Electronic Modules

This family of Electronic modules provides various signal conditioning or testing functions for optical encoders. They all are designed around a standard DIN Rail mounting (Type EN 50 022, 35 mm X 7.5 mm) making them easy to install in standard enclosures.

Optical Isolator

This module is a versatile interface between an incremental optical encoder output and any type of receiving electronics. It accepts single ended or differential inputs and provides single ended or differential outputs in either an open collector or line driver configuration. It accommodates all standard operating voltages: 5VDC (TTL), 12-15 VDC, and 24 VDC. Up to eight Optical Isolator Modules can be daisy-chained to provide multiple, simultaneous outputs to various controllers or PLC's. With a 1 MHz throughput capability, it can be used wherever a fast, optically isolated interface is required.

Encoder Tester

This test module accepts input from any type of incremental optical encoder. It tests for two channels in quadrature, an index pulse and power to the module. It features a simple and intuitive LED indicator scheme: lights are on to indicate that a signal is HI and off when the signal goes LO. Through combinations of terminal connections and dropping resistors (supplied) it can test open collector outputs, and both single ended and differential outputs at all standard voltages: 5VDC (TTL), 12-15 VDC, and 24 VDC. This Tester can also be used for machine set-up (by locating the index pulse) and incoming inspection and diagnostics of encoded motors.

Anti-Dither Module

This module performs a specialized, yet critical function for applications that may be subject to position errors due to stop/start cycles (i.e. conveyor systems) or vibration environments that are not using the direction-detection functions provided by a quadrature signal (i.e. the encoder is being used strictly as a tachometer). The Anti-Dither module accepts A and B signals and through internal discrimination circuitry passes the signals through only when there has been true movement of the encoder. This acts like 1/4 cycle of hysteresis and avoids the specific problem experienced when the encoder signal transition dithers (due to mechanical vibration of the shaft to which it is attached) and confuses the counter circuitry making it think that the encoder is moving when it really is stopped. This is especially useful in web processes, handling and inspection systems that use conveyors and simple speed or position control in heavy industrial applications that are subject to vibration.

Intrinsic Safety Barrier

This Galvanically Isolated Electronic Module is the perfect complement to our Intrinsically Safe Encoders. Together with our cable assemblies they constitute a completely engineered solution to operation in Class I Division 1 Hazardous Environments. Supply voltage to the barrier can be as high as 24 VDC and the barrier is used to supply voltage directly to the encoder. This all-in-one approach saves the cost and inconvenience of buying separate power and signal barriers as required by most other systems. This barrier is galvanically isolated and so saves the added cost of maintaining a high integrity earth ground. With differential line driver outputs, this barrier can be used to carry signals up to 500 feet with a bandwidth of up to 250 kHz.

TABLE A POWER SUPPLY/OUTPUT TYPE

PART NUMBER	BARRIER SUPPLY Vs +/-5%	OUTPUT VOLTAGE TO NON HAZARDOUS AREA APPARATUS	OUTPUT TYPE HAZARDOUS AREA APPARATUS
924-60004-002	12-24 VOLTS	V_{OUT} = 5V	LINE DRIVER 4469 100mA SOURCE/SINK
924-60004-003	12-24 VOLTS	$V_{OUT} = V_{IN}$ (NOMINAL)	LINE DRIVER 7272 100mA SOURCE/SINK
924-60004-004	12-24 VOLTS	OPEN COLLECTOR	NPN OPEN COLLECTOR 40MA SOURCE/SINK

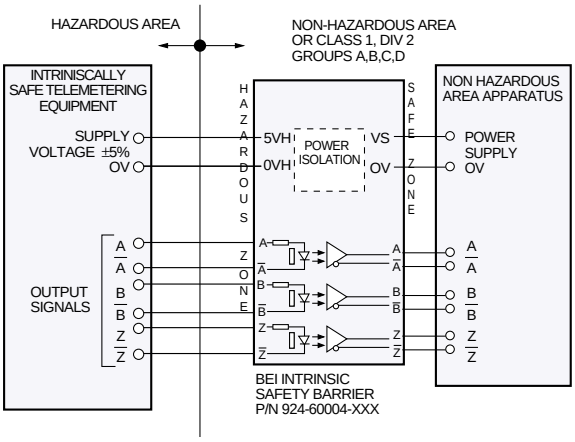

TABLE B BARRIER PARAMETERS

VOLTAGE SUPPLY	Voc (Uo)	Isc (Io)	Class1, Group D Class II, Groups E,F,G Group IIA		Class1, Group C Group IIB		Class1, Groups A, B Group IIC	
			Ca (Co)	La (Io)	Ca (Co)	La (Io)	Ca (Co)	La (Io)
+5V DC	8.9	345mA	590 µF	2.0 mH	43 µF	0.75 mH	5.6 µF	0.4 mH

Electronic Modules Ordering Options

For assistance, call 800-350-2727

Use this diagram, working left to right to construct your model number.

Example: ***EM-DR1-IC-24-TB-7272-24V/V*** *(one possible configuration of the Electronic Modules)*

EM – **DR1** – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

TYPE:
EM = Electronic Module, DIN Rail mount

PACKAGE STYLE:
DR1 = 114.5 mm H X 99 mm D X 22.5 mm W

FUNCTION:
ET = Encoder Tester
IC = Optical Isolator
AD = Anti-dither
IS = Intrinsically Safe

OUTPUT VOLTAGE FROM ENCODER:
5 = 5 VDC
15 = 12 – 15 VDC
24 = 24 VDC

OUTPUT TERMINATION:
TB = Standard Terminal Block
RTB = Removable Terminal Block (for IS unit only).

OUTPUT IC:
4469 5-15 volt Line Driver
7272 5-24 volt Line Driver
7273 Open Collector

SUPPLY VOLTAGE/OUTPUT:
24V/V, 24 VDC max, $V_{out} = V_{in}$
15 V/V, 15 VDC max, $V_{out} = V_{in}$
24V/5, 24 VDC max, V_{out} = 5 volts
24V/OC, 24 VDC max, V_{out} = Open Collector

SPECIAL FEATURES:
S= Special features specified on purchase order (consult factory)
See See note 6

All notes and tables referred to can be found on pages 48-49