

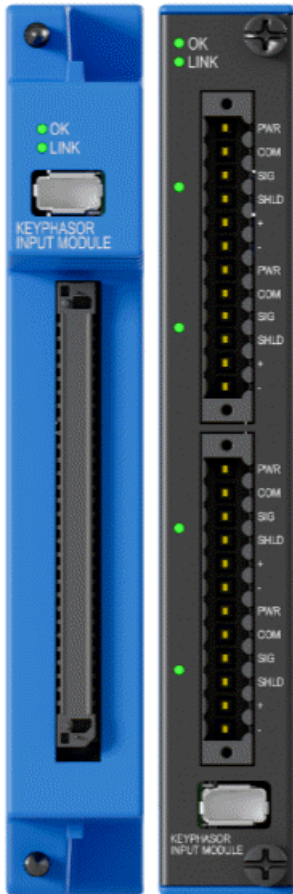
ORBIT 60 SERIES

High Speed Keyphasor Input Module

Datasheet

Bently Nevada Machinery Condition Monitoring

157M8566 Rev. -



Description

Unlike previous systems, the Orbit 60 Series system supports Keyphasor configurations for any dynamic input channel through the PAV, PAS, PAA, and PAD input modules. For high-phase accuracy applications (over 12,000 rpm) the high speed Keyphasor module can support four transducer inputs per module. Input configurations to this module can also serve as prox-vibration inputs. The Keyphasor input module occupies a single slot.

You can configure any channel on the module as a once-per-turn Keyphasor or a multiple-event-per-turn speed signal from a rotating shaft or gear used to provide a precision timing measurement. The Keyphasor Input Module works with the following transducers:

- Magnetic pickup
- 3-wire Prox
- 3-wire Accel


The module creates the Keyphasor signal when the sensor reads a notch or protrusion in the target. The module digitizes and processes the signal to provide machine rotative speed and vector parameters, such as 1X amplitude and phase. The Keyphasor gives phase reference information for a vibration measurement, providing key relationships for diagnostic analysis.

The module OK LED indicates when the module is functioning properly, and the LINK LED indicates when the module is communicating to the rest of the system. Four Channel Status LEDs located on the utility side of the module indicate that a connected sensor is installed and in OK condition.



High Speed Keyphasor

High Speed Keyphasor Inputs (KPH)	
Inputs	
Analog Input	<ul style="list-style-type: none"> • Proximitor (3-wire) • Accelerometer (3-wire) • Proximitor Keyphasor (3-wire) • Magnetic Speed Pickups
Channels	4 Dynamic Inputs
Signal	
Signal range 3 wire non-isolated	+3.5 V to 23 V
Signal range 2 wire isolated	±275V (magnetic pickups, clamped to +5 to -15V internally)
Passive magnetic pickups	Passive magnetic pickups Require a shaft rotative speed greater than 200 rpm (3.3 Hz).
Input Impedance	3-wire non-isolated interface: 10 kΩ 2 wire isolated interface: 31.8 kΩ
Signal Conditioning	
Speed / Frequency Signal Ranges	Input range of 1 to 120,000 cpm (0.017 to 2 kHz).
Speed / Frequency Signal Accuracy	Specified at +25°C (+77°F). 0.017 to 100 rpm: ±0.1 rpm 101 to 10,000 rpm ±1 rpm 10,001 to 120,000 rpm: ±0.01% of actual rotational speed
Transducer Conditioning	

High Speed Keyphasor Inputs (KPH)	
Auto Threshold	Minimum signal amplitude for triggering is 1.5 volts pp.
Manual Threshold	User-selectable from +3 to -23 volts dc. Minimum signal amplitude for triggering is 500 mv pp.
Hysteresis	User-selectable from 0.2 to 2.5 Volts.
Outputs	
Module OK LED	Indicates when the module is functioning properly
System Communication LED	indicates when the module is communicating to the rest of the system
Channel Status LED	1 per input channel sensor connected and OK
Analog Buffered Transducer Output	Short-circuit protected output signal available through BTO connector on public and utility side.
 This is a true analog signal from the input, not digital-to-analog reconstitution of the input signal.	
Output Impedance	504 Ω maximum buffered output impedance.
Keyphasor Transducer Power Supply	-24 Vdc, 46 mA maximum per channel.

Compliance and Certifications

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

EMC

European Community Directive:
EMC Directive 2014/30/EU

Standards:

EN 61000-6-2; Immunity for Industrial Environments
EN 61000-6-4; Emissions for Industrial Environments

Electrical Safety

European Community Directive:
LV Directive 2014/35/EU

Standards:

EN 61010-1;
EN 61010-2-201;

RoHS

European Community Directive:
RoHS Directive 2011/65/EU

Cyber Security

Designed to meet IEC 62443

Maritime*

ABS Rules for Condition of Classification, Part 1

- Steel Vessels Rules
- Offshore Units and Structures

Functional Safety*

SIL 2

* Approvals pending

Hazardous Area Approvals



For the detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (108M1756) available from Bently.com.

CSA/NRTL/C

Class I, Zone 2: AEx/Ex ec nC IIC T4 Gc;
Class I, Zone 2: AEx/Ex nA nC IIC T4 Gc;
Class I, Division 2, Groups A, B, C, D T4;
Class I, Division 2, Groups A, B, C, D T4 (N.I.);

T4 @ Ta= -30°C to +65°C (-22°F to +149°F)

ATEX/IECEX

 II 3 G
Ex ec nC IIC T4 Gc
Ex nA nC IIC T4 Gc

T4 @ Ta= -30°C to +65°C (-22°F to +149°F)

Ordering Information



For the detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (108M1756) available from Bently.com.

High Speed Keyphasor Module

Ordering Option	Description
60R/INP06-AAA-BB	
AAA – Hazardous Area Certifications	
00	No Hazardous Area
01	CSA/NRTL/C (Class I, Div 2)
02	Multi (CSA, ATEX, IECEx)
XXX	Country Specific Approvals
BB – SIL Level	
00	No SIL
02	SIL 2

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