SmartWheels Mini Configuration

SWM-2-1-1-A0-E0-J1

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Configuration Summary

Stamp Position	Variant	Stamp Signal Conditioners	Pins
Stamp-1	S1-A0	8 Channel Pull Down Digital Input	8
Stamp-2	S2-E0	4 Channel High Side Output (1 Amp)	6
Stamp-3	S3-J1	4 Channel Half Bridge Outputs (36V 2A)	10
Total			**24**

Stamp-1: DI - S1-A0 (A0)

Stamp Signal Conditioners: *8 independent channels of high-speed digital inputs with Pull down*
- Provides 33K Pull-down resistance per input
- Operation for entire voltage range of VCU upto 33V
- Fixed low level threshold voltage at 3.8V
- Fixed High level voltage threshold at 8.9V
- Supports inputs frequency upto 50 KHz
- Input transient voltage protection.
- Ability to sustain short to VBAT and short to ground
- Timer Input capture on 5 channels

#	Conn Pin	Pin Label	IO Type	Signal Cond	Wire	MCU Pin	Ch ID	User Label	User Remarks
1	B1	S1-IO1	Digital Input	Pull-down-12V/24V	Orange	PTD3	DI_PD_CH1	SW_IN1	Left Mirror – Left (HS1 active) Left Mirror – Right (HS2 active)
2	A1	S1-IO2	Digital Input	Pull-down-12V/24V	Grey	PTA1	DI_PD_CH2	SW_IN2	Left Mirror – Up (HS1) Left Mirror – Down (HS2)
3	B2	S1-IO3	Digital Input	Pull-down-12V/24V	Pink	PTE6	DI_PD_CH3	SW_IN3	Right Mirror – Up (HS1) Right Mirror – Down (HS2)
4	A2	S1-IO4	Digital Input	Pull-down-12V/24V	Yellow	PTE2	DI_PD_CH4	SW_IN4	Right Mirror – Left (HS1) Right Mirror – Right (HS2)
5	C2	S1-IO5	Digital Input	Pull-down-12V/24V	White	PTD2	DI_PD_CH5	-	Not used
6	A3	S1-IO6	Digital Input	Pull-down-12V/24V	Purple	PTD4	DI_PD_CH6	-	Not used
7	B3	S1-IO7	Digital Input	Pull-down-12V/24V	Green	PTB13	DI_PD_CH7	-	Not used
8	A4	S1-IO8	Digital Input	Pull-down-12V/24V	Blue	PTB12	DI_PD_CH8	-	Not used

Stamp-2: DO - S2-E0 (E0)

Stamp Signal Conditioners: *Designed for applications requiring low current protected high side output capable of 1A each over 10.8V to 33V.*

- 4 independent channels capable of driving upto 1A each over entire VBAT input range of 10.8V to 33V

- Supports output PWM upto 10 KHz

- Input transient voltage protection with per channel onboard resettable fuse.

- Ability to sustain short to VBAT and short to ground

- Trip current per channel set to 1A with time to trip at 100mS

#	Conn Pin	Pin Label	IO Type	Signal Cond	Wire	MCU Pin	Ch ID	User Label	User Remarks
1	F2	S2-IO1	Digital Output	High Side-VBAT 1 Amp	Orange	PTE4	DO_HS_CH1	SW_HIGH_SIDE1	ORVM Switch Scan Group 1 (HS1)
2	F1	S2-IO2	Digital Output	High Side-VBAT 1 Amp	Grey	PTE5	DO_HS_CH2	SW_HIGH_SIDE2	ORVM Switch Scan Group 2 (HS2)
3	E1	S2-IO3	Digital Output	High Side-VBAT 1 Amp	Pink	PTE10	DO_HS_CH3	-	-
4	D1	S2-IO4	Digital Output	High Side-VBAT 1 Amp	Yellow	PTE11	DO_HS_CH4	-	-
5	C1	S2-IO5	Digital Input	VIN_2	White	-	VIN	-	-
6	E2	ISO2-GND	Digital Input	GND_2	Black	-	GND	-	-

Stamp-3: DO - S3-J1 (J1)

Stamp Signal Conditioners: *Designed for applications requiring 4 Half Bridge Outputs capable of 2A each*
4 independent Half Bridge Outputs capable of 2A each over 10.5V to 33V
- Supports output PWM upto 10 KHz
- Low Side Output current monitoring
- Input transient voltage protection with over current protection
- Low side trip current per H-Bridge (two Half bridges) set to 4A
- Thermal shutdown

Pin Info: PTC1 : IPROPI_HB1
PTC0 : IPROPI_HB2
PTC15 : SLEEP_HB1/2 (Shared)
PTC14 : FAULT_HB1/2 (Shared)

#	Conn Pin	Pin Label	IO Type	Signal Cond	Wire	MCU Pin	Ch ID	User Label	User Remarks
1	G4	S3-IO1	Digital Output	Half-Bridge 36V 2A	Orange/Blue	PTD16	DO_HALFB_CH1	WIRE-BLUE	ORVM Wire- BLUE
2	G3	S3-IO2	Digital Output	Half-Bridge 36V 2A	Grey	PTD15	DO_HALFB_CH2	WIRE-GREEN	ORVM Wire- GREEN
3	H4	S3-IO3	Digital Output	Half-Bridge 36V 2A	Blue	PTD0	DO_HALFB_CH3	WIRE-BROWN/RED	ORVM Wire- BROWN/RED
4	H3	S3-IO4	Digital Output	Half-Bridge 36V 2A	White/Grey	PTD1	DO_HALFB_CH4	-	-
5	H2	S3-IO5	Digital Input	VIN_2	Yellow	-	VIN	-	-
6	G2	ISO3-GND	Digital Input	GND_2	Black	-	GND	-	-
7	-	-	Analog Input	Stamp Specific - AI	-	PTC1	AI_IPROPI_HB1	-	-
8	-	-	Analog Input	Stamp Specific - AI	-	PTC0	AI_IPROPI_HB2	-	-
9	-	-	Digital Output	Stamp Specific - DO	-	PTC15	DO_HB_SLEEP	-	-
10	-	-	Digital Input	Stamp Specific - DI	-	PTC14	DI_HB_FAULT	-	-

Communication Interfaces

#	Conn Pin	Pin Label	Protocol	Wire Color	MCU Pin	Channel ID	User Label	User Remarks
1	F3	CAN0-H	CAN	Orange	PTC2	CAN0_RX	-	-
2	F4	CAN0-L	CAN	Grey	PTC3	CAN0_TX	-	-
3	E3	CAN2-H	CAN	Orange	PTC16	CAN2_RX	-	-
4	E4	CAN2-L	CAN	Grey	PTC17	CAN2_TX	-	-
5	-	-	LIN	-	PTD6	LIN2_RX	-	-
6	-	-	LIN	-	PTD5	DO_LIN_SLP	-	-
7	D3	LIN2-OUT	LIN	Pink	PTD7	LIN2_TX	-	-
8	C4	I2C-SCL	I2C	Yellow	PTA3	I2C0	-	-
9	C3	I2C-SDA	I2C	Green	PTA2	I2C0	-	-

Power & Other Fixed Pins

#	Conn Pin	Pin Label	Wire Color	MCU Pin	User Label	User Remarks
1	B4	KL15-IN	White	PTC9	-	-
2	D2	5V-OUT	Purple	-	-	-
3	G1	GND	Black	-	-	-
4	H1	V_IN	Red	-	-	-
5	-	RGB_RED	On-Board	PTE8	-	-
6	-	RGB_GREEN	On-Board	PTB5	-	-
7	-	RGB-BLUE	On-Board	PTB4	-	-

Hardware Reference