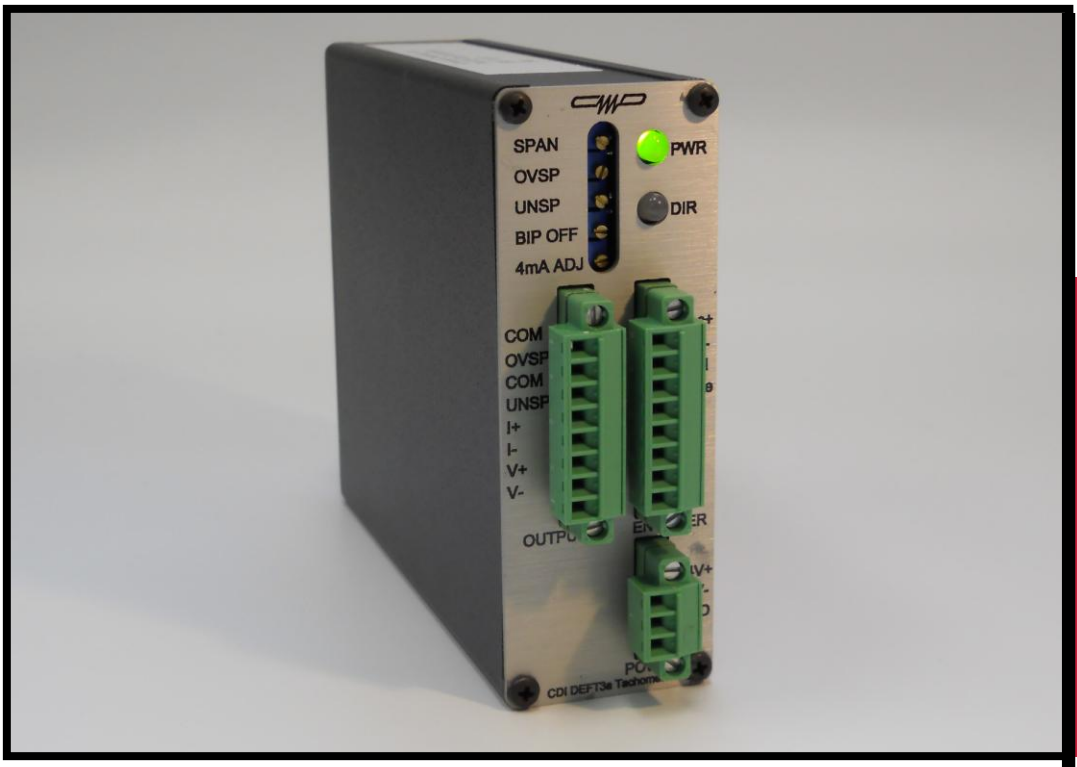

CONVEYOR DYNAMICS, INC.
DESIGNERS OF BELT AND PIPE CONVEYOR SYSTEMS

DEFT3a

TACHOMETER

GENERAL DESCRIPTION

The DEFT3a TACHOMETER precisely and rapidly converts the quadrature signal from an optical encoder to an accurate, noise free analog output signal for control or monitoring purpose. The unit can detect direction of motion and converts the input frequency signal (DC to 100 kHz) to industry standard unipolar 0 to 10 volt DC or 4-20 mA analog outputs as well as bipolar output for reverse detection.

Advanced technology, innovative design of the receiver section and use of a sophisticated quadrature signal filter allow the Deft-3a tachometer to be placed at long distances from the encoder while maintaining excellent noise immunity in a harsh industrial environment. The use of a highly integrated frequency to voltage conversion stage followed by a proprietary adaptive filter provides a very fast response time (<15 ms) while keeping the low output ripple at an absolute minimum (<20 mV @ 1 Hz, <3 mV @ 300 Hz).

High precision components are used throughout the Deft-3a tachometer to insure a highly linear output with excellent temperature stability over the extended industrial range (-25°C to 85°C).

The Deft-3a tachometer is a permanently mounted field unit customized to user specifications.

KEY FEATURES

- Digital encoder filter
- Converts digital encoder signal to analog
- Very high noise immunity
- Located long distances from encoder
- Opto-isolated line receiver inputs
- Large frequency input range
- Motion direction detection
- Unipolar or bipolar output
- Voltage or current output
- Very fast response, high linearity
- Very low ripple
- Industrial temperature range
- Optional over/under-speed relay output

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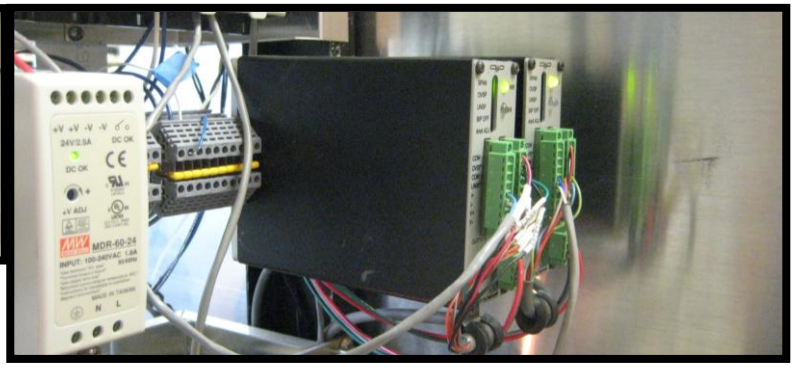

(Top) DEFT3A Tachometers ready for calibration and shipping
(Right) DEFT3a Tachometers installed for redundancy and conveyor slip detection

SPECIFICATIONS

Input Signal

Type	Quadrature
Maximum Frequency	100kHz
Full Scale Frequency	1-100 kHz (with pre-scaling)
Base Frequency	4 - 8 kHz
Pre-Scaling Range Settings	x4, x2, x1, /2, /4, /8, /16 (DIP switch selectable)
Input Impedance	2kΩ
Sensitivity	1 volt
Max. Differential Voltage	30 volt
Isolation	1500 volt (requires Isolated Encoder Power)

Distance to Encoder (with line driver outputs, 8830 or equivalent)

Maximum Distance At 100 kHz	1000 feet
Maximum Distance At 50 kHz	3000 feet

Analog Output

Standard output	0-10 volt Unipolar into 5 kΩ
Optional outputs	±10 volt Bipolar into 5 kΩ 4-20 mA Unipolar or Bipolar into 500 Ω
Span Adjustment	50-100% of Full Scale
Response Time (0-90% fs)	10 ms (>8 kHz), 15 ms (<8 kHz)
Output Ripple	<20 mV at 1 Hz, <3 mV above 300 Hz
Non-Linearity	0.005% of Full Scale Typical
Temperature Drift	0.01% per °C Typical

Power

Standard Power	9-36 VDC at 30 mA

Encoder Power

Standard Power	5 VDC at 150 mA
Optional Isolated Power	24 VDC at 150 mA

Digital Outputs (optional)

Over speed Relay	0-100% Full Scale
Auxiliary Relay	0-100% Full Scale
Relay Specifications	SPDT, 2 amp DC, 0.6 amp AC

General

Temperature Range	-25 to +85°C
Enclosure	DIN rail mounted Aluminum
Connectors	Phoenix® Mini Combicron, 3.81mm pitch

DEFT3a Mechanical Layout (mm)