

CMCP7504 Machine Monitoring System



User Manual

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1. CMCP7504 System Overview

STI's CMCP7504 is a general-purpose monitoring system capable of continuously monitoring up to 4 channels of vibration, position or temperature sensors. The CMCP7504 can be configured to operate as a standalone protection system or it can be connected to a host device such as a PLC, DCS or SCADA system. The local bar graph displays provides the overall amplitudes and alarm status.

1-1. Introduction to the CMCP7504

The CMCP7504 System is comprised of a series of sub-modules:

- VA - Velocity Module (Accelerarion to Velocity)
- VV - Velocity Module (Velocity to Velocity)
- RV – Radial Vibration Module
- RV – Radial Vibration Module
- TP – Thrust Position (Axial Position) Module
- AI - Analogue Module (Process Data)
- GE - Acceleration Enveloping Module

The (VA) Velocity Module is for connecting to Piezoelectric accelrometer with a mV/g output. The signal is processed for continuous monitoring and the overall amplitude is converted into a proportional current (4-20mA) output for transfer to a PLC, DCS or other facility control system. Velocity can be displayed in terms of either In/Sec or mm/Sec in RMS or Peak detection.

The (VV) Velocity Module is for connecting to Piezo-Velocity sensor with a mV/in/s or mm/in/s output. The signal is processed for continuous monitoring and the overall amplitude is converted into a proportional current (4-20mA) output for transfer to a PLC, DCS or other facility control system. Velocity can be displayed in terms of either In/Sec or mm/Sec in RMS or Peak detection.

The (RV) Radial Vibration Module is for connecting eddy current probe systems (also refered to as a proximity probe system) with a mV/mil or mV/mm output. The signal is processed for continuous monitoring and the overall amplitude is converted into a proportional current (4-20mA) output for transfer to a PLC, DCS or other facility control system. Radial vibration can be displayed in terms of mils or microns Peak to Peak.

The (TP) Thrust Position (Axial Position) Module is connected to eddy current probe system (also refered to as a proximity probe system) with a mV/mil or mV/mm output. The signal is processed for continuous monitoring and the overall amplitude is converted into a proportional current (4-20mA) output for transfer to a PLC, DCS or other facility control system. Thrust Position can be displayed in terms of millimeters (mm) or microns (μm).

The (AI) Analog Input Module is connected to analog signal (4 to 20mA or 1 to 5VDC). The signal is processed for continuous monitoring and the overall amplitude is converted into a proportional current (4-20mA) output for transfer to a PLC, DCS or other facility control system. Analog Inputs can be displayed in the user choice of terms.

The (GE) Enveloped Acceleration Module is connected to a Piezoelectric accelerometer with a mV/g output. The signal is processed to calculate an Acceleration Enveloping value within a selected bandwidth, 0-1,000Hz (Filter #2) or 500-10,000Hz (Filter #3), for continuous monitoring and the overall amplitude is converted into a proportional current (4-20mA) output for transfer to a PLC, DCS or other facility control system. Enveloped Acceleration can be displayed in terms if gE.

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The CMCP7504 Machine Monitoring System is designed to comply with API670 standard, and hence also offers machine protection functions. It provides 2 contact relay outputs, 1 for alert & 1 for danger for each channel.

For each channel, the raw vibration sensor signal is available as a buffered output. These outputs are available at the BNC connectors located on the front panel and also on a terminal block inside the housing. These buffered outputs are commonly used to connect portable or permanently installed external analyses devices in parallel to the CMCP7504 system for diagnostics.

The configuration of each channel's processing parameters (for example, measurement unit or alarm setpoints) is performed using a simple configuration software called the MMS Manager, which is connected to the device via USB cable.

1-1. Functional and Parts Description



1. Display Module

The display module shows the overall value, bar graph, user defined alert and danger setpoints, point name and sensor operating status for each channel.

2. Push Buttons

A simple push button keypad is used to reset relays for each channel. To reset, simply highlight the channels and click OK.

3. BNC Buffered Outputs

For each channel, the raw sensor signal is available as a buffered output on a BNC connector. The BNC connectors may be used to connect portable data collectors for further signal diagnostics.

1-3. Sensor Input Options and Characteristics

The CMCP7504 supports accelerometers, velocity transducers, eddy current probe (proximity) sensors, and all voltage or current outputs sensors. Once processed, the signal data can be then used for continuous monitoring and analog output processing for transfer to a PLC or DCS System.

Refer to the below table for available sensor and sensitivity combinations ;

Channels	Modules	characteristic of input signal		
		sensor type	sensitivity	frequency range
CH01 to CH04	Velocity Module (VA)	Accelerometer	100mV/g, 500mV/g	10 to 1,000 Hz 2 to 2,000 Hz
	Velocity Module (VV)	Velocity Transducer	100mV/ips	10 to 1,000 Hz 2 to 2,000 Hz
	Acceleration Module (AC)	Accelerometer	100mV/g, 500mV/g	2 to 20 kHz
	Displacement Module (RV)	Eddy Probe System	200mils, 100mils	2 to 2,000 Hz
	Axial Position Module (TP)	Eddy Probe System	200mils, 100mils	DC
	Analogue Module (AI)	Process signal & Sensor	4 to 20mA, 1~5VDC	N/A
	Acceleration Enveloping Module (GE)	Accelerometer	100mV/g, 500mV/g	Filter #2,3

Table 1. Available Sensor & Characteristic Combinations for the CMCP7504

Referring to Table 1, the frequency and Sensor Sensitivity options can be set using a jumper on each module :

- 1) Default Factory Setting for Frequency range is 10 to 1,000Hz. The Range 2 to 2,000Hz setting must be specified at order.
- 2) Default Factory Setting for Sensor Sensitivity is 100mV/g. The 500mV/g Sensitivity setting must be specified at order.
- 3) Default Factory Setting for Eddy probe Sensor Sensitivity is 200mV/mil. The 100mV/mil Sensitivity setting must be specified at order.

1-4. How to Set Sensitivity & Frequency Range

1) Velocity Module, Accelerometer Input (VA)



► ICP ON/OFF

SW1	Function
ON	ICP ON
OFF	ICP OFF

► Frequency Range

SW2	SW3	SW4	Frequency
OFF	ON	OFF	100Hz~
ON	OFF	ON	20Hz~

► Full Scale (Accelerometer Sensitivity : 100mV/g)

SW5	SW6	SW7	English	Metric
ON	OFF	OFF	0.5 in/s	12.5 mm/s
OFF	ON	OFF	1.0 in/s	25.0 mm/s
ON	ON	OFF	1.5 in/s	37.5 mm/s
OFF	ON	ON	2.0 in/s	50.0 mm/s
ON	ON	ON	2.5 in/s	62.5 mm/s

2) Acceleration Module (AC)



Frequency Range	Set Jumpers	Remarks
2 to 2,000 Hz	None	

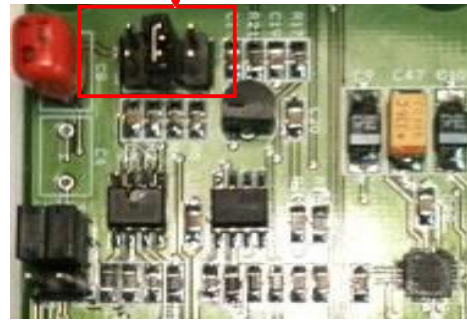
Accelerometer Sensitivity : **100mV/g**

Set Jumpers	Velocity Module	
	English	Metric
E1	5.0 g	49.0 m/s ²
E2	10.0 g	98.0 m/s ²
E1+E2	15.0 g	147 m/s ²
E2+E3	20.0 g	196 m/s ²
E1+E2+E3	25.0 g	245 m/s ²

Accelerometer Sensitivity : **500mV/g**

Set Jumpers	Velocity Module	
	English	Metric
E1	1.0 g	9.8 m/s ²
E2	2.0 g	19.6 m/s ²
E1+E2	3.0 g	29.4 m/s ²
E2+E3	4.0 g	39.2 m/s ²
E1+E2+E3	5.0 g	49.0 m/s ²

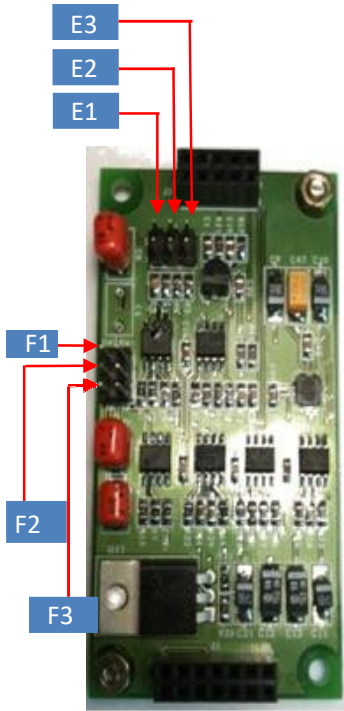
E type Jumper



**** Important ****

Jumper Should be installed vertically.

3) Velocity Module (VV)



Frequency Range	Set Jumpers	Remarks
10 to 1,000 Hz	F1 +F2	
2 to 2,000 Hz	F2 + F3	

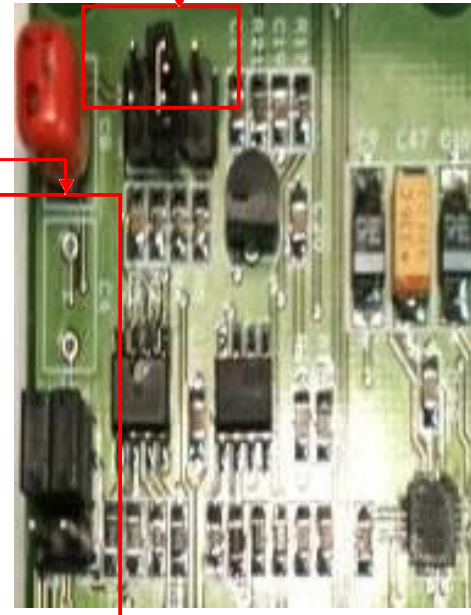
Velocity Sensitivity : **100mV/in/s**

Set Jumpers	Velocity Module	
	English	Metric
E1	0.5 in/s	12.5 mm/s
E2	1.0 in/s	25.0 mm/s
E1+E2	1.5 in/s	37.5 mm/s
E2+E3	2.0 in/s	50.0 mm/s
E1+E2+E3	2.5 in/s	62.5 mm/s

Velocity Sensitivity : **500mV/in/s**

Set Jumpers	Velocity Module	
	English	Metric
E1	0.1 in/s	2.5 mm/s
E2	0.2 in/s	5.0 mm/s
E1+E2	0.3 in/s	7.5 mm/s
E2+E3	0.4 in/s	10.0 mm/s
E1+E2+E3	0.5 in/s	12.5 mm/s

E type Jumper



**** Important ****

Jumper Should be installed vertically.

F type Jumper

4) Displacement Module (RV)



Frequency Range	Set Jumpers	Remarks
2 to 2,000 Hz	None	

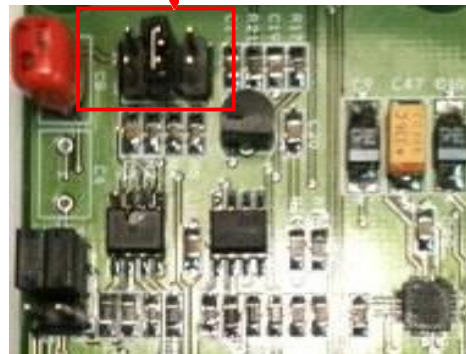
Displacement Probe Sensitivity : **200mils or 7.87mV/μm**

Set Jumpers	Velocity Module	
	English	Metric
E1	5.0 mils	127.0 μm
E2	10.0 mils	254.0 μm
E1+E2	15.0 mils	381.0 μm
E2+E3	20.0 mils	508.0 μm
E1+E2+E3	25.0 mils	635.0 μm

Displacement Probe Sensitivity : **100mils or 3.944mV/μm**

Set Jumpers	Velocity Module	
	English	Metric
E1	10.0 mils	254.0 μm
E2	20.0 mils	381.0 μm
E1+E2	30.0 mils	508.0 μm
E2+E3	40.0 mils	635.0 μm
E1+E2+E3	50.0 mils	1270.0 μm

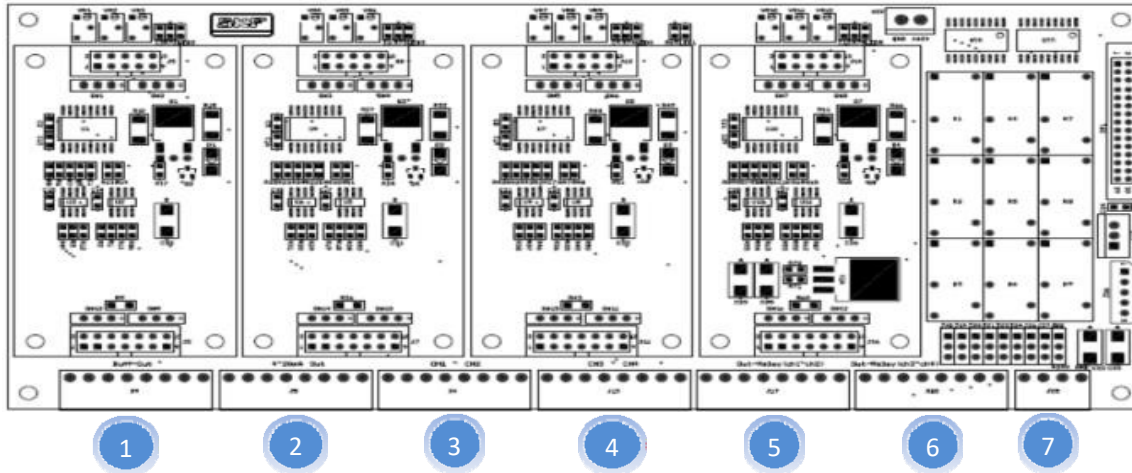
E type Jumper



**** Important ****

Jumper Should be installed vertically.

1-5. Connection & Wiring for MMS Module



1 Buffered Output

Channels	Pin Assigned	Description
1	1	CH01 Buffered Out (+)
	5	CH01 Buffered Out (-)
2	2	CH02 Buffered Out (+)
	5	CH02 Buffered Out (-)
3	3	CH03 Buffered Out (+)
	5	CH03 Buffered Out (-)
4	4	CH04 Buffered Out (+)
	5	CH04 Buffered Out (-)

2 4 to 20mA Output

Channels	Pin Assigned	Description
1	1	CH01 4 to 20mA Out (+)
	2	CH01 4 to 20mA Out (-)
2	3	CH02 4 to 20mA Out (+)
	4	CH02 4 to 20mA Out (-)
3	5	CH03 4 to 20mA Out (+)
	6	CH03 4 to 20mA Out (-)
4	7	CH04 4 to 20mA Out (+)
	8	CH04 4 to 20mA Out (-)

3 Input Channels For Channel 01 & 02

Channels	Pin Assigned	Description
1	1	CH01 PWR
	2	CH01 SIG (+)
	3	CH01 GND (-)
	4	CH01 SHEILD
2	5	CH02 PWR
	6	CH02 SIG (+)
	7	CH02 GND (-)
	8	CH02 SHEILD

4 Input Channels For Channel 03 & 04

Channels	Pin Assigned	Description
3	1	CH03 PWR
	2	CH03 SIG (+)
	3	CH03 GND (-)
	4	CH03 SHEILD
4	5	CH04 PWR
	6	CH04 SIG (+)
	7	CH04 GND (-)
	8	CH04 SHEILD

5 Relay Output Channels For Channel 01 & 02

Channels	Pin Assigned	Description
1	1	CH01 Alert (+)
	2	CH01 Alert (-)
	3	CH01 Danger (+)
	4	CH01 Danger (-)
2	5	CH02 Alert (+)
	6	CH02 Alert (-)
	7	CH02 Danger (+)
	8	CH02 Danger (-)

6 Relay Output Channels For Channel 01 & 02

Channels	Pin Assigned	Description
3	1	CH03 Alert (+)
	2	CH03 Alert (-)
	3	CH03 Danger (+)
	4	CH03 Danger (-)
4	5	CH04 Alert (+)
	6	CH04 Alert (-)
	7	CH04 Danger (+)
	8	CH04 Danger (-)

7 System Relay Out & Power

Channels	Pin Assigned	Description
-	1	System Relay (+)
	2	System Relay (-)
	3	DC Power (+)
	4	DC Power (-)

2-1. Configuration Software Overview (MMS Manager)

The user can configure the following parameters with MMS Manager Software ;

- Com Port Setting for RS232 communication
- Configuration File Save & Load
- Measurement Point Name
- Input Signal Type
- Engineering Unit
- Alarm level Set up : Alert & Danger Level
- Alarm Operating Type
- Relay Type & Delay Time
- Full Scale (Min / Max)
- View Scale
- Scale (4 to 20mA)
- Offset (4 to 20mA)

2. Configuration

The screenshots below will show how the MMS Manager Software is used to program the CMCP7504.

2.1 Point Name

The user can input any point name desired though abbreviations may be required due to spacing.

CMCP7500 Series

	CH1	CH2	CH3	CH4
Point Name	Test ch1	Test ch2	Test ch3	Test ch4
Used/Not Used	Used	Used	Used	Used
Input Type	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)
Signal Type	Vel	Vel	Vel	Vel
Engineering Unit	mm/s RMS	mm/s RMS	mm/s RMS	mm/s RMS
Voltage Check	Check	Check	Check	Check
Alarm Setting Danger	10.0	10.0	10.0	10.0
Alarm Setting Alert	5.0	5.0	5.0	5.0
Relay Operating Type	NonLatch	NonLatch	NonLatch	NonLatch
Relay (NE/NDE)	NE	NE	NE	NE
Relay Delay Time(ms)	0.0	0.0	0.0	0.0
Signal Full Scale Max	25.0	25.0	25.0	25.0
Signal Full Scale Min	0.0	0.0	0.0	0.0
View Scale Max	15.0	15.0	15.0	15.0
View Scale Min	0.0	0.0	0.0	0.0
Offset(4~20mA)Max	0.92	0.92	0.92	0.92
Offset(4~20mA)Min	-88	-88	-88	-88
Ver2.1	Send Set Ch1	Send Set Ch2	Send Set Ch3	Send Set Ch4

ModBus

Baud: b960C
Data: d8
Stop: s1
Parity: NON

ModBus Address

Slave No.: 1

Analog Value: 1
Analog Status: 5
Analog DC-bias: 9
System Disarm St: 13

Serial Number

Send Set Data

Com Port: Connect, Dis Con, Setup, Save, Load

2.2 Input Signal Type

The signal type is determined by the input module type. Verify the setup screen is programmed in the same order as the input modules are installed on the main board.

CMCP7500 Series

	CH1	CH2	CH3	CH4
Point Name	Test ch1	Test ch2	Test ch3	Test ch4
Used/Not Used	Used	Used	Used	Used
Input Type	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)
Signal Type	Vel	Vel	Vel	Vel
Engineering Unit	mm/s RMS	mm/s RMS	mm/s RMS	mm/s RMS
Voltage Check	Check	Check	Check	Check
Alarm Setting Danger	10.0	10.0	10.0	10.0
Alarm Setting Alert	5.0	5.0	5.0	5.0
Relay Operating Type	NonLatch	NonLatch	NonLatch	NonLatch
Relay (NE/NDE)	NE	NE	NE	NE
Relay Delay Time(ms)	0.0	0.0	0.0	0.0
Signal Full Scale Max	25.0	25.0	25.0	25.0
Signal Full Scale Min	0.0	0.0	0.0	0.0
View Scale Max	15.0	15.0	15.0	15.0
View Scale Min	0.0	0.0	0.0	0.0
Offset(4~20mA)Max	0.92	0.92	0.92	0.92
Offset(4~20mA)Min	-88	-88	-88	-88
Ver2.1	Send Set Ch1	Send Set Ch2	Send Set Ch3	Send Set Ch4

ModBus

Baud: b960C
Data: d8
Stop: s1
Parity: NON

ModBus Address

Slave No.: 1

Analog Value: 1
Analog Status: 5
Analog DC-bias: 9
System Disarm St: 13

Serial Number

Send Set Data

Com Port: Connect, Dis Con, Setup, Save, Load

2.3 Engineering Units

The engineering units drop down box allows the user to set the desired units in English or metric. The selected units should be set according to the layout of the sensor input modules.

The screenshot shows the configuration interface for the CMCP7500 Series. The 'Engineering Unit' dropdown menu for CH1 is highlighted with a red box, showing options: mm/s RMS, mm/s Peak, in/s RMS, in/s Peak, g RMS, g Peak, m/s² RMS, and m/s² Peak. The 'mm/s RMS' option is selected.

2.4 Alarm Level Setup and Relay Status

This section allows the user to set both the Alert and Danger setpoints along with the time delay and relay status. Relays can be set for Normally Energized or Normally De-Energized. There are 3 levels of relay operation

The screenshot shows the configuration interface for the CMCP7500 Series. The 'Alarm Setting Danger' and 'Alarm Setting Alert' fields for CH1 are highlighted with a red box. The 'Alarm Setting Danger' field is set to 10.0 and the 'Alarm Setting Alert' field is set to 5.0.

Relay Operating Type

1. Non-Latching
When the relays are set to non-latching, the relays will automatically clear once the amplitude drops below the programmed threshold.
2. Latching
When the relays are set to latching, the relays will hold their state until the reset button is depressed.
3. Bypass
When the relays are set to bypass, the relays will not change state when an alarm threshold is reached.

Relay NE/NDE

1. When set to NE, the relays are normally energized (relay opens on alarm)
2. When set to NDE, the relays are normally de-energized (relay closes on alarm)

Relay Delay Time (ms)

A time delay of 0 to 10,000 milliseconds (ms) can be added to each alarm

2.5 Full Scale Setup (Min and Max)

This setting is the scope of factory calibration. Do not change this value.

CMCP7500 Series

	CH1	CH2	CH3	CH4
Point Name	Test ch1	Test ch2	Test ch3	Test ch4
Used/Not Used	Used	Used	Used	Used
Input Type	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)
Signal Type	Vel	Vel	Vel	Vel
Engineering Unit	mm/s RMS	mm/s RMS	mm/s RMS	mm/s RMS
Voltage Check	Check	Check	Check	Check
Alarm Setting Danger	10.0	10.0	10.0	10.0
Alarm Setting Alert	5.0	5.0	5.0	5.0
Relay Operating Type	NonLatch	NonLatch	NonLatch	NonLatch
Relay (NE/NDE)	NE	NE	NE	NE
Relay Delay Time(ms)	0.0	0.0	0.0	0.0
Signal Full Scale Max	25.0	25.0	25.0	25.0
Signal Full Scale Min	0.0	0.0	0.0	0.0
View Scale Max	15.0	15.0	15.0	15.0
View Scale Min	0.0	0.0	0.0	0.0
Offset(4~20mA)Max	0.92	0.92	0.92	0.92
Offset(4~20mA)Min	-88	-88	-88	-88
Ver2.1	Send Set Ch1	Send Set Ch2	Send Set Ch3	Send Set Ch4

ModBus	
Baud	b960C
Data	d8
Stop	s1
Parity	NON
ModBus Address	
Slave No.	1
Analog Value	1
Analog Status	5
Analog DC-bias	9
System Disarm St	13
Serial Number	
Send Set Data	

Com Port: Connect, Dis Con, Setup, Save, Load

Caution: The "Signal Full Scale" tab is set and calibrated by the factory. Use of any full scale value other than the default value may impair the measurement accuracy.

2.6 View Scale

The user can configure the view scale of display windows.

CMCP7500 Series

	CH1	CH2	CH3	CH4
Point Name	Test ch1	Test ch2	Test ch3	Test ch4
Used/Not Used	Used	Used	Used	Used
Input Type	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)
Signal Type	Vel	Vel	Vel	Vel
Engineering Unit	mm/s RMS	mm/s RMS	mm/s RMS	mm/s RMS
Voltage Check	Check	Check	Check	Check
Alarm Setting Danger	10.0	10.0	10.0	10.0
Alarm Setting Alert	5.0	5.0	5.0	5.0
Relay Operating Type	NonLatch	NonLatch	NonLatch	NonLatch
Relay (NE/NDE)	NE	NE	NE	NE
Relay Delay Time(ms)	0.0	0.0	0.0	0.0
Signal Full Scale Max	25.0	25.0	25.0	25.0
Signal Full Scale Min	0.0	0.0	0.0	0.0
View Scale Max	15.0	15.0	15.0	15.0
View Scale Min	0.0	0.0	0.0	0.0
Offset(4~20mA)Max	0.92	0.92	0.92	0.92
Offset(4~20mA)Min	-88	-88	-88	-88
Ver2.1	Send Set Ch1	Send Set Ch2	Send Set Ch3	Send Set Ch4

ModBus	
Baud	b960C
Data	d8
Stop	s1
Parity	NON
ModBus Address	
Slave No.	1
Analog Value	1
Analog Status	5
Analog DC-bias	9
System Disarm St	13
Serial Number	
Send Set Data	

Com Port: Connect, Dis Con, Setup, Save, Load

2.7 Scale Offset (4-20mA)

This setting is the scope of factory calibration. Do not change this value.

CMCP7500 Series ×

	CH1	CH2	CH3	CH4	ModBus
Point Name	Test ch1	Test ch2	Test ch3	Test ch4	
Used/Not Used	Used	Used	Used	Used	Baud b960C
Input Type	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)	<input type="checkbox"/> IN(4~20mA)	Data d8
Signal Type	Vel	Vel	Vel	Vel	Stop s1
Engineering Unit	mm/s RMS	mm/s RMS	mm/s RMS	mm/s RMS	Parity NON
Voltage Check	Check	Check	Check	Check	ModBus Address
Alarm Setting Danger	10.0	10.0	10.0	10.0	Slave No. 1
Alarm Setting Alert	5.0	5.0	5.0	5.0	Analog Value 1
Relay Operating Type	NonLatch	NonLatch	NonLatch	NonLatch	Analog Status 5
Relay (NE/NDE)	NE	NE	NE	NE	Analog DC-bias 9
Relay Delay Time(ms)	0.0	0.0	0.0	0.0	System Disarm St 13
Signal Full Scale Max	25.0	25.0	25.0	25.0	Serial Number
Signal Full Scale Min	0.0	0.0	0.0	0.0	-
View Scale Max	15.0	15.0	15.0	15.0	Send Set Data
View Scale Min	0.0	0.0	0.0	0.0	
Offset(4~20mA)Max	0.92	0.92	0.92	0.92	
Offset(4~20mA)Min	-88	-88	-88	-88	
Ver2.1	Send Set Ch1	Send Set Ch2	Send Set Ch3	Send Set Ch4	

Caution: The "Offset" tab is set and calibrated by the factory.

2.9 Uploading Configuration File (Set Data)

After all measurement parameters have been selected, click "Send Set Ch1" and the setting value will be uploaded to the CMCP7504. Click the remaining Send Set buttons for channels 2-4. If desired, a single channel may be configured or changed. Verify that the CMCP7504 shows the current updates and disconnect USB cable.

2.10 Saving the Configuration File (Save File)

Click Save File to store a copy of the configuration on your local drive.

2.11 Uploading Configuration File (Load File)

If a local copy of the configuration file cannot be found, connect a USB cable to the CMCP7504 and click "Load File"

Technical Specifications

Power Requirements

Supply Voltage: 90 to 240VAC to Internal Power Supply
24VDC Direct to Main Board
Power Consumption: 30W
Relay Rating: 1A @ 250VAC

Input Signal

Sensor Types: Accelerometers, Velocity Transducers, Eddy Current Probes, All Analog Output Sensors
Sensor for Tach: Induction Tachometer (2 or 3 wire), Eddy Probe or TTL
Sensitivity: Jumper Selectable
Frequency Range: Jumper Selectable
Sensor OK: Continuous Monitoring of BOV or Gap Voltage
If voltage exceeds the limit the 4-20mA will drop to 2mA

Output Signal

Buffered Output: Per Channel, BNC and Terminal Block Output
Buffered Output Sensitivity: Same as Sensor
Accuracy: +/-1%
Analog Output: Isolated 4-20mA

Environmental

Operating Temperature: -20 to 80°C (-4 to 176°F)
Storage Temperature: -55 to 125°C (-67 to 257°F)
Humidity: 0-90% Relative Humidity, Non-Condensing
IP Rating: IP65

Mechanical

Weight: 6.5 Lbs (2.95kg)
Color: Power Coated Gray
Dimensions: 10.24" x 6.3" x 3.54" (260x160x90mm)