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Holroyd Product Range

Acoustic Emission for Condition Monitoring



Acoustic Emission for Condition Monitoring

Parker Kittiwake designs and manufactures a range of 'Holroyd' innovative acoustic emission solutions for the early detection of fault conditions in capital plant and equipment. Holroyd MHC instruments monitor high frequency acoustic emission signals naturally generated by deterioration in rotating machinery. Our unique way of detecting and processing these signals provides the user with condition related information in the easiest possible form. These are state of the art condition monitoring instruments with extreme sensitivity to developing faults. With thousands of MHC onsite instruments in use worldwide and countless successes on ball, roller, white metal and journal bearings, this is a proven technology.

How do they work?

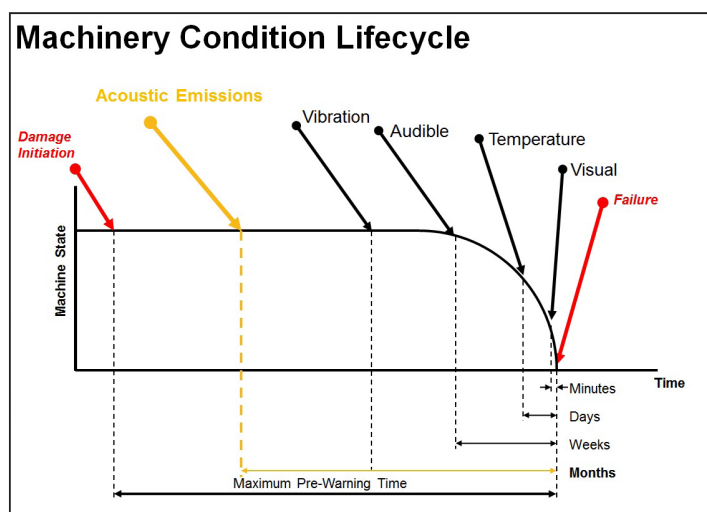
As the mechanical condition of machinery deteriorates, energy loss processes such as impacts, friction and crushing generate sound wave activity that spans a broad range of frequencies. By detecting only the high frequency part of this signal with special AE sensors it is possible to detect miniscule amounts of activity (e.g. a slight rub, a brief impact or the crushing of a single particle in the lubricant). The patented MHC sensor gives improved repeatability and is remarkably rugged with an easy-to-use magnetic front face.

A crucial step is to process these signals so that faults can be easily detected at an early enough stage to allow maintenance to be planned but not to constantly give false alarms. This is where the Standard and Super-Slo methods come into their own.



Does the user have the information needed to make a decision?

This chart shows the condition monitoring techniques used to pre-warn of failure. The y-axis on the left is the perfect condition of the equipment - with the black line showing perfect condition on the far left moving through damage initiation, to failure on the far right. The maximum warning time between the start of the damage and failure is the time gap between the two red arrows. By using Acoustic Emission monitoring, the earliest warning of damage initiation can be given and then the component requiring attention identified.



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Portable MHC Instruments

MHC Memo Pro

Hand-held device, featuring enhanced analysis capabilities



Product Features

- Advanced Acoustic Emission measurement tool for rotating machinery analysis
- Supplied with MHC Analysis Pro, machine database logging and reporting software
- Store, view and perform frequency analysis with FFT Capture Spectrum and AE Lab software (supplied)
- 2610 measurement points in 6 routes can be stored in the instrument. Different routes can be loaded at will
- Super-Slo mode allows monitoring of slowly rotating machinery down to 0.25 rpm
- Air / Vacuum leak detection with included MHC Airbourne Sensor

Technical Specification

Dimensions

205 (w) x 130 (h) x 40 (d) mm

Weight

800g (main unit only with batteries)

Operating Temperature

0 - 50°C

Measurement Std

Distress®, dB Level

Measurement Slo

Peak, Intensity, Extent®, dB Level

Dynamic Range

92 dB (40,000:1)

Audio Out

Hi / Lo ranges

Ordering Information

FG-H16111-KH

MHC Memo Pro Instrument

MHC Classic Plus

Standard and Super-Slo mode device for normal and slow rotating machinery



Product Features

- Economical Standard and Super-Slo mode device for normal and slow rotating machinery
- Supplied with headphones for audio analysis of bearing faults to assist diagnosis
- 32 measurement point non-volatile memory

Earphone / defenders

Included

Display

Backlit LCD alphanumeric, 2 lines by 16 characters

Keypad

10 keys, sealed membrane

Power Save

After 8 mins

Battery info

4 x AA (LR6) - 26 hours with backlight off (NiMH supplied), 34 hours alkaline

FG-H16211-KH

MHC Classic Plus Instrument

Portable MHC Instruments

MHC Bearing Checker

Low cost analysis of machinery condition, easily interpreted results and field-proven technology



Product Features

- Simple Acoustic Emission measurement tool to assess bearing condition
- Effective down to 35 rpm
- Simple one-handed operation
- Rechargeable through micro USB port
- LED indicator for reading in progress

Technical Specification

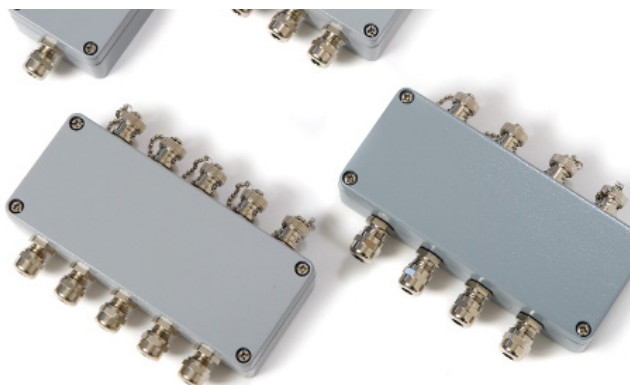
Dimensions 98 (w) x 62 (h) x 34 (d) mm	Keypad 2 key operation
Weight 225g	Power Save After 30 seconds
Operating Temperature 0 - 65°C	Internal Battery NiMH, typically 1000 measurements between charges
Measurement Std (Distress®) Range 0 to 40, 1 unit resolution	Non-Volatile Memory Shows last reading when unit is switched on
Measurement Std (dB Level) Range 6 to 80, 1 unit resolution	
Display LCD alphanumeric, 2 lines by 8 characters	

Ordering Information

FGH11510PA	MHC Bearing Checker Instrument
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Spares & Accessories

A comprehensive range to ease installation and maintain your monitoring capability



Product Features

- Range of products for MHC Portable Instruments and MHC Installed Sensors

Technical Specification

Mounting Bosses

Repeatable results rely on correct positioning of the sensor be it portable or fixed.

Junction boxes

Available from 1 through 6 way.

Cables & Leads

Cables are available to suit the devices in various lengths

Software

Software is provided for the MHC Memo Pro to assist with data logging and FFT analysis. Smart sensor software is available depending on customer requirements. All software is PC based

Instrument Accessories

Spares and accessories are available

MHC Sensors

MHC Portable Sensors

For use with the MHC Memo Pro and MHC Classic Plus on-site condition monitoring instruments



Product Features

- Suitable for use with the MHC Memo Pro and MHC Classic Plus hand-held instruments
- Airbourne Sensor to detect leaks within air or vacuum systems
- Extended temperature variants are available
- Low power circuitry to maximise battery life

Ordering Information

FG-H21102-KH	MHC Heavy Duty Magnetic Sensor
FG-H21103-KH	MHC High Temp Magnetic Sensor
FG-H21104-KH	MHC Extra Sensitive Magnetic Sensor
FG-H21105-KH	MHC Airbourne Sensor
FG-H21107-KH	MHC High Temp Stud Mount Sensor
FG-H21190-KH	MHC Extended Probe 225mm
FG-H21191-KH	MHC Extended Probe 500mm
FG-H21192-KH	MHC Extended Probe 1000mm

MHC Installed Sensors

Permanently installed 10V sensors, compatible with MHC Memo Pro and MHC Classic Plus



Product Features

- Suitable for use with the MHC Memo Pro & MHC Classic Plus hand-held instruments
- Ideal for location in hard to reach areas, behind guards etc
- Suitable for coaxial cable lengths up to 20m
- Application specific coating options

Ordering Information

FG-H21201-KH	10V CP Sensor 10m
FG-H21202-KH	10V CP Sensor Dipped 10m
FG-H21203-KH	10V CP Sensor Encapsulated 20m
FG-H21204-KH	10V CP Sensor Encapsulated 30m
FG-H21205-KH	10V CP Sensor HT 5m
FG-H21206-KH	10V CP Sensor HT Dipped 5m
FG-H21207-KH	10V CP Sensor TNC
FG-H21208-KH	10V CP Sensor XLR
FG-H21210-KH	10V CP Sensor FEP Dipped 3m
FG-H21282-KH	10V LP Sensor 20m HT Lead Dipped
FG-H21283-KH	10V LP Sensor 15m HT Lead Dipped
FG-H21284-KH	10V LP Sensor 10m HT Lead Dipped
FG-H21285-KH	10V LP Sensor 5m HT Lead Dipped
FG-H21290-KH	10V LP Sensor 30m Lead Dipped
FG-H21286-KH	10V LP Sensor 20m Lead Dipped
FG-H21287-KH	10V LP Sensor 15m Lead Dipped
FG-H21288-KH	10V LP Sensor 10m Lead Dipped
FG-H21289-KH	10V LP Sensor 5m Lead Dipped
FG-H25009-KH	10V LP Sensor Only SMA connector
FG-H21291-KH	10V LP Sensor Dipped SMA connector

MHC Sensors

MHC Online Sensors

Permanently installed 24V sensors, suitable for use with MHC SetPoint and MHC SloPoint



Product Features

- 24V phantom drive, specifically designed for use with MHC Point Series of Online products
- Application specific coating options
- Extended temperature variants
- Suitable for coaxial cable lengths up to 100m

Technical Specification

24 Volt sensors will not operate with portable MHC instruments.

Ordering Information

FG-H21301-KH	24 V CP Sensor 10m
FG-H21302-KH	24 V CP Sensor 10m Dipped
FG-H21303-KH	24 V CP Sensor 20m Encapsulated
FG-H21304-KH	24 V CP Sensor 30m Encapsulated
FG-H21305-KH	24 V CP Sensor 5m HT
FG-H21306-KH	24 V CP Sensor 5m HT Dipped
FG-H21307-KH	24 V CP Sensor TNC
FG-H21382-KH	24V LP Sensor 20mHT Lead Dipped
FG-H21383-KH	24V LP Sensor 15m HT Lead Dipped
FG-H21384-KH	24V LP Sensor 10mHT Lead Dipped
FG-H21385-KH	24V LP Sensor 5mHT Lead Dipped
FG-H21386-KH	24V LP Sensor 20m Lead Dipped
FG-H21387-KH	24V LP Sensor 15m Lead Dipped
FG-H21388-KH	24V LP Sensor 10m Lead Dipped
FG-H21389-KH	24V LP Sensor 5m Lead Dipped

MHC Smart Sensors

Permanently installed smart sensors with inbuilt intelligence and processing



Product Features

- 0 to 10V (100mV per division) for measurement values and user configurable alarm outputs
- User selectable settings via digital PC interface
- Signal detection - high frequency transducer and signal conditioning
- Standard or Super-Slo variants
- Intermittent or short duration machine operation (MHC Sigma)

Technical Specification

MHC DS1

Smart sensor for use on shaft speeds above 35 RPM

MHC SM1

Smart sensor uniquely developed for monitoring shaft speeds from 60 RPM down to 0.25 RPM

MHC Sigma

Smart sensor for intermittent or short duration machine operation

Online MHC Instruments

MHC HMI for Smart Sensors

Provides easy graphical interpretation of machinery health



Product Features

- Quick visual check of condition via colour changing screen or optional beacon
- Standard or Super-Slo variants
- Trending and graphing of historical data
- Multiple data outputs including via intranet and email alerts
- Data stored on CF card for long term trending
- User configurable setup (sensor numbers/types/ outputs/log time/alarm levels)

Technical Specification

Dimensions

380 (w) x 300 (h) x 210 (d) mm

Weight

12kg

Display

5.7 inch, TFT Active Matrix
256 colour QVGA - Resistive
Analogue Touchscreen

Keypad

5 button sealed membrane for on screen menus

IP Rating

IP66 (Option beacon has rating of IP65)

Rated Input Voltage

115-230V AC

Rated Input Current

2.8A @ 115V / 1.4A @ 230V

Alarm Relay Output Voltage

24V DC

Case Material

304 Stainless Steel

Mounting Requirements

4 x M8 bolts - mounting holes accessible from inside the MHC HMI

Number of Sensors

Up to 10 DS1 or SM1 Smart Sensors in any combination

Ordering Information

FG-H19961-KH	MHC HMI for use with up to 2 Holroyd Smart Std or Smart Slo Sensors
FG-H19962-KH	MHC HMI for use with up to 4 Holroyd Smart Std or Smart Slo Sensors
FG-H19963-KH	MHC HMI for use with up to 6 Holroyd Smart Std or Smart Slo Sensors
FG-H19964-KH	MHC HMI for use with up to 8 Holroyd Smart Std or Smart Slo Sensors
FG-H19965-KH	MHC HMI for use with up to 10 Holroyd Smart Std or Smart Slo Sensors
FG-H19922-KH	Red / Amber / Green Beacon for any of the above

MHC Point Online Instrumentation

A versatile condition monitoring module that works with permanently installed online sensors



Product Features

- 0 to 2V DC analogue output for measurement values
- User configurable settings and alarms via hand-held Field Programmer
- Signal detection - choice of sensor specifications
- Can record worst case values for last 128 days
- Standard or Super-Slo variants
- Traffic light LEDs on device

Technical Specification

Dimensions

50 (w) x 75 (h) x 115 (d including connector) mm

Weight

~210g

Power Requirement

24V DC ($\pm 10\%$) nominal @ 50mA (no load)

Operating Temperature (main instrument)

0 - 70°C

Mounting

DIN46277-2, DIN46277-3 or wall/panel mounting

MHC SetPoint

Rotational speed of measurement 35 rpm < Distress® and dB measured

MHC SloPoint

Rotational speed of measurement 0.25 rpm - 60 rpm
Peak, Intensity, Extent® and dB Level measured

Ordering Information

FG-H21601-KH	10V	MHC SetPoint
FG-H21603-KH	10V	MHC SloPoint
FG-H21602-KH	24V	MHC SetPoint
FG-H21604-KH	24V	MHC SloPoint
FG-H21605-KH	MHC FP	MHC Field Programmer

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