



## 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 to 115200 bps
Connector	D-Sub 37
RS-485 (Data+, Data-)	D-sub 37-pin connector with 3000 VDC isolation
Protocol	115200, 8, N, 1
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicators	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	16 as High/Low Alarm Signals
Isolation	
Intra-module Isolation, Field-to-Logic	3000 Vdc
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 (L × W × H)	I-87089W-G 114 mm × 30 mm × 85 mm
	DN-1618UB 112 mm × 165 mm × 52 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-40 to +85°C
Humidity	10 to 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 to +75°C



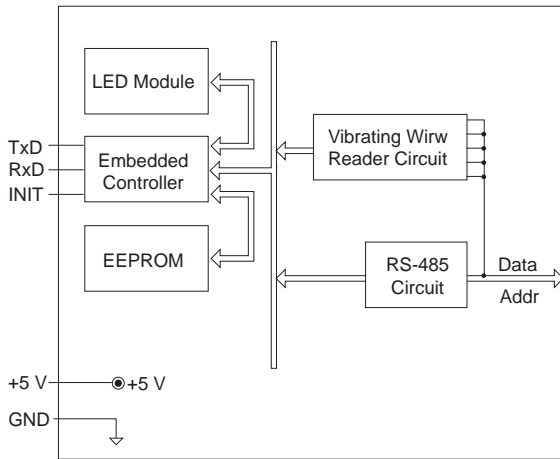
### Applications

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

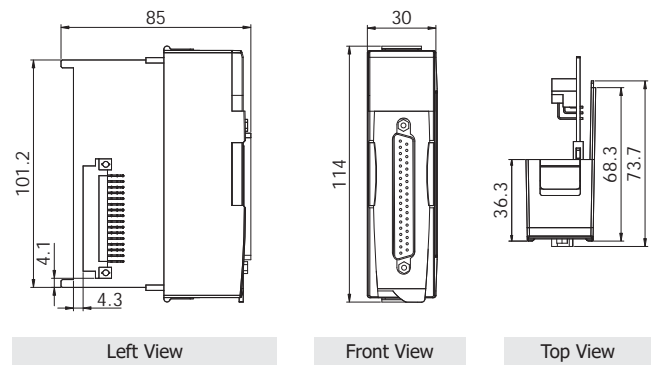
### I/O Specifications

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



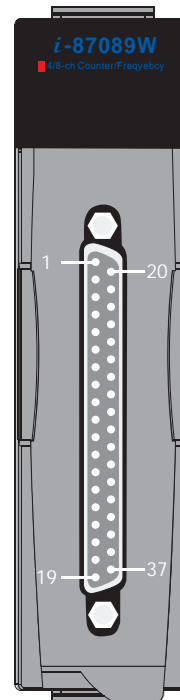
## Dimensions (Units: mm)



## 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

## Ordering Information

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