
CONNECTIONS

PIN	NAME	DESCRIPTION
1	GND	Ground, common for power, data & busy pairs.
2	BUSY+	BiDirectional differential acknowledge line, active high. (open source output, must be pulled down to ground.)
3	ANALOGUE+ BUSY-	Analogue Version: Positive Analogue Voltage Output. BiDirectional differential acknowledge line, active low. (open drain output, must be pulled up to +5 Volt.)
4	ANALOGUE- PWR	Analogue Version: Analogue Signal Ground, connected to GND pin. Power Supply Unit.
5	DATA+	BiDirectional differential data line, non-inverted. (tri-state output, must be pulled up to +5 Volt.)
6	DATA-	BiDirectional differential data line, inverted. (tri-state output, must be pulled down to ground.)

INTERFACE

The encoder bus can support 1 to 15 encoders (only one if analogue model) on the the SEI bus.

The BiDirectional data lines carry commands from the host computer and responses from the encoder(s).
The format is 1 start bit, 8 data bits & 1 stop bit.

The baud rate can be changed but it always starts as 9600 baud after reset or power up.

Since the data bus is bidirectional, the host must release the bus within 20usec after the last command byte to avoid contention with the encoder's response. They need to be biased at the host with pull-up/down resistors to keep them in the inactive state (DATA+ with 2.2kohm to +5V, DATA- with 2.2kohm to ground) when the bus is idle.

The busy lines are used for flow control. When an encoder is busy, it activates these lines in an open collector fashion by driving BUSY+ low and BUSY- high. They need to be biased at the host with pull-up/down resistors to keep them in the inactive state (BUSY+ with 2.2kohm to ground, BUSY- with 2.2kohm to +5V) when they are not driven. They are driven by the encoder which has been addressed as an acknowledgement of the command.

They stay active until the command is complete. While an encoder drives the busy lines, all other encoders on the bus ignore the data flow.

If a single encoder is on the bus, the busy lines can be ignored and pulled to the inactive state but it is easier to communicate with it if they are connected. In the analogue version, these lines are replaced by the analogue output.

The power supply requirement is 5.5V minimum which should be considered carefully when long cables are used because of the voltage drop caused by the cable's resistance (a typical 26AWG telephone cable is 40 ohm per 1000 feet.)

CAUTION:

Do not use voice type telephone cables; they commonly reverse the pinout (it would not destroy the encoder.)

The encoder network requires six wires straight (pin 1 to pin 1.) We offer cables (26 gauge) of any length.

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