

# JMA-165-R Series - MEMS Analog Accelerometers

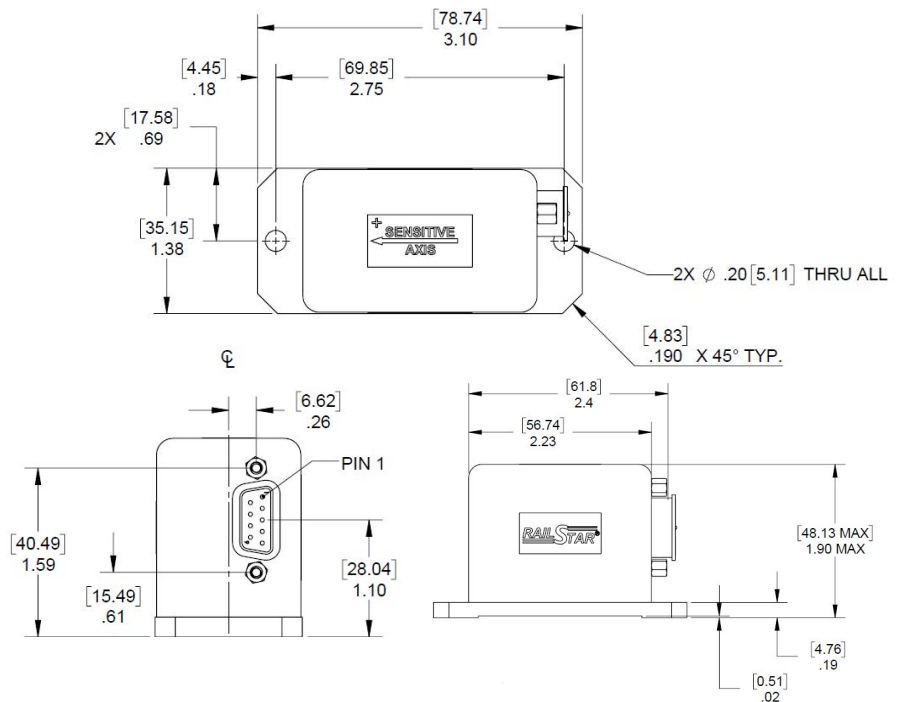
Making Sense out of Motion...

Jewell has a 40+ year history of supplying acceleration sensors for driver and driverless metro trains throughout the world. Jewell accelerometers are crucial components in safety and control systems providing a safe, controlled ride by providing train acceleration, deceleration and position information.

Our recently CENELEC and AREMA qualified JMA-165 series MEMS accelerometers are now a cost effective and viable alternative to the traditional forced balanced designs.



## Outline Diagram



## Features

- $\pm 0.5G$  &  $\pm 1.0G$  full ranges
- CENELEC/AREMA certified
- Low-cost MEMS technology
- RoHS Compliant
- Filtering Available

## Applications

- Automated Train Controls
- Rail Maintenance & Testing
- Acceleration/Deceleration Control
- Train Performance Testing

## Pin Out

PIN	FUNCTION
1	+Vcc
2	COMMON
3	-Vcc
4	SIG OUT
5	N/C
6	N/C
7	N/C
8	N/C
9	N/C



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## Performance Specifications

### STATIC/DYNAMIC

Measurement Range, (g) <sup>1</sup>	±0.5	±1
Output Voltage Range (Volts)	±5.00	±5.00
Scale Factor Tolerance (mg)	±5	±10
Scale Factor Temp Coefficient (ppm/°C, Max.)	300	150
Bias (g, Max.)	±0.01	±0.01
Bias Temp Coefficient (mg/°C, Max.)	1	0.5
Transverse Axis Alignment (°Max.)	0.7	0.7
Resolution and Threshold (mg, Max.)	0.3	0.6
Nonlinearity (% of Full Scale, Max.)	0.2	0.1
Nonrepeatability (mg, Max.)	2	1
Bandwidth (Hz Nominal) (-3dB)	100	100
Cross Axis Sensitivity (g/g Max.)	0.01	0.005
Warm-Up Time (Seconds, Max.)	1	1

### ELECTRICAL AND ENVIRONMENTAL

Input Voltage (Vdc)	±12 to ±18
Operating Current, mA, max	±8
Output Impedance (Ohms Nominal)	1
Noise (Broadband grms max)	0.005
Operating Temperature	-40°C to +70°C
Storage Temperature	-55°C to +85°C
Shock	10g (half sine, 0.011 sec)
Weight (grams)	85
Seal	IP65

Notes: 1 - Intermediate ranges available, please see model number structure below. Custom ranges available on request.

\*Specifications subject to change without notice on account of continued product development

### Meets CENELEC/AREMA Standards

CENELEC EN 50121:2015  
 CENELEC EN 50155:2007  
 CENELEC EN 6100:2010  
 AREMA Part 11.5.1 (2009)

### Ordering Information

±0.5G Range  Model Number: JMA-165-0.5-R  
 Part Number: 02550357-002

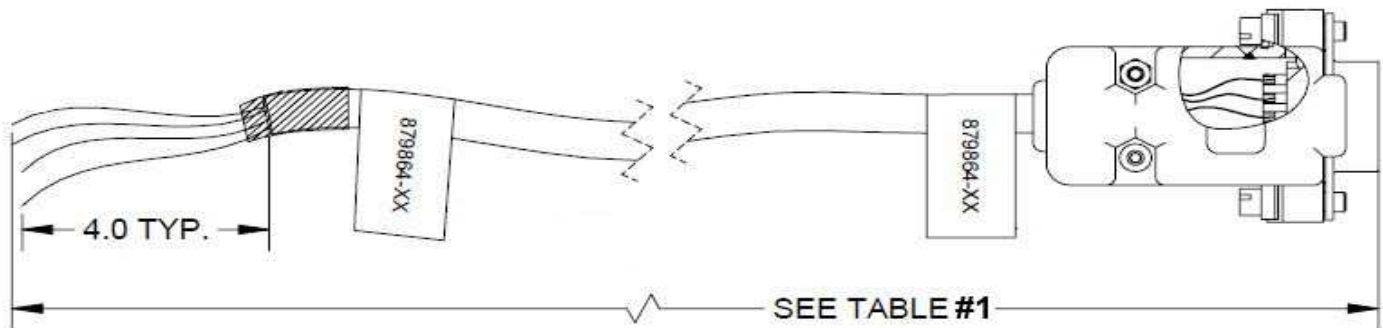
±1.0G Range  Model Number: JMA-165-1-R  
 Part Number: 02550357-003



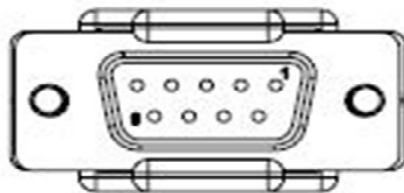
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## CABLE ASSEMBLY (PN 879864-XX)

DB9 FEMALE CONNECTOR



Dimensions in feet [m]



CONNECTOR PINOUT		
DB9 PIN	FLY LEADS	FUNCTION
1	RED	+PWR
2	BLACK	PWR RTN
3	VIOLET	N/C
4	GREEN	X OUT
5	ORANGE	Y OUT
6	YELLOW	N/C
7	BROWN	SIG RTN
8	BLUE	TEMP OUT
9	WHITE	N/C

Table #1

Cable Configuration	
Part #	Length
879864-10	[10m] 32.8 feet
879864-XX	Other length available (specify on order)