

## PC6 Product Description

The PC6 decodes the quadrature outputs of an incremental shaft encoder to drive standard up/down counters. The PC6-U, up count / down count version, can be connected to the inputs of common counters such as a 74193 or 40193. The PC6-C, clock, and direction version, can connect directly to the counters such as 4516 or 74169.

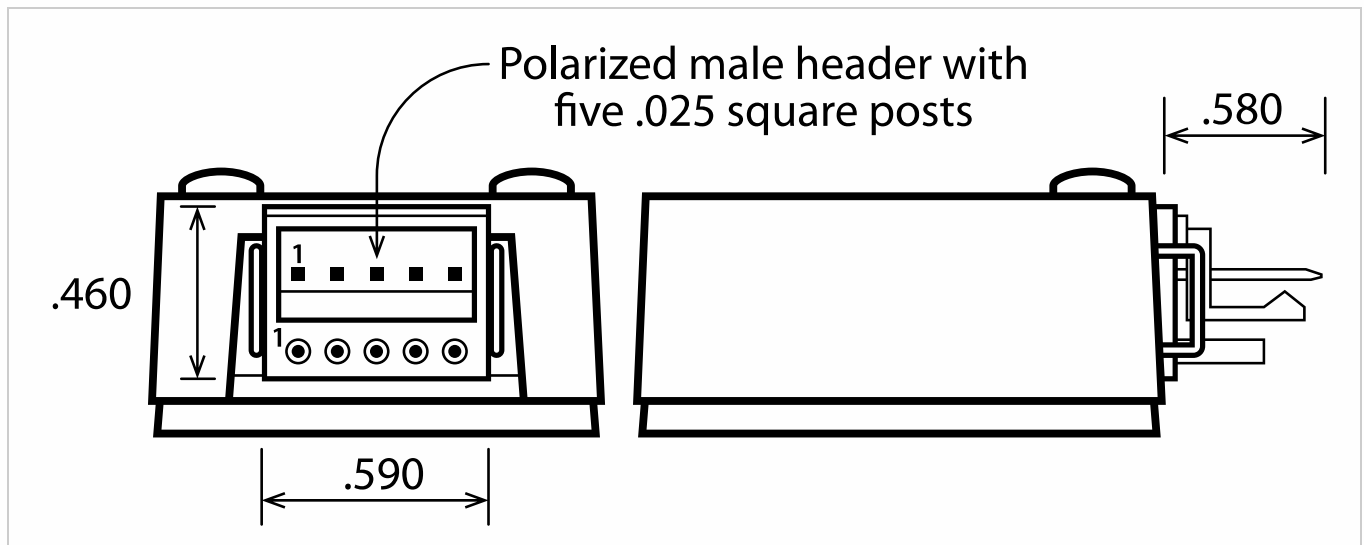
**Please note:** The encoder interface IC used in this product can be purchased separately (see the LS7183N-S (<https://www.usdigital.com/products/accessories/interfaces/ics/ls7183n-s/>) & LS7184N-S (<https://www.usdigital.com/products/accessories/interfaces/ics/ls7184n-s/>) pages).

## Specifications

### ENVIRONMENTAL

PARAMETER	MIN.	MAX.	UNITS
Operating Temperature	-40	70	°C
Electrostatic Discharge, Human Body Model	-2	2	kV

### MECHANICAL



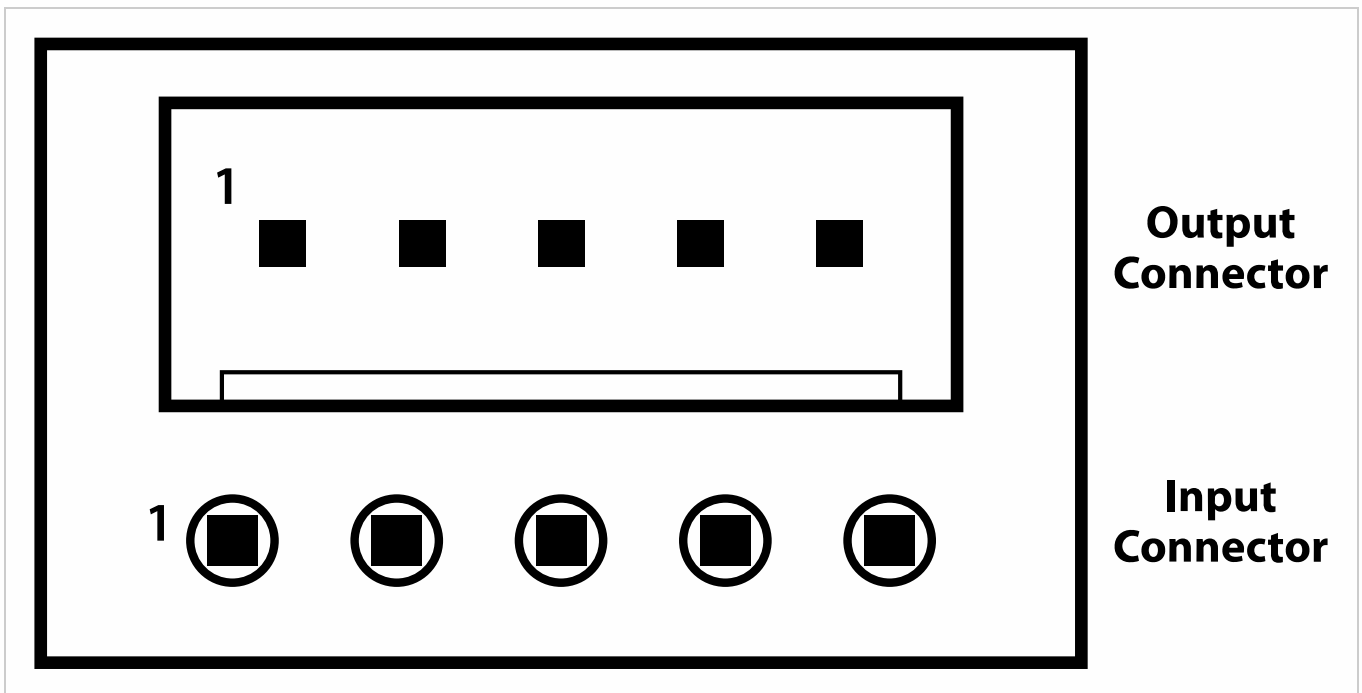


## ELECTRICAL

PARAMETER	MIN.	MAX.	UNITS	NOTES
Supply Voltage	4.5	5.5	Volts	-
Supply Current	-	100	$\mu$ A	A,B = 100KHz
A,B Logic Low	-	0.6	Volts	-
A,B Logic High	3.1	-	Volts	-
A,B Frequency	-	180	kHz	-
Sink Output Current	1.75	-	mA	Vout = 0.4V
Source Output Current	1.0	-	mA	Vout = 4.5V
Pulse Width of Clock Output	4.0	8.0	$\mu$ S	6 $\mu$ S typical

\* The clock output pulse width is 6 $\mu$ S.

## PIN DESCRIPTIONS



## PC6-X-X-X INPUT PIN-OUT



# PC6 ENCODER TO COUNTER INTERFACE BOARD

PIN	NAME	DESCRIPTION
1	GND	Ground
2	I	Index
3	A	A channel
4	VCC	+5 VCC
5	B	B channel

## PC6-U-X-X OUTPUT PIN-OUT. UP COUNT / DOWN COUNT (LFLS7183)

PIN	NAME	DESCRIPTION
1	GND	Ground
2	I	Index
3	/DNCK	Down clock
4	VCC	+5 VCC
5	/UPCK	Up clock

## PC6-C-X-X OUTPUT PIN-OUT. CLOCK, UP/DN (LFLS7184)

PIN	NAME	DESCRIPTION
1	GND	Ground
2	I	Index
3	UP/DN	Up/Down
4	VCC	+5 VCC
5	/CLK	Clock output

## INDEX (PIN 2)

The index signal is routed unchanged, directly from the encoder.

## PC6-U-X, PIN 3 (LFLS7183).



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Normally high, low-true. Down counts are enabled only when B leads A (clockwise rotation). One pulse is generated per encoder cycle using the PC6-U-1 and four pulses are generated using the PC6-U-4. For example, a 500 CPR encoder will produce five hundred clocks/rev. using the PC6-U-1 and 2000 clocks/rev. using the PC6-U-4. The external counter should count on the rising (high-going) edge of this output.

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## **PC6-U-X, PIN 5 (LFLS7183).**

Normally high, low-true. Up counts are enabled only when A leads B (counterclockwise rotation). One pulse is generated per encoder cycle using the PC6-U-1 and four pulses are generated using the PC6-U-4. For example, a 500 CPR encoder will produce 500 clocks/rev. using the PC6-U-1 and 2000 clocks/rev. using the PC6-U-4. The external counter should count on the rising (high-going) edge of this output.

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## **PC6-C-X, PIN 3 (LFLS7184)**

This output steers the external counter up or down. High = Up (A leads B), Low = Down (B leads A).

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## **PC6-C-X, PIN 5 (LFLS7184)**

Normally high, low-true. One pulse is generated per encoder cycle using the PC6-C-1 and four pulses are generated using the PC6-C-4. For example, a 500 CPR encoder will produce 500 clocks/rev. using the PC6-C-1 and 2000 clocks/rev. using the PC6-C-4. The external counter should count on the rising (high-going) edge of this output.

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## **CONNECTOR**

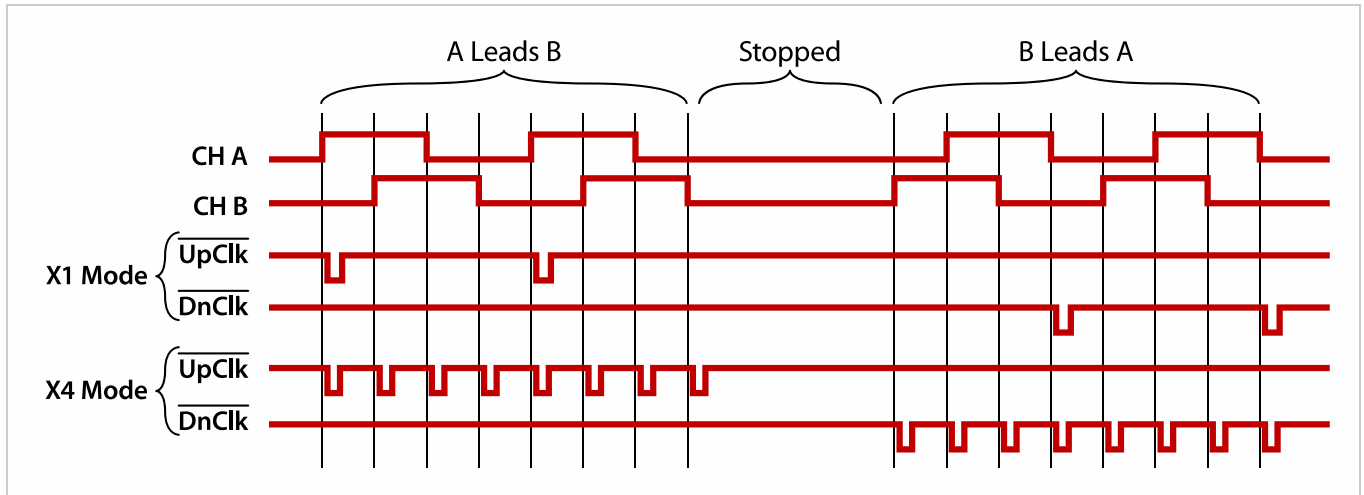
The output connector on the PC6 is TE#640456-5. The mating connector with five 12" wires attached is the CA-C5-W5-NC-1 (<https://www.usdigital.com/products/accessories/cables/5-pin/ca-c5-w5-nc/?sku=CA-C5-W5-NC-1>) (<https://www.usdigital.com/products/accessories/cables/5-pin/ca-c5-w5-nc/>), which uses TE#640442-5 (see the *Cables* (<https://www.usdigital.com/products/accessories/cables/>) / *Connectors* (<https://www.usdigital.com/products/accessories/connectors/>) page).

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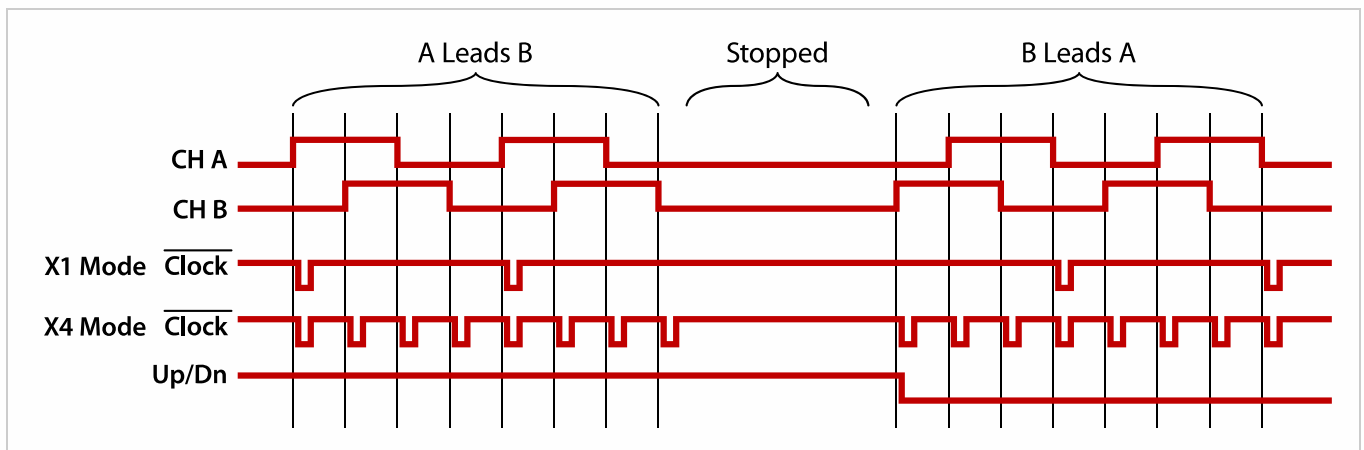


## TIMING DIAGRAMS

### PC6-U-X-X, UP COUNT / DOWN COUNT (LFLS7183)



### PC6-C-X-X, CLOCK, UP/DN (LFLS7184)



## PRODUCT CHANGE NOTIFICATIONS

Title	Date	Description	Download
PC3-H5, PC4, PC5 and PC6 Laser Markings - PCN 6228	9/27/2017	This notification is to inform our customers of a product marking change for the PC3-H5, PC4, PC5, and PC6 products. The purpose for this change is to create a more robust solution by utilizing laser marking versus the current paper label solution. The products effected will now be laser marked.	Download ( <a href="https://www.usdigital.com/support/resources/product-change-notifications/pcn-6228-pc3-h5-pc4-pc5-pc6-markings/">https://www.usdigital.com/support/resources/product-change-notifications/pcn-6228-pc3-h5-pc4-pc5-pc6-markings/</a> )

## Notes

- For ordering information please see the Compatible Cables / Connectors section above.



# PC6 ENCODER TO COUNTER INTERFACE BOARD

- US Digital® warrants its products against defects in materials and workmanship for two years. See complete warranty (<https://www.usdigital.com/company/warranty>) for details.