VibTrans-R

Extend the Life of Rotating Equipment

FORBES MARSHALL

VibTrans-R

The VibTrans-R 19'' Vibration Monitoring Rack, is the latest technology for maintaining safety in large industrial rotating machines.

VibTrans-R is a simple, machinery protection system, a cost effective solution to protect machines by giving online information which enables connect with the PLC or DCS of a plant and to take a shut down whenever required through proper planning.

It is a perfect solution to keep your machine running.

VibTrans-R is the right size, right price, right quality product with all the features for vibration monitoring needs.

Why do we need vibration monitoring?

Rotating machinery is the heart of any plant. It is very essential to run a machine at high efficiency without any trouble. The deterioration in the efficiency of rotating machines cannot be predicted, but with the help of the online Vibration Monitoring and Analysis System, this can be properly judged. Vibration monitoring is the easiest way to keep machines healthy and efficient in the long run. This reduces the overall operating cost as well as the down time period, increases plant availability and efficiency of rotating machines. To cope with global competition and pressure, every plant wishes a maximum uptime, hence maintenance planners are moving from active maintenance to proactive maintenance.

Traditionally, plant maintenance was performed based on the Time Based Maintenance system (TBM), i.e. preventive maintenance. A schedule was set up on the basis of OEM manuals or time-based on MTBF (Mean time between failures) or past failure inputs were used for data analysis. However, the life of the machine can be extended, if online monitoring is done in a cost effective way.

Features

Microprocessor based digital vibration monitoring system

Vibration monitoring system in a 19” rack

API-670 compliant

Redundant and hot swappable functionality for all types of modules

Field selectable filters

Communication with DCS and HMI via MODBUS – RS 485 and ethernet

4-20 mA and 02 relay outputs per channel

Common configuration port for all modules

Phase marker connectivity with RPM measurement

Options

Connection to analysis software with the help of APU

Continuous online monitoring of rotating assets on mobiles through

Vibrosense M

Remote vibration monitoring

Benefits

Improve plant maintenance and profit

Enhance safety of machines and people

Increase the life span of machines

Reduce inventory cost

Reduce manpower cost to get data at regular intervals

Reduce energy cost

System Hardware

PS Module
Redundant Power Supply

True redundancy

AC/DC power input

Power status relay

AV Module
Protection of Vibration

Real time measurement of
Two dynamic channels
(acceleration / velocity)

Two Buffer Output
(i.e. front BNC & rear terminals)
for analysis

Hot swappable

Fully programmable via
config. software

Built in relays

CM Module
Network and Local Communication

Network communication with the
PLC / DCS through Ethernet and
RS-485

Rack configuaration from laptop/PC

VibTrans-R, High Density
19" Rack

Panel mounting

Microprocessor based

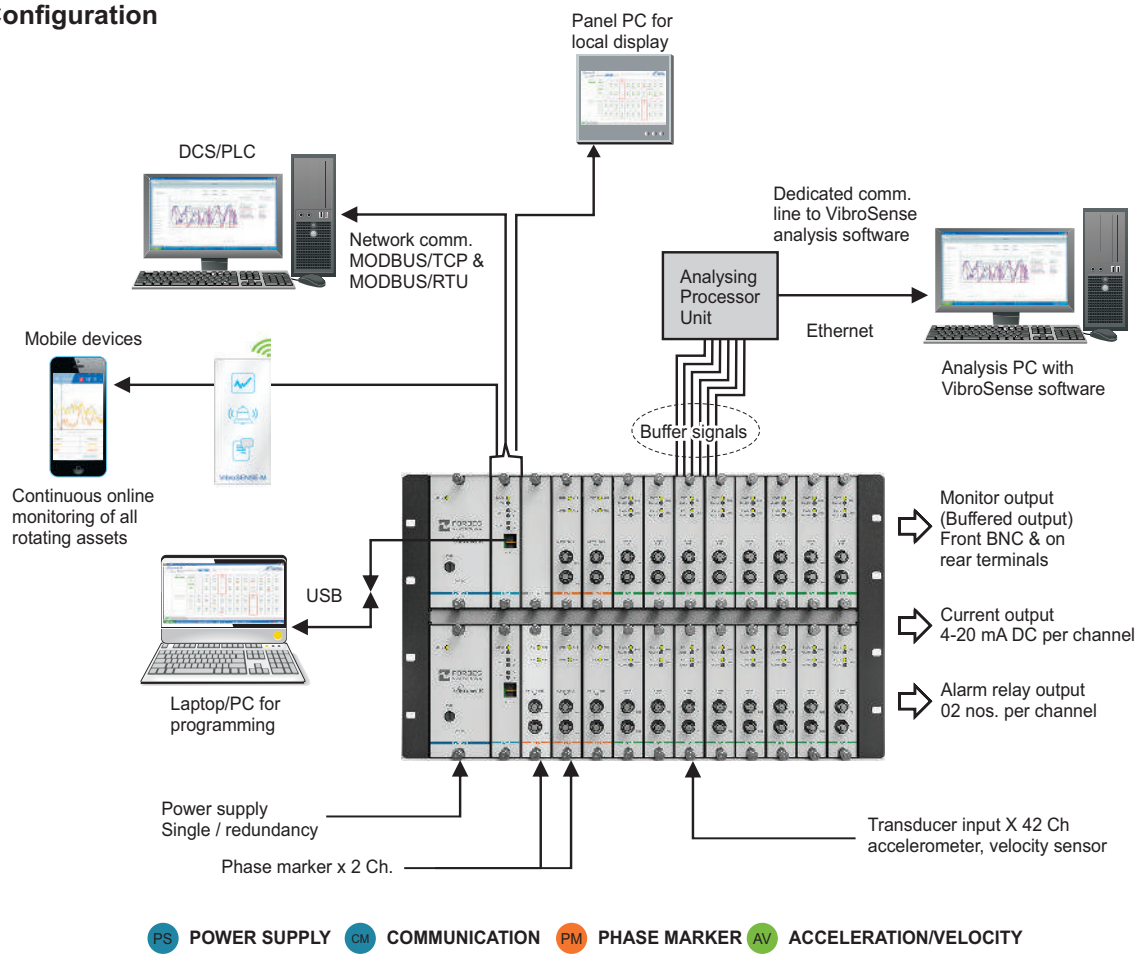
Upto 42 vibration channels and
8 phase marker input

PM
Phase Marker Module

Max. 8 phase marker sensor input

Speed measurement

Typical Configuration



VibTrans-R Hardware

VibTrans-R Instrument Rack Enclosure

The VibTrans R rack is a 19" rack

Maximum no. of mountable modules:

AV modules - upto 21 (can accommodate upto 42 vibration (acceleration/velocity) 21 x 2 channel cards)

PM module - Up 8 (can accommodate upto 8

Phase marker (non contact type) 4 x 2 channel cards)

Power supply modules - 2

Communication module - 2

VibTrans-R-PS

Power supply module

VibTrans-R-PS-230: 84V–264V AC at 50-60 Hz

VibTrans-R-PS-24 : 18-36V DC

VibTrans-R-PS-110 : 60-160V DC

Two power supply modules in any combination can be mounted on a rack for power supply redundancy.

VibTrans-R-CM

Communication module
Transmits data from the back communication port to a local display unit and also communicates with a service PC/laptop via front USB port for configuration of vibration monitor.
It also communicates data between VibTrans-R rack and DCS or PLC
Redundant communication with PLC/DCS

VibTrans-R-PM

Phase marker module

Accepts upto 8 phase marker sensors and buffer output is available on rear terminals and buffer / pulse on front BNC

Speed measurement is also possible

VibTrans-R-AV

Vibration monitor module

Accepts vibration parameters for casing vibrations with accelerometer or velocity sensor input upto 2 channels/module

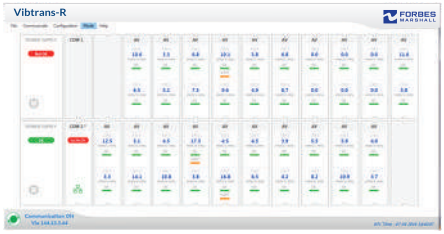
There are 02 relays per channel for alert and danger

Each monitor has recorder output (4-20mADC) and buffer output available on rear terminals and on front BNC

Software

RC (Rack configuration software)

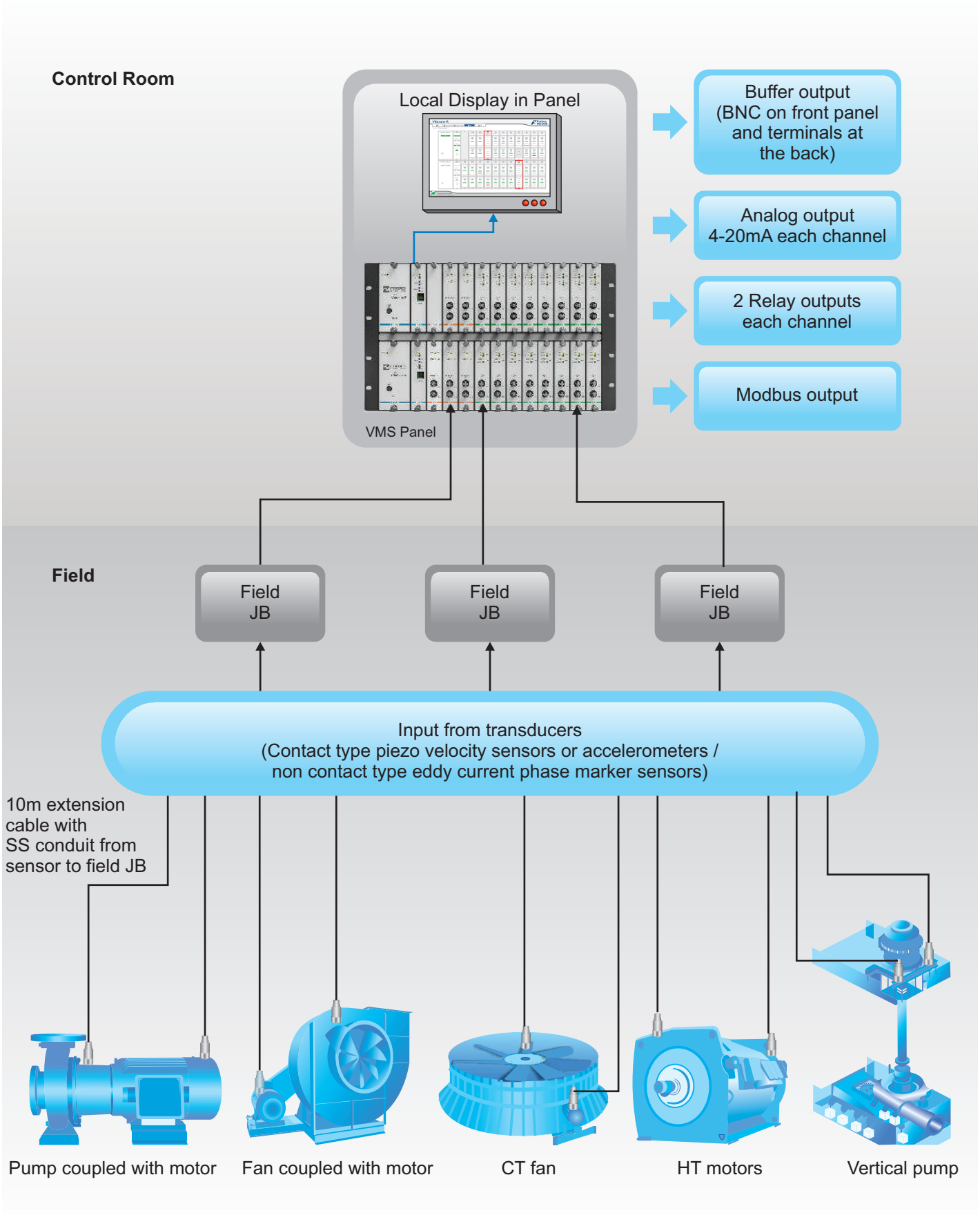
RC software displays measured values, monitoring status and the configuration of each module.



Technical Specifications

Parameters measured by Vibration Input Module	**Velocity**		
	Mode	:	Peak Or RMS value
	Units	:	mm/sec or in/sec
	Range	:	Please refer ordering information in data sheet
	Displacement		
	Mode	:	Peak or RMS or Peak - Peak
	Units	:	Microns or mils
	Range	:	Please refer ordering information in data sheet
	Output	:	4-20 mA DC for each channel
	Through rear panel terminals	:	Buffered output for Ch1 and Ch2 on rear terminals and on front BNC
	Relay output	:	Number of relay : 2/ Channel for alert and danger Contact type : Dry contact (SPDT) Contact capacity : 230VAC / 5A, 30VDC / 5A
	I/O conversion accuracy	:	±1% of F.S. at 25°C ±2% of F.S. at 0°C to 65°C
	Sensor failure	:	On display, Modbus
Input Sensors Options	**Accelerometer**	:	100mv/g (+/- 10%)
	Velocity Sensor	:	4 mv/mm/sec (+/- 10%)
Communication Module	**Communication Redundancy**		Modbus / TCP and Modbus / RTU (half duplex and full duplex) Communication items for data transmission: Measurement value, measurement mode with unit, Danger alarm status, Alert alarm status, OK alarm status, danger bypass status, Power OK status
Power Supply Module Redundant	**Voltage**	:	VibTrans-R-PS-230 : 84V-264VAC ±10% @ 50-60Hz VibTrans-R-PS-24 : 18V-36VDC VibTrans-R-PS-110 : 60V-160VDC
	Operating conditions		
	Temperature range	:	0 to 65ºC upto 95% humidity (non condensing)
Mounting and Dimensional Detail	**Panel mounted**	:	Size: 480.3 X 281 X 276.3 mm (W X H X D)

System Architecture



Applications

Power

Induced draft fans
Forced draft fans
Primary air fans
Coal mills
Coal crushers
Condensate extraction pump
Cooling water pump
Boiler feed pump
Auxillary cooling water pump
Raw water pump
Make up water pump

Steel

Fans and blowers
HT motors
Gear boxes
Utility area - various HT
Motors and pumps

Cement

Fans
Crushers
Kiln
Vertical raw mill
Ball mill
Motors
Gear boxes
Utility area - various HT motors and pumps

Infrastructure

Fans
Blowers in various IT malls
Shopping complexes
Water treatment and lift
Irrigation pumps

Paper

Pumps
Motors
Gear boxes
Paper rollers
Paper machines

Dairy / Food / Beverages

Mixers
Centrifuges
Pumps
Motors
Air compressors
Fans
Conveyors

Textile

Pumps
Fans and motors
Utility area - various HT
Motors and gear boxes

Mining

Pumps
Crushers
Conveyors
Motors
Gear boxes

Pharma

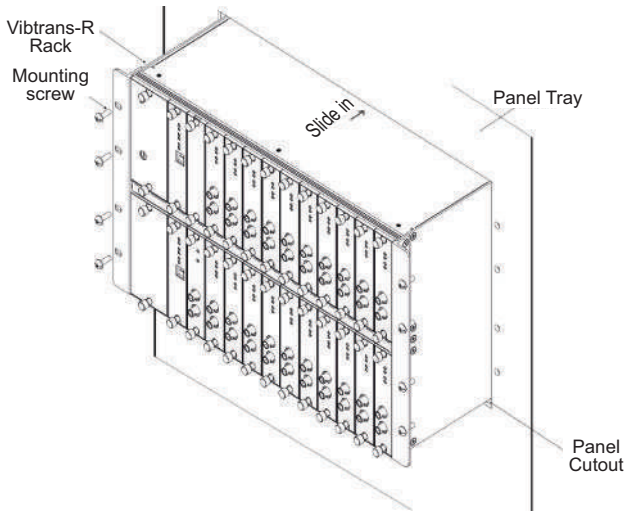
Fans and motors assembly in Air handling units
Centrifuges
Conveyors

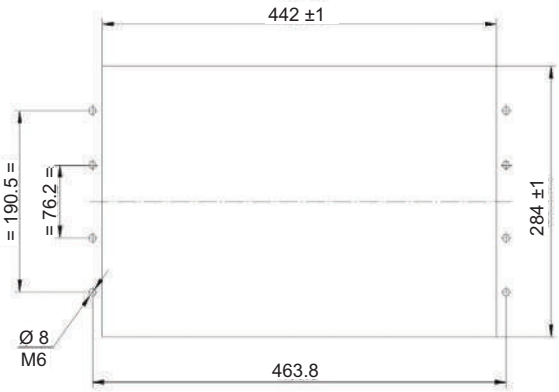
Mountable Module Slot Number

Module Description	Module Part Number	Slot Number												
		U1	U2	U3(Nil)	U4	U5	U6	U7	U8	U9	U10	U11	U12	U13
		L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13
Power supply module 230 VAC	VibTrans-R-PS-230	●												
Power supply module 110 VDC	VibTrans-R-PS-110	●												
Power supply module 24 VDC	VibTrans-R-PS-24	●												
Dual channel Accleration / Velocity (AV) Monitor	VibTrans-R-AV			● *	●	●	●	●	●	●	●	●	●	●
Dual channel phase (PM) monitor	VibTrans-R-PM			●	●	● **								
Communication (CM) monitor TCP/IP, RTU, Modbus	VibTrans-R-CM		●											
Face Plate for PS	VibTrans-R-FP-12T	●												
Face Plate for PM/AV/CM	VibTrans-R-FP-6T		●	●	●	●	●	●	●	●	●	●	●	●

* Applicable for L3 only ** Applicable for U5 only

Rack Cut-out Dimensions





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