



**SHINKAWA**

## CM-4 Compact Machinery Protection System



### Features:

- Continuous Monitoring for Machine Protection
- Accepts Vibration, Temperature, Position, Speed or Analog Output Sensors
- Local Bar Graph Display with Alarm Indicators
- 3 Levels of Alarm Per Channel (OK, ALERT and DANGER)
- Four Configurable 4-20mA Recorder Outputs
- Modbus RS485 Output
- Two Buffered Outputs per Channel (BNC and Terminal)
- API 670 Compliant
- 18-36VDC or 110-220VAC Powered

The **CM-4 Compact Machinery Protection System** was designed to continuously monitor essential and Balance of Plant machinery, in all industries, where the cost of larger rack-based systems cannot be justified. The CM-4's flexible design allows it to accept a combination of four vibration, position, temperature, speed, or analog inputs and can be used in conjunction with a PLC, DCS or SCADA system. Four dedicated BNC Buffered Outputs are located on the front cover and provide convenient access to the raw sensor signals for portable vibration analyzers. Buffered output signals are also available on screw terminals for hardwiring to online systems.

The local LCD display provides bar graphs, alarm indicators, and the overall vibration value directly on the front of the enclosure. The configuration software included with the system allows the user to program the four inputs, nine relay outputs and four recorder outputs with a laptop or PC via USB cable. The system settings can also easily be uploaded from an existing CM-4 in case the configuration file is misplaced.

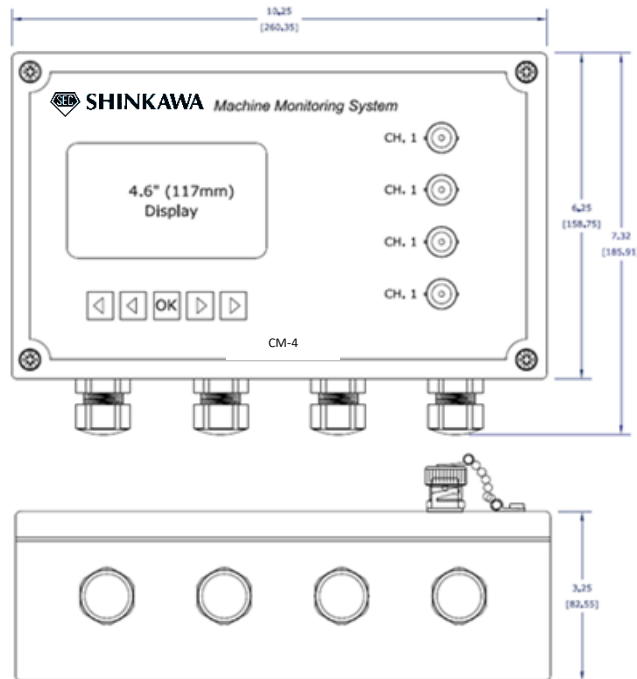
The CM-4 is rated IP65 and protects against dust and water ingress. Enclosures are available for additional protection.

### Specifications:

Electrical Specifications:	
Number of Inputs:	Four (4)
Signal Types:	Accelerometer, Velocity Sensor, Proximity Probes or Analog Signals (mA or VDC)
Analog Outputs:	Four (4) Isolated 4-20mA Outputs
Buffered Outputs:	Two Buffered Outputs Per Channel (BNC and Screw Terminal)
Frequency Response:	Velocity: 10-1,000 Hz (ISO) or 2 to 2,000 (ISO LF) Acceleration: 2 to 20,000 Hz Displacement: 2 to 2,000 Hz Thrust/Position: DC Enveloping: Filter #2 and #3 (Jumper Selectable)
Power:	85-264VAC, 50/60 Hz or 24VDC (1 Amp)
Accuracy:	1% Full Scale
Communication:	Modbus RS485
Range:	User Defined (English or Metric)
Signal Detection:	RMS, Peak or Peak to Peak (User Defined)

Sensor Power:	Internal 4.4 mA Constant Current Diode for IEPE Style Sensor +24VDC for 4-20mA Sensors
Sensor OK Detection:	Continuous Monitoring of Sensor Voltage
Number of Alarms/Relays	9 (4 Alerts, 4 Danger, 1 Common System OK)
Alarm Indication:	OK = Green LED, Alert = Yellow LED, Danger = Red LED
Relay Specification:	Form C, SPDT, 5 Amp 250 VAC, Latching or Non-Latching Selectable Normally Energized or Normally De-Energized (User Defined)
Alarm Time Delay:	1 to 10 Seconds (User Defined)
Reset Function:	Push Button
Case:	Powder Coated Aluminum, Isolated
Terminals:	Screw Type, 24 AWG min., 12 AWG max.
Programming:	Software and USB Cable Included (Windows Required)
Display Type:	Color LCD
<b>Environmental Specifications:</b>	
Operating Temperature:	-4 to 176°F (-20 to +80°C)
Storage Temperature:	-40 to 185°F (-40 to +85°C)
Relative Humidity:	10 - 95% Non-Condensing
Enclosure Rating:	IP65
<b>Mechanical Specifications:</b>	
Housing Material:	Gray Aluminum, Die-Cast
Mounting:	Mounting Bolts
Dimensions:	10.24" x 6.3" x 3.55" (260 x 160 x 90mm)
Weight:	25 oz. (700g)
Certifications:	CE Approved - EN 60950-1

## Dimensions:



## CM-4 Ordering Information:

Note: Each CM-4 is supplied with a USB cable and CD containing the setup software.

CM-4	-XX	-XX	-XX	-XX	Channel Selection
					Input 1 Module Type, See Input Module Type Below
					Input 2 Module Type
					Input 3 Module Type
					Input 4 Module Type

### Input Module Type

Ordering Code	Description
-AC	Acceleration, g's
-VA	Velocity, Input from Accelerometer
-VV	Velocity, Input from Velocity Sensor
-DS	Displacement, mils or mm
-TP	Thrust Position
-EV	Enveloped Acceleration
-AM	Analog Input, mA or VDC
-TM	Temperature Input (100Ohm Plat or 10mV/°C from Dual Output Accelerometer)
-XX	Empty Slot, Unused

### Example Part Number:

#### CM-4-VA-EV-VA-EV

Four Channel Monitoring System  
 Module 1: Velocity, Accelerometer Input  
 Module 2: Enveloped Acceleration  
 Module 3: Velocity, Accelerometer Input  
 Module 4: Enveloped Acceleration

### Alternate Images:

#### CM-4 Setup Application

## Accessory List

### Housings

<b>Material:</b>	FG Option	Compression Molded Fiberglass
	PS Option	14 AWG Mild Steel Polyester Powder Coated
	SS Option	14 AWG 304 Stainless Steels
<b>NEMA Rating:</b>	FG and SS	NEMA 4, 4X, 12 and 13
	PS	NEMA 4, 12 and 13
<b>IP Rating:</b>	IP66	
<b>Temperature Range:</b>	-55 to +85°C (-67 to 185°F)	
<b>Door Closure:</b>	3/4 Turn Quick Release Latch (Steel) or Quick Release Latch (Fiberglass)	
<b>Optional Cord Grips:</b>	Material:	Nylon
	IP Rating:	IP68
	Cable Diameter:	0.17"-0.22" Cable Diameter
	Location:	Enclosure Bottom



### Enclosure Ordering Information

CM-7500H	-XX	-XX	-XX	Description
	-FG			NEMA 4X, IP66, Fiberglass Enclosure with Door Window
	-PS			NEMA 4, IP66, Painted Steel Enclosure with Door Window
	-SS			NEMA 4X, IP66, Stainless Steel Enclosure with Door Window
		-01		For One CM-4 (14"x12"x6")
		-02		For up to Two CM-4's (16"x14"x8")
		-04		For up to Four CM-4's (24"x20"x8")
			-00	Without Cord Grips
			-CG	With Cord Grips

### Din Rail Clip

<b>CM-7500DR</b>	Din Rail Mounting Clip and Adapter Plate
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