



Vibrating Wire Input

2

RS-485 Remote I/O Modules

1

I-87kW Series

I-87089W



I-87089W

1-channel Vibrating Wire Input Module

Introduction

The vibrating wire sensor has a wire which is initially plucked by a series of electrical magnetic forces from a coil. The conductive wire after plucking is vibrating in a magnetic field. The wire will disturb the field, and then the coil can pick up the induced voltage change. The signal is amplified and detected by a VW readout device, or called VW reader. After plucking, there is no other force acting on this wire. When the transient response dies out, the reader can read a stable resonant frequency. The resonant frequency is function of the tension of this wire.

System Specifications

Communication	
Interface	RS-485
Format	N, 8, 1
Baud Rate	1200 ~ 115200 bps
Connector	D-Sub 37
RS-485(Data+, Data-)	D-sub 37-pin connector with 3000 Voc isolation
Protocol	115200, 8, N, 1
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicator/Display	
System LED Indicator	1 LED as Power/Communication Indicator
I/O LED Indicator	16 LEDs as High/Low Alarm Signals
Isolation	
Intra-Module Isolation, Field-to-Logic	3000 Voc
EMS Protection	
ESD (IEC 61000-4-2)	4 kV Contact for Each Terminal 8 kV Air for Random Point
Power	
Power Consumption	3.6 W
Mechanical	
Dimensions (W x L x H)	I-87089W 30 mm x 102 mm x 115 mm DN-1618UB 165 mm x 112 mm x 52 mm
Environment	
Operating Temperature	-25 ~ +75°C
Storage Temperature	-40 ~ +85°C
Humidity	10 ~ 95% RH, Non-condensing

Features

- Support 8 ~ 32 Vibrating Wire inputs
- Support 450 ~ 6000 Hz Vibrating Wire Sensor
- Support Channel to Channel Isolation
- RoHS Compliant
- Wide Operating Temperature Range: -25 ~ +75°C



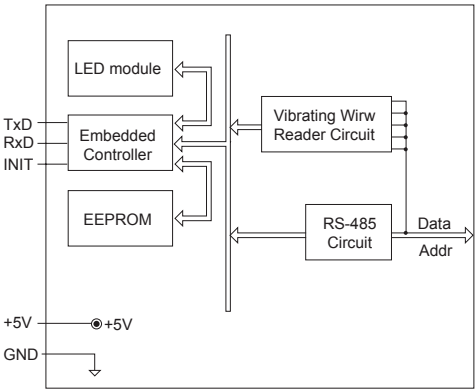
Applications

The I-87089W/S can be extended to 32 channels by connecting 3 extra DN-1618UB.

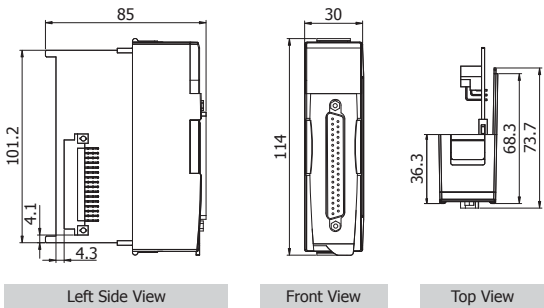
I/O Specifications

Vibrating Wire Input	
Channels	8
Input Type	Vibrating Wire Sensor (2 VW wire + 2 Temperature wire +1 shield wire)
Measuring Range	Wire 450 ~ 6000 Hz
	Temperature -20°C ~ +50°C
Excitation mode	Enhanced square wave
Resolution	Wire ±0.1 Hz % of FSR
	Temperature ±0.1°C % of FSR
Channel to Channel Isolation	Yes, 1 kV

Internal I/O Structure



Dimensions (Units: mm)



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Wire Connections

Vibrating Wire Input		
VW+		CHx_VW+
VW-		CHx_VW-
TH+		CHx_TH+
TH-		CHx_TH-
Shield		AGND

Pin Assignments

Pin Assignment	Terminal	No.	Pin Assignment
NC	1	20	GND
NC	2	21	GND
NC	3	22	NC
NC	4	23	NC
TH-	5	24	NC
TH+	6	25	NC
GND	7	26	NC
GND	8	27	NC
VW+	9	28	NC
VW-	10	29	NC
FIN+	11	30	NC
NC	12	31	NC
NC	13	32	NC
GND	14	33	VCC
NC	15	34	VCC
GND	16	35	VCC
NC	17	36	VCC
NC	18	37	Data+
Data-	19		

37-pin Male D-Sub Connector

1 I-87KW Series

Ordering Information

I-87089W-G CR	1-channel Vibrating Wire Input Module (Gray Cover) (RoHS)
I-87089W/S-G CR	8-channel Vibrating Wire Input Module (Gray Cover) (RoHS)
DN-1618UB CR	8-channel Vibrating Wire extended board (RoHS)

Accessories

	SG-770 CR	7 channel differential or 14 channel single-ended surge protector (RoHS)
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I-87089W