Pulse counter with high speed analog output

CNT-723

2MHz (A/B pulse) maximum input frequency
7.6μs response high speed analog output

The CNT-723 is a pulse counter outputs analog voltage proportional to the angle of an rotary encoder or the position of a linear scale at high speeds. The CNT-723 is designed for measuring rotation angle of power trains, like motor and controller testing, tire testing, engine testing or similar applications.
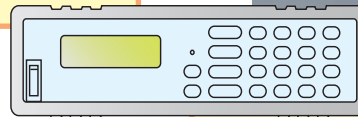
The CNT-723 has 4 kinds of display unit, Count (direct count), Degree (number of rotations + degree), Degree Minute Second (number of rotations + degree minute second), and Length(multi scaling). The decimal point can be set.
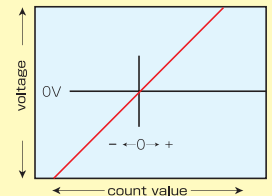
Pulse count / Lenght (Multi scaling)

The CNT-723 counts each rising and falling edges of A/B pulse as one count, so the display unit shows 4 when one A/B pulse is input. (4× quadrature decode)

Full Scale
Count Value

Number of rotations + Degree

Full Scale
Count Value

Number of rotations

Degree

Number of rotations + Degree Minute Second

Full Scale
Count Value

Number of rotations

Degree

Minute Second

- ●2MHz (A/B pulse) maximum input frequency
- ●Accepts A/B pulse (quadrature pulse) , single phase pulse and up/down-pulse
- ●Full scale and zero scale of analog output can be set fully
- ●±47 bit pulse counter
- ●7.6μs response time analog output
- ●Two kinds of reset are avaliable, Reset signal (Z signal) and manual reset
- ●16×2 digits display shows analog output full scale and count value
- ●16bit analog output with ±5V or ±10V range

7.6μs response high speed analog output (±10V, ±5V)

The computation time is within 3.5μs. The total response time, from pulse input to analog output, is within 7.6μs.
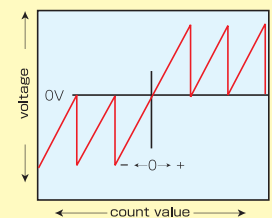
3 kinds of measurement mode

●LINEAR COUNT

In this mode, the CNT-723 counts incoming pulses up to ±47 bit. Full scale can be set fully.
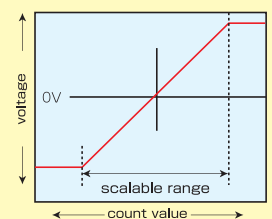
voltage
0V
− ←0→ +
count value

●RING COUNT

This function is designed for measuring rotation angle. In this mode, CNT-723 resets the analog output when the count value reaches the analog output full scale. For example, if the sensor is a rotary encorder and the analog output full scale is 360°, the CNT-723 resets the analog output for every one rotation of the rotary encorder.
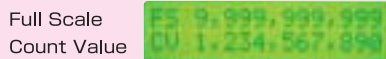
voltage
0V
− ←0→ +
count value

●MAGNIFY

This function is designed for focus on particular angle. In this mode, the CNT-723 outputs analog voltage between two points of setting value, full scale and zero scale. For example, if the zero scale is 359°and the full scale is 360°, the CNT-723 outputs 0V when the measurement value is 359, outputs 10V when the measurement value is 360, and outputs -10V when the measurement value is 358.
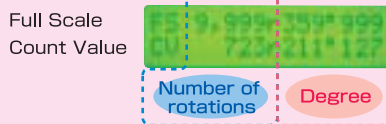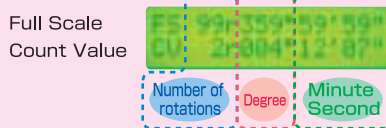
voltage
0V
scalable range
count value

SPECIFICATIONS

|	Name	Pulse counter with high speed analog output CNT-723
Signal Input	Number of inputs Input signal Input frequency range Input circuit characteristics (1) General input signals	1 Single phase signal, A/B phase signal, UP/DOWN signals 2MHz (Max) Input signal : Logic /zero cross (AC) Trigger level : 0.00 to 10.00 V 　　　　　　　2.50 V (Logic input) Input sensitivity : Min. 1V p-p Input withstand voltage : ± 50 V Input resistance : 100 kΩ/ 10kΩ when pull-up to +5V : 1.36kΩ Input coupling : DC/AC AC coupling frequency characteristic: 4 Hz (-3 dB, 6 dB/oct) Low-pass filter : None/15 kHz (-3 dB, -6 dB/oct)/ : 150 kHz (-3 dB, -6 dB/oct) Input connector : BNC connector / screwless terminal block (internal short circuit)
	(2) Line driver inputl Input pulse width Trigger direction Input indicator	Input signal : Line driver signal Input sensitivity : Min. 1 V (differential voltage) Input withstand voltage : ± 25 V (for GND) : ± 25 V (differential voltage) Recommended line driver : AM26LS31 or equivalent Terminator : 340 Ω / none Input connector : Screwless terminal block Min. 150ns (both H level and L level) *Logic input Rise/fall TRIG'D LED : Flashes during pulse input (continuously light for high-speed pulse) +5 V : Max. 150 mA +12 V : Max. 120 mA
Display	Display Display mode	16x2 character dot matrix LCD (LED backlight illumination) 1) Count (direct count) 2) Degree (number of rotations + degree) 3) Degree Minute Second(number of rotations + degree 　minute second) 4) Length (multi scaling)
Arithmetic Operation	Pulse counter capacity Set value storage Operation time Analog response total time	±47bit Non-volatile memory Max. 3.5 μs Max. 7.6 μs
Analog Output	Number of outputs Output voltage range Output resolution Measurement mode Calibration output Temperature fluctuation Output accuracy Linearity Load resistance Output zero adjustment range Output connector	1 ±10V / ±5V 16 bit (about ± 10.8V) Linear counter / Ring counter / Magnify +100% / 0% / -100% Max. ± 200 ppm/ ℃ Max. ± 0.1% full scale @ 23 ℃ Max. ± 0.1% full scale @ 23 ℃ Min. 4.7 kΩ ± 200 mV BNC connector
EIA-574	Communications standards Communication system Communication parameter ・Baud rate ・Start bit ・Stop bit ・Data length ・Parity bit Communication code	EIA-574 (RS-232C) (Setting change and reading of a measurement value) Asynchronous 9.6kbps／19.2kbps／38.4kbps／57.6kbps／115.2kbps 1 bit 1 bit 8 bits none ASCII

General	Power supply input power consumption Isolation Outside dimensions Weight Operating temperature & humidity limits Storage temperature & humidity limits	AC 100 V to 240 V (50 Hz/60 Hz) Max. 30 VA Sensor power source and signal input / analog output /power supply input / housing 57mm(H) x 218mm(W) x 218mm(D) （2.24 inches (H) x 8.58 inches (W) x 8.58 inches (D)） Approximately 1.8 kg (Without accessories.) 0℃ to +40℃/ Max. 85%RH (no dewing) -10℃ to +60℃ / Max. 85%RH (no dewing)

DIMENSIONS

FITTING
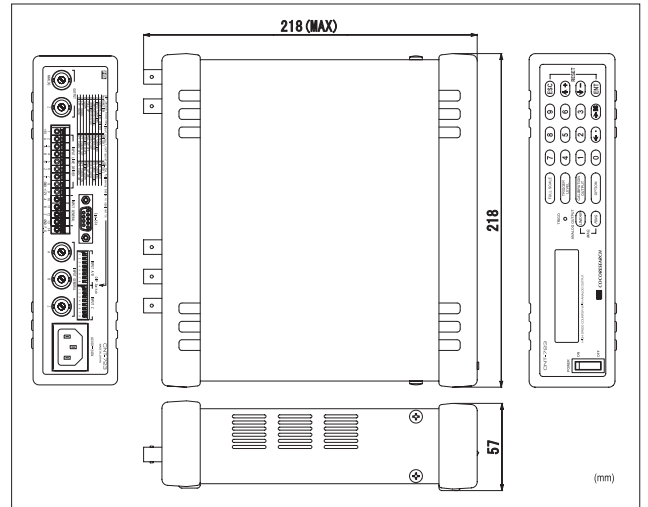
Panel out dimensional drawing
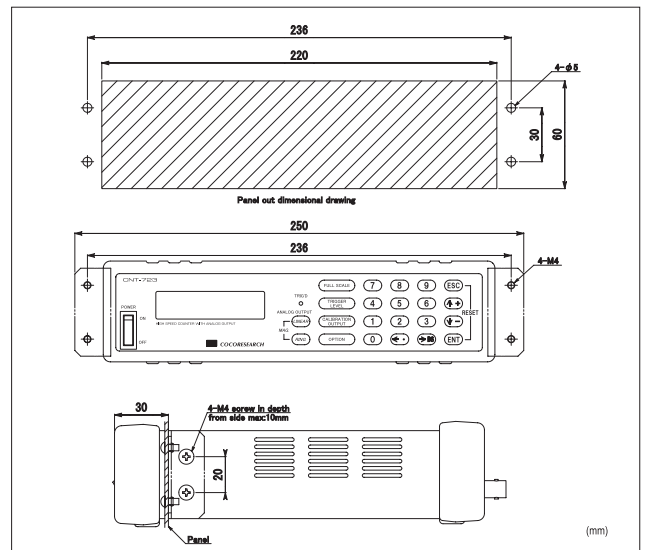
■If there is a possibility of secondary damages that may result from operation or mal-function of this product, take appropriate preventive measures to ensure safety.(fail-safe structure)

■Specifications are subject to change without any obligation on the part of manufacturer.

TERMINAL

BNC Connector				Screwless Terminal Block													
				1	2	3	4	5	6	7	8	9	10	11	12	13	14
ANALOG	Z	A	B	Z	+5V	A	A̅	B	B̅	Z	Z̅	GND	+12V	A	B	Z	GND	F.G.
OUTPUT		PULSE INPUT(GENERAL)			SENSOR POWER OUTPUT	PULSE INPUT(LINE DRIVER)							SENSOR POWER OUTPUT	PULSE INPUT(GENERAL)				