MC9S08DV60	60 KB	4 KB		16		J	J	J	J	8-ch.	OSC		64, 48, 32				J	J	J	S08 5V device with CAN	\$2.93
MC9S08DV48	48 KB	2 KB		16		1	J	1	1	8-ch.	OSC		64, 48, 32				1	1	1	S08 5V device with CAN	\$2.74
MC9S08DV32	32 KB	2 KB		16		J	J	J	J	8-ch.	OSC		64, 48, 32				J	J	J	S08 5V device with CAN	\$2.56
MC9S08DV16	16 KB	1 KB		16		J	J	J	J	8-ch.	OSC		64, 48, 32				J	J	J	S08 5V device with CAN	\$2.37
MC9S08DZ128	128 KB	8 KB			24	2	J	J	J	8-ch.	OSC		100, 64, 48				J	J	J	S08 5V device with CAN and EEPROM	\$3.62
MC9S08DZ96	96 KB	6 KB			24	2	J	J	J	8-ch.	OSC		100, 64, 48				J	J	1	S08 5V device with CAN and EEPROM	\$3.32
MC9S08DZ60	60 KB	4 KB			24	2	J	J	J	8-ch.	OSC		64, 48, 32				J	J	J	S08 5V device with CAN and EEPROM	\$3.07
MC9S08DZ48	48 KB	2 KB			24	2	J	J	J	8-ch.	OSC		64, 48, 32				J	J	1	S08 5V device with CAN and EEPROM	\$2.88
MC9S08DZ32	32 KB	2 KB			24	2	J	J	J	8-ch.	OSC		64, 48, 32				J	J	1	S08 5V device with CAN and EEPROM	\$2.70
MC9S08DZ16	16 KB	1 KB			24	2	J	J	J	8-ch.	OSC		64, 48, 32				J	J	1	S08 5V device with CAN and EEPROM	\$2.52
MC9S08LG32	32 KB	2 KB			16	2	J	J	J	2 + 6-ch.	ICS		80, 64, 48				J		J	S08 LCD MCU with up to 5V operating range	\$1.70
MC9S08LG16	16 KB	2 KB			12	2	J	J	J	2 + 6-ch.	ICS		64, 48				J		1	S08 LCD MCU with up to 5V operating range	\$1.56
MC9S08MP16	16 KB	1KB			13	1	1	1	3	6-ch. + 2-ch. FlexTimer, MTIM	ICS		32/48		28		1		J	Programmable gain amplifier (PGA), Programmable delay block (PDB), CRC engine. Targets BLDC motor control	\$1.10
MC9S08MP12	12 KB	512B			8	1	1		3	6-ch. + 2-ch. FlexTimer, MTIM	ICS				28		1		1	Programmable delay block (PDB), CRC engine. Targets BLDC motor control	\$1.06
MC9S08RD60	60 KB	2 KB				J				2-ch.	OSC				28	28	J		1	Remote control, carrier modulator timer	\$4.40
MC9S08RD32	32 KB	2 KB				J				2-ch.	OSC				28	28	J		J	Remote control, carrier modulator timer	\$3.53
MC9S08RD16	16 KB	1 KB				J				2-ch.	OSC				28	28	j		J	Remote control, carrier modulator timer	\$2.79
MC9S08RD8	8 KB	1 KB				J				2-ch.	OSC				28	28	j		J	Remote control, carrier modulator timer	\$1.97
MC9S08RE16	16 KB	1 KB				J			J	2-ch.	OSC	48	44, 32				J		J	Remote control, carrier modulator timer	\$2.90
MC9S08RE8	8 KB	1 KB				J			J	2-ch.	OSC		44, 32				J		j	Remote control, carrier modulator timer	\$2.04
MC9S08RG60	60 KB	2 KB				J	J		J	2-ch.	OSC		44, 32				J		j	Remote control, carrier modulator timer	\$4.57
MC9S08RG32	32 KB	2 KB				J	j		J	2-ch.	OSC		44, 32				J	İ	J	Remote control, carrier modulator timer	\$3.68
MC9S08SF4	4 KB	128B		8/6		•	•	1	4-ch	2 x 2-ch. PWT. 1-ch. + 6/4-ch. TPM	ICS			20/16			J		J	Timer, ADC, fault detect and shut down (FDS). Targets simple motor control	\$0.76