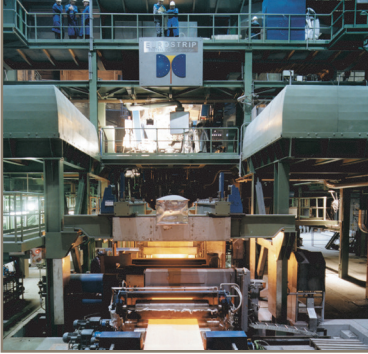aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Holroyd Product Range

Acoustic Emission for Condition Monitoring

Parker | Kittiwake

SIMPLEX
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ENGINEERING **YOUR** SUCCESS.

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.
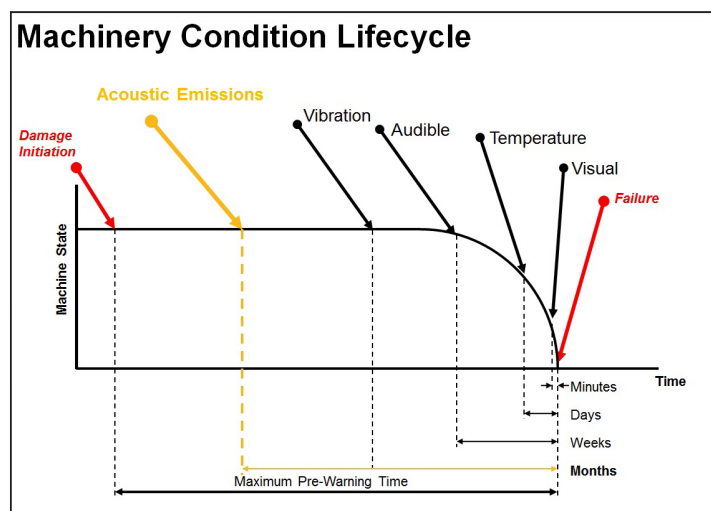
How do they work?

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 Emissions monitoring, the earliest warning of damage initiation can be given and then the component requiring attention identified.

Machinery Condition Lifecycle

Acoustic Emissions
Vibration
Audible
Temperature
Visual
Damage Initiation
Failure
Machine State
Time
Minutes
Days
Weeks
Months
Maximum Pre-Warning Time

Portable MHC Instruments

MHC Memo Pro

Hand-held device, featuring enhanced analysis capabilities

MHC Classic Plus

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

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

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

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

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

Ordering Information

| FG-H16111-KH | MHC Memo Pro Instrument | 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

Spares & Accessories

A comprehensive range to ease installation and maintain your monitoring capability

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
Weight
225g
Operating Temperature
0 - 65°C
Measurement Std (Distress®)
Range 0 to 40, 1 unit resolution
Measurement Std (dB Level)
Range 0 to 80, 1 unit resolution
Display
LCD alphanumeric, 2 lines by 8 characters

Keypad
2 keys, sealed membrane
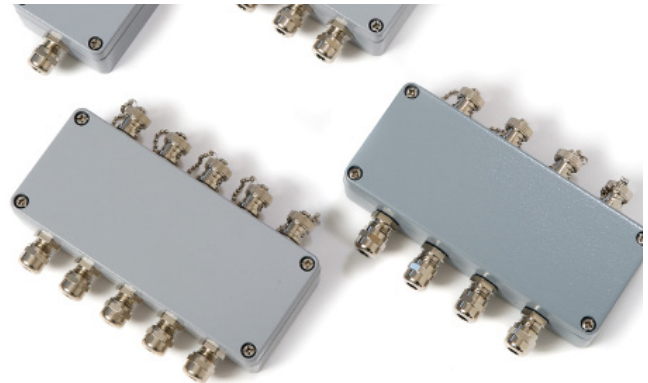**Power Save**
After 30 seconds
Internal Battery
NiMH, typically 1000 measurements between charges
Non-Volatile Memory
Shows last reading when unit is switched on

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

Ordering Information

FGH11510PA	MHC Bearing Checker Instrument

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 intermittant 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 (±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/SloPoint
FG-H21603-KH	10V	MHC SetPoint/SloPoint
FG-H21602-KH	24V	MHC SetPoint/SloPoin
FG-H21604-KH	24V	MHC SetPoint/SloPoint
FG-H21605-KH	MHC FP	MHC Field Programmer

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