

Description:

The TTL outputs of our incremental encoders can sink (pull down) less than 4mA and source (pull up) less than 200uA. This is not always adequate. For long cables (6 to 1000 feet) or noisy environments, one of these tiny plug-in driver boards will provide additional drive. They are so small, they fit between the two wire loops on either side of the 5 pins of the encoder as shown in the drawings below.

The **PC4** is an RS-422 cable driver board designed to attach to most of our incremental encoders. The **PC5** is identical to the **PC4** but has an Agilent compatible pinout (HEDL series). The **PC4-FH10** and **PC5-FH10** are designed to mate with a positive finger-latching connector. The **PC4-TF10** and **PC5-TF10** each include a twisted pair flat cable with connector. The standard cable is 18"; longer lengths are available. An on-board 0.1 uF bypass capacitor across the power pins on each of these boards compensates for inductance and noise which can be expected at the end of a long cable. Each board has a 5 pin socket designed to plug into the 5 pins of the encoder.

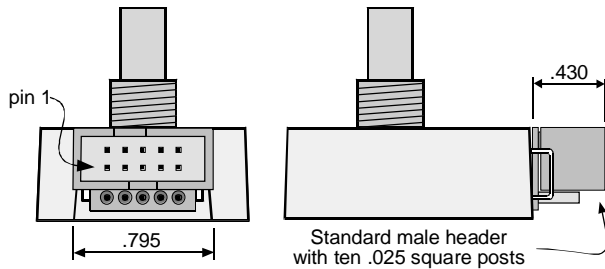
A ribbon or discrete wire cable connector can plug into the on-board 10 pin shrouded plug. Simple ribbon cables can be used for lengths up to 100 feet. Twisted pair cable is recommended for longer lengths. An optional terminating resistor may be placed across each pair on the receiver side of the cable as low as 270 ohms, matching the cable's characteristic impedance. When calculating the power requirements of the encoder side of the cable, include the current consumed by the module, the driver IC and any terminating resistors. Be sure to supply sufficient voltage to compensate for the voltage drop across the power and ground wires (round trip). The typical cable resistance for 28 AWG wire is 60 ohms per 1000 feet. If an RS-422 receiver chip such as 26LS32 is used on the receiver side of the cable, we recommend a 0.1uF ceramic monolithic bypass capacitor across +5V and ground located within 1 inch of the receiver chip.

US Digital warrants its product against defects in material and workmanship for two years. See complete warranty for more information.

The cable drivers shown on this page are compatible only with the **E2, E3, H1, H3, S1 & S2**.

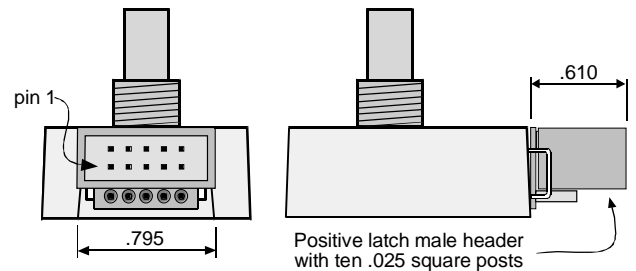
PC4 or PC5

Differential cable driver board.
(shown mounted on an S1 encoder).



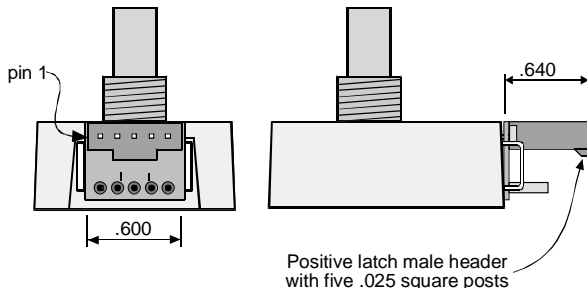
PC4-FH10 or PC5-FH10

Differential cable driver board
with positive finger latch.
(shown mounted on an S1 encoder).



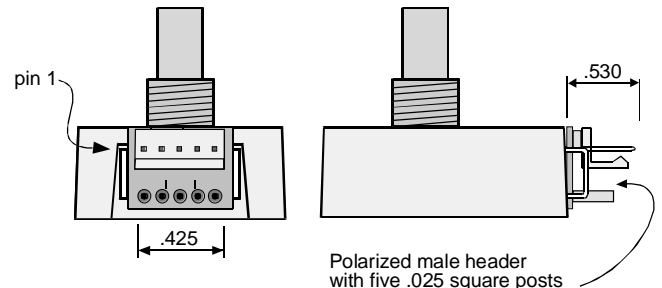
PC4-FH5

Single-ended cable driver board
with positive finger latch.
(shown mounted on an S1 encoder).



PC4-H5

Single ended cable driver board
with friction latch.
(shown mounted on an S1 encoder).



Absolute Maximum Ratings:

Parameter	Min.	Max.	Units
Storage temperature	-40	100	°C
Operating temperature	-40	85	°C

PC4 & PC5

Cable Driver for Incremental Encoders

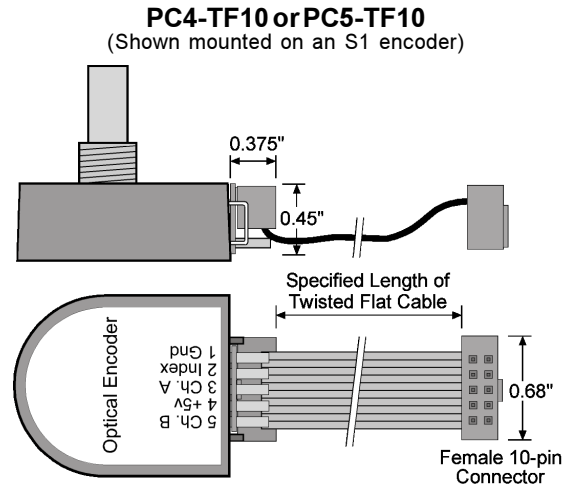
Connectors:

Product	Driver Header	Connector Mates With...
PC4,PC5	AMP# 103309-1	CON-C10*
PC4-FH10, PC5-FH10	AMP# 87587-1	CON-FC10*
	AMP# 103681 (housing)	
	AMP# 103968-4 (5-pin insert)	
PC4-FH5, PC5-H5	AMP# 103639-4	CON-FC5*
PC4-H5	AMP# 640456-5	AMP# 64044X-5

* Denotes a US Digital part number. For more information see the **Cable & Connectors** data sheet.

Electrical Characteristics:

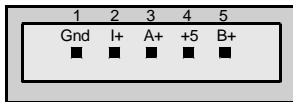
Parameter	Min.	Typ.	Max.	Units	Notes
Supply voltage (PWR)	4.5	-	5.5	Volts	
Supply current (26LS31)	-	35	60	mA	
Supply current (26C31)	-	1	2	mA	
Output high voltage	2.5	-	-	Volts	I _{OH} = 20 mA
Output low voltage	-	-	0.5	Volts	I _{OL} = 20 mA
Propagation time	-	-	15	ns	



5-pin Pin-out:

PC4-FC5, PC4-H5

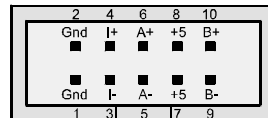
Pin	Description
1	Ground
2	Index
3	Channel A
4	+5VDC power
5	Channel B



10-pin Pin-out:

PC4

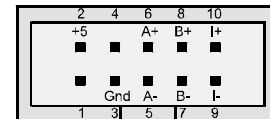
Pin	Description
1	Ground
2	Connected to pin 1
3	Index -
4	Index +
5	Channel A-
6	Channel A+
7	+5VDC power
8	Connected to pin 7
9	Channel B-
10	Channel B+



10-pin Pin-out:

PC5 - Agilent compatible

Pin	Description
1	No connection
2	+5VDC power
3	Ground
4	No connection
5	Channel A-
6	Channel A+
7	Channel B-
8	Channel B+
9	Index-
10	Index+



Note: For implementations with long cables, the supply voltage at the host should be appropriately higher to compensate for voltage losses in the wires. Consider the power requirement of the encoder, the **PC4/5** module and the optional termination resistors.

Ordering Information:

PC

Model:
PC4,
PC5

Options:

FH10 = 10-pin positive finger latch.
TF10 = Twisted pair flat cable and connector.
FH5 = 5-pin finger latching connector single-ended output (PC4 only).
H5 = 5-pin connector single-ended output (PC4 only).

Custom Cable Length:

(For TF10-option only)
If omitted standard length is 18"

Price:

\$13.00 / 1
\$12.00 / 100
\$11.00 / 500
\$10.50 / 1K

Cost Modifiers:

- Add \$1 for **FH10**-option and **FH5**-option
- Add \$3 for **TF10**-option (standard 18" cable length)
- Add \$6 + \$.30 / foot for **TF10**-option + custom length (available in 18" increments only.)

Technical Data, Rev. 12.19.00, December 2000
All Information subject to change without notice.

US Digital
Corporation

phone: 360.260.2468 • sales: 800.736.0194 • fax: 360.260.2469
email: sales@usdigital.com • website: www.usdigital.com
11100 ne 34th circle • vancouver, washington 98682 USA