

## CMCP5000 Condition Monitoring System

### Features:

- CMCP500 Series Transmitters
- World's Most Popular HMI
- Machine Mimics
- Historical and Real Time Trending
- Current and Historical Alarm Lists
- Standard MODBUS A to D Converter
- Other Protocols Optional
- Desktop or Rack-Mount Touch-Screen
- Overall, Rate of Change, and SPC Alarms
- Makes Use of Existing or Dedicated Networks



CMCP5000 With Touch-Screen Rack-Mount PC

### Description:

The CMCP5000 incorporates Wonderware Factory-Suite, the leading independent developer of industrial automation or HMI (human-machine-interface) applications. Applications are available for condition monitoring of one or all of your plant assets.

The CMCP5000 allows a plant operator to view vibration and machine condition data in the control room for comparison with other operating parameters as well as historical data.

Wonderware InTouch Software offers Machine Mimics, with easily programmable alarms in overall, rate of change, or SPC. Mimics are a visual interpretation of the various machines and the status of each of the alarms. When coupled with the touch-screen PC option, this provides a simple, intuitive interface for monitoring machines and making decisions based on the information provided.

Each CMCP5000 system includes a selection of appropriate CMCP500 series transmitters, analog to digital converters, setup module, programming, and a desktop PC or an optional panel-mount touch-screen computer complete with Windows 2000 and all necessary programming.

The CMCP5000 system is available in standard configurations for systems in 8 channel increments from 8 to 64 channels, and custom configurations for up to thousands of channels. It is supplied in a NEMA 4, powder coated steel enclosure with window, containing transmitters, power supply, and A/D converters. Any combination of CMCP500 series transmitters may be used. A complete list of available CMCP transmitters is included in this data sheet. When selecting a transmitter, please specify complete part number for each transmitter desired.



# CMCP5000 Condition Monitoring System

## Wonderware Overview:

Wonderware InTouch® HMI software is designed to visualize and control industrial processes. It offers operators a simple to use environment and extensive functionality to rapidly create, test and deploy powerful automation and monitoring applications that deliver real-time information.

InTouch software is an open and extensible HMI (human-machine-interface) that enables flexibility in custom application design while connectivity to the broadest set of automation devices in the industry.

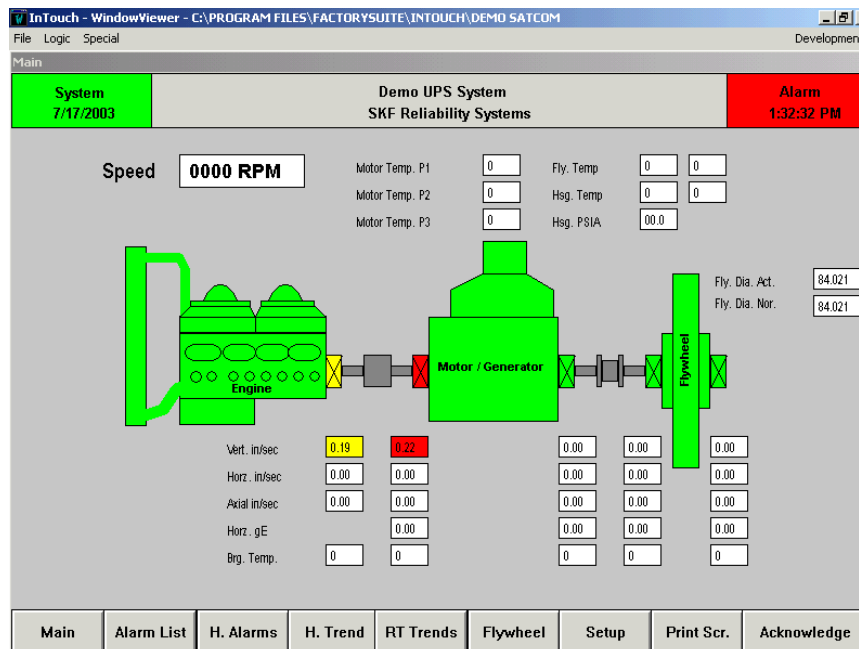
Set up with the CMCP500 series of transmitters and proper Analog-to-Digital Converters, Wonderware is a powerful, yet easy to operate interface for you condition monitoring needs.



CMCP5000 System With Desktop PC Running Wonderware InTouch® HMI Software



## Screen Samples From Wonderware:



Machine Mimic Page Example



Condition Monitoring Custom Products

**CMCP5000**

The screenshot shows a software window titled "InTouch - WindowViewer" displaying the "Current Alarm List Page Example". The window has a menu bar (File, Logic, Special) and a toolbar (Main, Alarm List, H. Alarms, H. Trend, RT Trends, Flywheel, Setup, Print Scr., Acknowledge). The main content area is titled "Alarm List" and shows a table of active alarms for a "Demo UPS System" on "7/17/2003". The table has columns for Date, Time, Class, Type, Priority, Name, Group, and Provider. Two alarms are listed:

Date	Time	Class	Type	Priority	Name	Group	Provider
17/07/03	13:31:15	VALUE	HIHI	1	MtrlBVVel	\$System	\intouch
17/07/03	13:31:15	VALUE	HI	1	EnglBVVel	\$System	\intouch

Below the table, there is a status bar with "Update Successful" and "Default Query" buttons. A navigation bar at the bottom contains buttons for "Main", "Alarm List", "H. Alarms", "H. Trend", "RT Trends", "Flywheel", "Setup", "Print Scr.", and "Acknowledge".

Current Alarm List Page Example

The screenshot shows a software window titled "InTouch - WindowViewer" displaying the "Historical Alarm List Page Example". The window has a menu bar (File, Logic, Special) and a toolbar (Main, Alarm List, H. Alarms, H. Trend, RT Trends, Flywheel, Setup, Print Scr., Acknowledge). The main content area is titled "Historical Alarms" and shows a table of historical alarms for a "Demo UPS System" on "7/17/2003". The table has columns for Date, Time, Class, Type, Priority, Name, Group, and Provider. Five historical alarms are listed:

Date	Time	Class	Type	Priority	Name	Group	Provider
17 Jul	13:31	VALUE	HIHI	1	MtrlBVVel	\$System	\intouch
17 Jul	13:31	VALUE	HI	1	EnglBVVel	\$System	\intouch
17 Jul	13:31	VALUE	HI	1	EnglBVVel	\$System	\intouch
17 Jul	13:30	VALUE	HIHI	1	MtrlBVVel	\$System	\intouch
17 Jul	13:30	VALUE	HI	1	MtrlBVVel	\$System	\intouch

Below the table, there is a status bar with "Update Successful" and "Default Query" buttons. A navigation bar at the bottom contains buttons for "Main", "Alarm List", "H. Alarms", "H. Trend", "RT Trends", "Flywheel", "Setup", "Print Scr.", and "Acknowledge".

Historical Alarm List Page Example

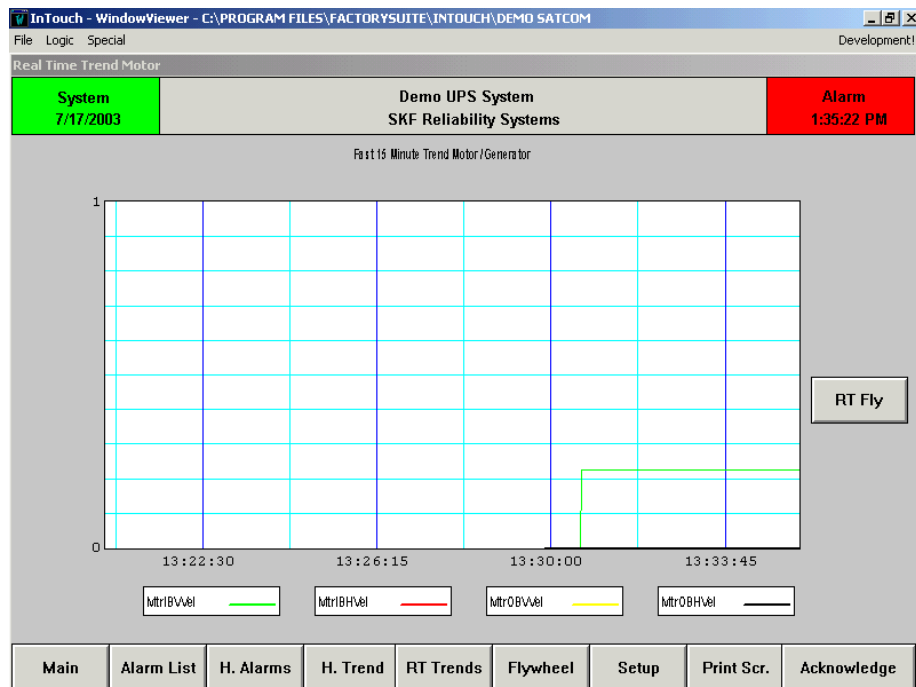


Condition Monitoring Custom Products

# CMCP5000 Condition Monitoring System



Historical Trend Page Example



Fast Trend Page Example



Condition Monitoring Custom Products

# CMCP5000 Condition Monitoring System

InTouch - WindowViewer - C:\PROGRAM FILES\FACTORYSUITE\INTOUCH\DEMO SATCOM

File Logic Special Development!

Setup

<b>System</b> 7/17/2003		<b>Demo UPS System</b> SKF Reliability Systems						<b>Alarm</b> 1:36:07 PM	
Tagname	S	Scale	Enable	Current	LoLo Alarm	Lo Alarm	Hi Alarm	HiHi Alarm	Dead Band
EnglBVVel		0 - 0.50 in/sec	1	0.19	0.00	0.00	0.18	0.21	0.01
EnglBVVel		0 - 0.50 in/sec	1	0.00	0.00	0.00	0.15	0.20	0.01
EnglBAVel		0 - 0.50 in/sec	1	0.00	0.00	0.00	0.15	0.20	0.01
EnglBDegF		-58 - 248 F	1	000	000	000	188	199	001
MtrlBVVel		0 - 0.50 in/sec	1	0.22	0.00	0.00	0.16	0.18	0.01
MtrlBHVel		0 - 0.50 in/sec	1	0.00	0.00	0.00	0.15	0.20	0.00
MtrlBAVel		0 - 0.50 in/sec	1	0.00	0.00	0.00	0.15	0.20	0.00
MtrlBgE		0 - 10.00 gE	1	0.00	0.00	0.00	2.00	3.00	0.01
MtrlBDegF		-58 - 248 F	1	000	000	000	190	200	001
MtrOBVVel		0 - 0.50 in/sec	1	0.00	0.00	0.00	0.15	0.20	0.00
MtrOBHVel		0 - 0.50 in/sec	1	0.00	0.00	0.00	0.15	0.20	0.00
MtrOBAVel		0 - 0.50 in/sec	1	0.00	0.00	0.00	0.15	0.20	0.00
MtrOBgE		0 - 10.00 gE	1	0.00	0.00	0.00	2.00	3.00	0.01
MtrOBDegF		-58 - 248 F	1	000	000	000	190	200	000

< Previous Next >

Main Alarm List H. Alarms H. Trend RT Trends Flywheel Setup Print Scr. Acknowledge

Alert and Danger Alarm Setpoint Page Example

InTouch - WindowViewer - C:\PROGRAM FILES\FACTORYSUITE\INTOUCH\DEMO SATCOM

File Logic Special Development!

Flywheel

<b>System</b> 7/17/2003		<b>Demo UPS System</b> SKF Reliability Systems						<b>Alarm</b> 1:35:48 PM	
----------------------------	--	---	--	--	--	--	--	----------------------------	--

Sensor Inputs			Reference Data			Calculated Values	
	Act.	Set.	Calc.				
Eddy Probe 1	00.0	11.0	11.0	Flywheel Dia.	84.000	Flywheel Dia. for Calc.	84.000
Eddy Probe 2	00.0	10.0	10.0	Actual Variation	0.000	Hsg. Thermal Variation	0.0000
Flywheel Temp.	000 F			Temp. Static Set	00 F	Corrected Actual Fly. Dia.	84.021
Housing Temp	000 F			FW Thermal Factor	00 %	Calculated Speed Growth	0.0000
Speed	0000			Hsg. Thermal Factor	00 %	Calculated Growth Fly Temp	0.0000
						Normalized Flywheel Dia.	84.021

Main Alarm List H. Alarms H. Trend RT Trends Flywheel Setup Print Scr. Acknowledge

Custom Page Example  
Flywheel Data Screen



## CMCP5000 Condition Monitoring System

### Operation:

A Complete CMCP5000 System Will Consist Of:

- Sensors
- Field wiring from sensors to a junction box or straight to the CMCP5000 enclosure
- The CMCP5000 system itself
- One strand of twisted pair wire to the PC
- The PC programmed with Wonderware InTouch software

The signal for each sensor is wired to one CMCP500 series transmitter in the CMCP5000 enclosure. The transmitter powers the sensor and converts its output to a 4-20 mA signal that can be recognized by the Analog-to-Digital Converter. The converter processes this analog information and sends information digitally through one strand of twisted pair to the PC using MODBUS or other transfer protocols.

Wonderware InTouch software interprets this data and displays it graphically on the machine mimic page where operators can visually monitor current values and alarms. Wonderware also stores these values for historical trending.

CMCP also offers soft alarms that are controlled by the PC running Wonderware. Soft alarms are relays mounted near the machine that are controlled over existing or dedicated networks by the PC running the Wonderware software. This allows the operator to set and adjust alert and danger relays with the touch of a screen.

Many types of sensors and signals can be processed by the CMCP5000 system. There are standard CMCP500 transmitters, and CMCP can also use the 4-20 mA output from other sensors such as pressure, valve position and flow sensors.

### Standard Inputs:

- Vibration Acceleration (Accelerometer)
- Vibration Velocity (Accelerometer, or Velocity Transducer)
- Integrating Vibration Displacement (Velocity Transducer)
- Displacement (Eddy Current Probe)
- Position (Eddy Current Probe)
- Temperature (RTD, Thermocouple and Solid State)
- Speed (Eddy Current Probe, or Proximity Switch)
- Process (1-5 VDC, 0-10 VDC, 4-20 mA, or 0-20 mA inputs)



# CMCP5000 Condition Monitoring System

## Ordering Information:

Ordering a CMCP5000 is a two step process. The first step is to select the channel count, communication protocol, and desktop or panel-mount computer. For example CMCP5000-06-01-02 would be 41-48 channel count monitoring system in a painted steel window enclosure communicating via MODBUS to a 12" rack-mount touch-screen PC.

The second step is choosing the machine drawing (mimic) that will be displayed in Wonderware, and the channel count, type, name and applicable CMCP500 transmitter. Use the forms provided in this data sheet to sketch the machine train, select the channels desired per train, and the appropriate transmitters.

## Step 1:

Selection of Channel Count, Communication Protocol, and Computer

CMCP5000	-XX	-XX	-XX	Description
	01			8 Channels
	02			9 - 16 Channels
	03			17 - 24 Channels
	04			25 - 32 Channels
	05			33 - 40 Channels
	06			41 - 48 Channels
	07			49 - 56 Channels
	08			57 - 64 Channels
		01		MODBUS RS485
		02		Specify Protocol
			01	Desktop Computer
			02	12" Viewable Rugged Industrial Touch-Screen Panel-Mount Computer
			03	15" Viewable Rugged Industrial Touch-Screen Panel-Mount Computer

## Additional Notes:

- 4 hours of custom programming is included with each 8 channels purchased. Additional programming available at increased cost.
- Enclosure is also available in NEMA 4X stainless steel
- Class I Division 2 industrial touch-screen PC available
- Request quote for other protocols such as Ethernet and DeviceNet
- Purged enclosures available
- Optional soft relays for machine shutdown, etc.
- Optional hard relays available in housing with CMCP500 transmitters (CMCP500 series monitors)



# CMCP5000 Condition Monitoring System

## Step 2:

Select Transmitters and Machine Mimics and Channel Counts

### Available CMCP500 Series Transmitters

CMCP525 Acceleration Transmitter	-XXX Input	-XXX Full Scale	-XXX High Pass Filter	-XXX Low Pass Filter
	-100, 100mV/g Accelerometer			
	-Specify Exact mV/g			
		-01R, 0 to 5 g, RMS		
		-01P, 0 to 5 g, Peak		
		-02R, 0 to 10 g, RMS		
		-02P, 0 to 10 g, Peak		
			Freq. in Hz	
				Freq. in Hz

CMCP530 Velocity Transmitter	-XXX Input	-XXX Full Scale	-XXX High Pass Filter	-XXX Low Pass Filter
	-100A, 100 mV/g Accelerometer			
	-100V, 100 mV/in/sec Velocity Transducer			
	-500EV, 500 mV/in/sec Electro-Mechanical Pick Up			
		-01R, 0 to 0.5 in/sec, RMS		
		-01P, 0 to 0.5 in/sec, Peak		
		-02R, 0 to 1.0 in/sec, RMS		
		-02P, 0 to 1.0 in/sec, Peak		
		-04R, 0 to 2.0 in/sec, RMS		
		-04P, 0 to 2.0 in/sec, Peak		
		-51R, 0 to 12.5 mm/sec RMS		
		-51P, 0 to 12.5 mm/sec, Peak		
		-52R, 0 to 25 mm/sec, RMS		
		-52P, 0 to 25 mm/sec, Peak		
		-54R, 0 to 50 mm/sec RMS		
		-54P, 0 to 50 mm/sec, Peak		
			Freq. in Hz	
				Freq. in Hz





**Condition Monitoring Custom Products**

# CMCP5000 Condition Monitoring System

CMCP535 Integrating Velocity Transmitter	-XXX Input	-XXX Full Scale	-XXX High Pass Filter	-XXX Low Pass Filter
	-100V, 100mV/in/sec Velocity Transducer			
	-Specify Exact mV/in/sec			
		-01, 5 mils Peak to Peak		
		-02, 10 mils Peak to Peak		
		-03, 15 mils Peak to Peak		
		-51, 125 µm Peak to Peak		
		-52, 250 µm Peak to Peak		
		-53, 375 µm Peak to Peak		
			Freq. in Hz	
				Freq. in Hz

CMCP540 Displacement Transmitter	-XXX Input	-XXX Full Scale	-XXX High Pass Filter	-XXX Low Pass Filter
	-100, 100 mV/mil			
	-200, 200 mV/mil			
	-Specify Exact mV/mil			
		-01, 5 mils Peak to Peak		
		-02, 10 mils Peak to Peak		
		-03, 15 mils Peak to Peak		
		-51, 125 µm Peak to Peak		
		-52, 250 µm Peak to Peak		
		-53, 375 µm Peak to Peak		
		-Specify in 5 mil Increments		
			Freq. in Hz	
				Freq. in Hz



## CMCP5000 Condition Monitoring System

CMCP545 Position Transmitter	-XXX Input	-XXX Full Scale
	-100, 100 mV/mil	
	-200, 200 mV/mil	
	-Specify Exact mV/mil	
		-01, 20-0-20 mils
		-02, 40-0-40 mils
		-03, 0-40 mils
		-04, 0-80 mils
		-51, 0.5-0-0.5 mm
		-52, 1.0-0-1.0 mm
	-53, 0-1.0 mm	
	-54, 0-2.0 mm	
CMCP560 Isolated RTD Temperature Transmitter	-XXX Input	-XXX Full Scale
	-100P, 100 Ohm Platinum RTD	
		-01, 0-250 °F (-18 °C-120 °C)
		-02, 0-350 °F (-18 °C-175 °C)
	-03, 0-500 °F (-18 °C-260 °C)	
CMCP565 Thermocouple Temperature Transmitter	-XXX Input	-XXX Full Scale
	-J, J Type Thermocouple	
	-K, K Type Thermocouple	
		-01, 0-250 °F (-18 °C-120 °C)
		-02, 0-350 °F (-18 °C-175 °C)
	-03, 0-500 °F (-18 °C-260 °C)	
CMCP570 Solid State Temperature Transmitter	-XXX Input	-XXX Full Scale
	-01, CMSS793T-3 or CMSS793T-1	
	-01, 0-250 °F (-18 °C-120 °C)	



# CMCP5000 Condition Monitoring System

CMCP575 Speed Transmitter	-XXX Input	-XXX Counts Per Revolution	-XXX Full Scale
	-01, Output From Eddy Current Probe System		
	-02, Hall Effect Sensor (Proximity Switch)		
		-01, 1 Event per Shaft Revolution	
		-60, 60 Event per Shaft Revolution	
		-120, 120 Event per Shaft Revolution	
		-Specify Exact Number of Events	
			-01, 0-1000 RPM
			-02, 0-2000 RPM
			-05, 0-5000 RPM

CMCP580 Process Variable Transmitter	-XXX Input	-XXX Full Scale
	-01, 1-5 Vdc	
	-02, 0-10 Vdc	
	-03, 4-20 mA	
	-04, 0-20 mA	
		-01, 0-100%
		-Specify Desired Units and Range

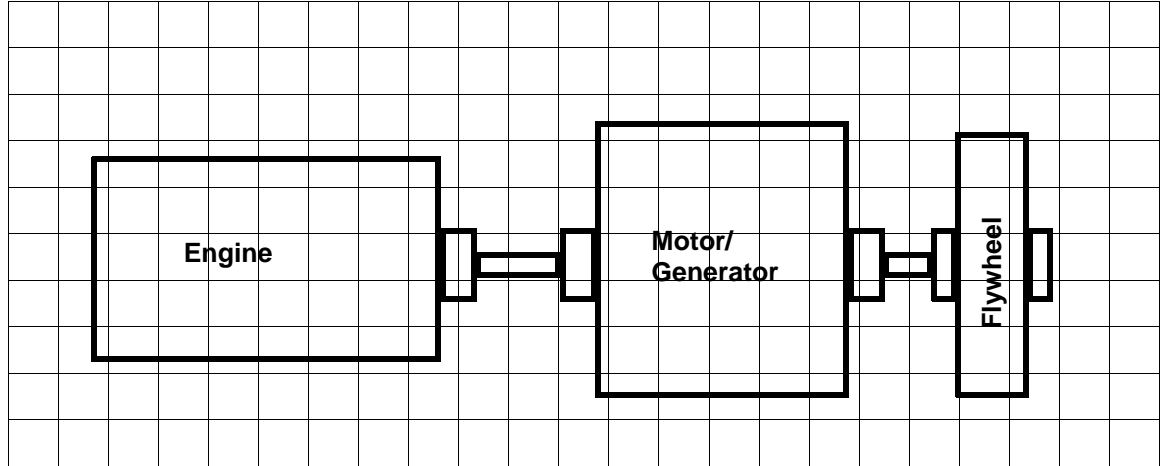


Condition Monitoring Custom Products

Machine Train \_\_\_\_\_ 1 \_\_\_\_\_ of \_\_\_\_\_ 1 \_\_\_\_\_

Page \_\_\_\_\_ 1 \_\_\_\_\_ of \_\_\_\_\_ 1 \_\_\_\_\_

1. Machine Drawing



2. Ma-

Name \_\_\_\_\_ H \_\_\_\_\_  
ID \_\_\_\_\_ Unit \_\_\_\_\_

EXAMPLE

Speed \_\_\_\_\_ Manufacturer \_\_\_\_\_

3. Channel Information

Ch. #	Tag Name	Transmitter Part Number	Bearing No.	Orientation	Alert Setpoint	Danger Setpoint
1	1BVVEL	CMCP530-100A-02R	1	H	0.15	0.19
2						
3						
4						
5						
6						
7						
8						

- 4. Attach Machine Drawing If Available
- 5. Use Additional Sheets If Needed

Name \_\_\_\_\_

Company \_\_\_\_\_

Contact Info \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Condition Monitoring Custom Products

Machine Train \_\_\_\_\_ of \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

1. Machine Drawing

Large empty grid for machine drawing.

2. Machine Train

Name \_\_\_\_\_ H.P. \_\_\_\_\_

ID \_\_\_\_\_ Unit \_\_\_\_\_

Speed \_\_\_\_\_ Manufacturer \_\_\_\_\_

3. Channel Information

Table with 7 columns: Ch. #, Tag Name, Transmitter Part Number, Bearing No., Orientation, Alert Setpoint, Danger Setpoint.

- 4. Attach Machine Drawing If Available
5. Use Additional Sheets If Needed

Name
Company
Contact Info

Form with 5 empty rows for contact information.



Condition Monitoring Custom Products

Machine Train \_\_\_\_\_ of \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

1. Machine Drawing

Large empty grid for machine drawing.

2. Machine Train

Name \_\_\_\_\_ H.P. \_\_\_\_\_

ID \_\_\_\_\_ Unit \_\_\_\_\_

Speed \_\_\_\_\_ Manufacturer \_\_\_\_\_

3. Channel Information

Table with 7 columns: Ch. #, Tag Name, Transmitter Part Number, Bearing No., Orientation, Alert Setpoint, Danger Setpoint.

- 4. Attach Machine Drawing If Available
5. Use Additional Sheets If Needed

Name
Company
Contact Info

Form with 5 empty rows for contact information.



Condition Monitoring Custom Products

Machine Train \_\_\_\_\_ of \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

1. Machine Drawing

Large empty grid for machine drawing.

2. Machine Train

Name \_\_\_\_\_ H.P. \_\_\_\_\_

ID \_\_\_\_\_ Unit \_\_\_\_\_

Speed \_\_\_\_\_ Manufacturer \_\_\_\_\_

3. Channel Information

Table with 7 columns: Ch. #, Tag Name, Transmitter Part Number, Bearing No., Orientation, Alert Setpoint, Danger Setpoint.

- 4. Attach Machine Drawing If Available
5. Use Additional Sheets If Needed

Name
Company
Contact Info

Form with 5 empty rows for contact information.



Condition Monitoring Custom Products

Machine Train \_\_\_\_\_ of \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_

1. Machine Drawing

Large empty grid for machine drawing.

2. Machine Train

Name \_\_\_\_\_ H.P. \_\_\_\_\_

ID \_\_\_\_\_ Unit \_\_\_\_\_

Speed \_\_\_\_\_ Manufacturer \_\_\_\_\_

3. Channel Information

Table with 7 columns: Ch. #, Tag Name, Transmitter Part Number, Bearing No., Orientation, Alert Setpoint, Danger Setpoint.

- 4. Attach Machine Drawing If Available
5. Use Additional Sheets If Needed

Name
Company
Contact Info

Form with 5 empty rows for contact information.