All specifications are subject to change without notice.
Typical for 25 °C unless otherwise specified.
Specifications in *italic* text are guaranteed by design.

Analog output

Table 1. Analog output specifications

Parameter	Condition	Specification
Resolution		12 bits, 1 in 4,096
Output range		*0 V to 5.0 V*
Number of channels		2
Update rate		TBD
Power on and reset voltage	Initializes to 000h code	0 V, ±10 mV
Output drive	Each D/A OUT	5 mA, sourcing
Slew rate		0.8 V/ µs typ

Table 2. Analog output accuracy, all values are (±); accuracy tested at no load

Range	Accuracy (LSB)
0 V to 5.0 V	5.0 typ, 45.0 max

Table 3. Analog output accuracy components, all values are (±)

Range	% of FSR	Gain Error at FS (mV)	Offset (mV) (Note 1)	Accuracy at FS (mV)
0 V to 5.0 V	0.08 typ, 0.72 max	4.0 typ, 36.0 max	1.0 typ, 9.0 max	5.0 typ, 45.0 max

Note 1: Zero-scale offsets may result in a fixed zero-scale error producing a "dead-band" digital input code region. In this case, changes in digital input code at values less than 0x040 may not produce a corresponding change in the output voltage. The offset error is tested and specified at code 0x040.

Digital input/output

Table 4. Digital I/O specifications

Parameter	Conditions	Specification
Digital input type		CMOS
Number of I/O		8
Configuration		Each bit may be configured as input (power on default) or output
Pull-up configuration		Each bit has a programmable 100 kΩ pull resistor (50 to 150 kΩ range) that may be programmed as pull-up, pull-down, or disabled.
DIO voltage (VIO)		5 V or 3.3 V, jumper selectable
Digital I/O transfer rate		1000 reads / writes per second, typical
Interrupt functionality		Each bit may be configured to generate an interrupt on change when in input mode.
Input low voltage threshold		0.3 x VIO V max
Input high voltage threshold		0.7 x VIO V min
Input voltage limits	Both 3.3 V and 5 V modes	5.5 V absolute max –0.5 V absolute min 0 V recommended min
High level output current		10 mA max
Low level output current		25 mA max
Output high voltage	VIO = 3.3 V	2.5 V min (IOH = –10 mA)
	VIO = 5 V	4.0 V min (IOH = –10 mA)

Parameter	Conditions	Specification
Output low voltage	VIO = 3.3 V	0.25 V max (IOL = 10 mA)
	VIO = 5 V	0.2 V max (IOL = 10 mA)

Memory

Table 5. Memory specifications

Parameter	Specification
Non-volatile memory	4 KB (ID and serial storage, no user-modifiable memory)

Power

Table 6. Power specifications

Parameter	Conditions	Specification
Supply current, 5 V supply	Typical, 5 V DIO selection	10 mA
	Maximum, 5 V DIO selection	105 mA
	Typical, 3.3 V DIO selection	10 mA
	Maximum, 3.3 V DIO selection	25 mA
Supply current, 3.3 V supply	Typical, 5 V DIO selection	0.01 mA
	Maximum, 5 V DIO selection	6 mA
	Typical, 3.3 V DIO selection	0.03 mA
	Maximum, 3.3 V DIO selection	87 mA

Interface specifications

Table 7. Interface specifications

Parameter	Specification
Raspberry Pi® GPIO pins used	GPIO 7, GPIO 10, GPIO 11 (SPI interface) GPIO 2, GPIO 3 (I2C interface) ID_SD, ID_SC (ID EEPROM) GPIO 12, GPIO 13, GPIO 26, (Board address) GPIO 21 (Interrupt)
Data interface type	SPI slave device, CE1 chip select (Analog output) I2C slave device (Digital I/O)
SPI mode	1
SPI clock rate	50 MHz, max
I2C address	0x20 to 0x27, depending on board address jumper setting
I2C clock rate	400 kHz, max

Environmental

Table 8. Environmental specifications

Parameter	Specification
Operating temperature range	0 °C to 55 °C
Storage temperature range	–40 °C to 85 °C
Humidity	0% to 90% non-condensing

Mechanical

Table 9. Mechanical specifications

Parameter	Specification
Dimensions (L × W × H)	65 × 56.5 × 12 mm (2.56 × 2.22 × 0.47 in.) max

Screw terminal connector

Table 10. Screw terminal connector specifications

Parameter	Specification
Connector type	Screw terminal
Wire gauge range	16 AWG to 30 AWG

Table 11. Screw terminal pinout

Connector J2		
Pin	**Signal name**	**Pin description**
1	AO0	Analog output 0
2	AGND	Analog ground
3	AO1	Analog output 1
4	AGND	Analog ground
5	DGND	Digital ground
6	DGND	Digital Ground
Connector J3		
Pin	**Signal name**	**Pin description**
7	DIO0	Digital I/O 0
8	DIO1	Digital I/O 1
9	DIO2	Digital I/O 2
10	DIO3	Digital I/O 3
11	DGND	Digital ground
12	DIO4	Digital I/O 4
13	DIO5	Digital I/O 5
14	DIO6	Digital I/O 6
15	DIO7	Digital I/O 7
16	DGND	Digital ground