TOOL MONITORING THAT WORKS!



About Techna-Tool Inc.



Company Name: Techna-Tool Inc. Location: Hartland, WI USA Ownership: Privately held Founded: 1990

Since 1990 Techna-Tool Inc. has specialized in providing reliable tool and process monitoring systems for a variety of applications. We pride ourselves in applying the right system for the job.

Since we offer both contact and non-contact monitoring systems we can choose which system fits the application the best to assure the user will receive "Tool Monitoring That Works".

With more than 85,000 installations world wide, Techna-Tool ensures you'll have a reliable system to help with your automated production process. Our customers

include companies with the most demanding requirements from the following industries: machine building, metal cutting, packaging machines, plastics and chemical engineering, wood processing, medical and measuring industries.

Integrity and Service Are What We Sell

All of our products have been developed to meet the highest standards of quality and reliability. Our well trained and experienced staff can help you identify solutions for your monitoring needs.



Many customers have stated that we are their very best supplier of any product or service. This is always our goal.

Bruce Wm. Behling Owner and President Techna-Tool Inc. Reliable process monitoring systems guarantee safe control of the production process. Immediately before, after or even during the machining process, our systems recognize the slightest deviations from the normal condition and generate an instantaneous machine stop in order to avoid damage.



Due to the quick and precise fault indication from our systems the time to remedy problems can be significantly reduced. This early detection of problems results in less damage to the machine or fixtures and allows production to resume quickly. This leads to higher part production and lower operating costs.

Guaranteed Safe Control of The Production Process



Some of the following benefits that result from process monitoring:

- Increased productivity
- Improved production quality
- Minimal scrap parts
- Reduced machine down time
- Lights out machining
- Operating machine while on break or shift change
- · Operator available to run multiple machines
- · Maximum tool life
- · Protection of expensive tool holders
- Protection of spindle and axis

Early Detection = Less Damage + Less Down Time

BK MIKRO® 9 System

Principle of Operation

The BK MIKRO[®] systems all utilize a servo motor and encoder which "Learn" the position of the tool or object that will be checked using the wand or probe. This position is then stored in the memory of the BK MIKRO controller and checked after every cycle to verify that the tool is still present within a certain window or area. The signal to check can be given via Profibus, DeviceNet or via digital I/O. If the wand or probe doesn't make it to, or travels past the learned position the BK MIKRO controller outputs a fault through Profibus, DeviceNet or via relay contacts signaling that the tool is broken. This fault is interfaced to your machine's control which then instantaneously stops the machine ensuring that the machine doesn't crash and preventing bad parts from being manufactured.

BK MIKRO 9 Incorporates All Functions Of The Former BK MIKRO Systems With Improved Features From simple tool breakage monitoring in a single head machine to the control of a wide range of different tool lengths in the magazine of a machining center (including their correct storage pot) to the inspection of profiles with the highest scanning precision, the BK MIKRO offers all functions for checking production processes:

- Monitoring tools: breakage / presence / holding / detection
- · Inspecting parts: feeding / ejection / position / alignment
- Checking shapes: drilling depths / cavities / profile / tolerance



The Complete BK MIKRO[®] System Includes

Scanner + Control Unit + Connection Cable + Mounting Bracket

The Components

The Control Unit

There are 4 versions of the control unit for all applications. The "Basic" model is designed as a simple, low-cost solution with just one monitoring function. The "Premium" version can monitor up to 512 different objects or monitoring functions. The "Profibus" and DeviceNet versions have the same capabilities as the "Premium" version but adds the option of using Profibus or DeviceNet to control the system instead of digital I/O and can do an unlimited number of functions. In addition an I/O extension module can be added to any of the units allowing for other configuration options.



BK MIKRO Features

- Independent of machine control
- · Independent from the power of the spindle drive
- · Usable in the working envelope and in the magazine
- · Monitoring time of the tools can be hidden in downtimes
- · Scanning possible in both directions (e.g. double or multi-spindles)
- · Checks tools as small as 0.3mm while rotating
- · Easy installation, simple set-up, no adjustment
- · Retro-fitable at any time
- Resistant to outside influences (coolant, chips, dirt, light, noise, vibration, temperature)
- Maintenance-free

Retro-Fitable at Any Time & Maintenance Free

The Scanner

BK MIKRO offers several types of scanners used for different applications. Depending on the scanner, tools can be checked either singly or bi-directionally in the same plane. For applications in the tool magazine up to 512 tools can be checked by axially scanning the tool tips. For probing linear scanners are used. Scanning wands are available in different lengths and types.

We have come to depend on the BK MIKRO for simple and reliable tool monitoring for our machines.

Three Types of Connections



Operation with Digital I/O \rightarrow Parameters Set by Dip Switches or PC

. . Available For The BK MIKRO[®] 9 Systems



Operation with Digital 1/0 Parameterization by means of PC

The parameters of the tool/object data are entered on a PC and transmitted to the control unit via USB then actuated digitally (by the PLC) during the application. When connected to the I/O extension module up to 512 objects/tools can be taught and monitored via the selection inputs. Depending on the control unit used a full (premium) or limited (basic) functionality is provided.

adjustment of scanning intensity) can be set on the I/O extension module.

> From the PLC, commands and parameter data are transmitted to the control unit.

The control unit then sends its status signals to the machine control.

6

BK MIKRO® Configuration Software

The Configuration Software

This easy to use desktop software developed for BK MIKRO[®] is used to easily make adjustments to the control unit using your computer and a standard USB cable. It is Windows based and compatible with 2000/XP/Vista/WIN7.

- · Make adjustments to tolerance, function, relay state, rotational direction and more
- Settings can be saved/loaded from disk
- Make offline adjustments to settings
- Display error messages
- Online monitoring of scanning results for easy trouble shooting
- Activate start/teach to test functions
- · Easily upload firmware changes if new features are added

Download The Configuration Software "System Setup BK MIKRO® 9" Free Of Charge At www.Techna-Tool.Com



Windows 2000/XP/Vista/WIN7 Compatible

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Our Configuration Software = Easy to use software for initial setup and monitoring capability for troubleshooting.

BK MIKRO® Scanner

The Scanner Has An Extremely Rugged Design Thanks To The Sturdy, Abrasion-Proof Aluminium Housing.

Adaptive

Generally the machining processes as well as restrictions in the process space, spindle or magazine geometries determine the selection of the scanner. No matter if the scanning required is on one or two tools such as clockwise/ counter-clockwise rotation, if an axially rotating or a linear scanning movement is necessary or if different lengths need to be measured, the BK MIKRO[®] meets these requirements with its different scanner options.

Universal

Thanks to the compact design of the scanner and the wide scanning range it is even possible to scan under difficult monitoring conditions. The BK MIKRO is equally suitable for use by the OEM or can be easily retrofitted at the end user's facility. The round and smooth body allows for easy mounting with the provided split clamp bracket. The alignment of the scanner is easy and can be done without additional setting instruments or adjusting aids.





Unequaled Reliability

Industrial

The scanner has an extremely rugged design thanks to the sturdy, abrasion-proof aluminium housing. The motor shaft which is protected by special double lip seals (like in pumps) gives the unit a protection class of IP67. It is resistant to aggressive coolants and chips and is tested under extreme conditions. Since the wand is not using any kind of electricity scanning of non-conductive objects is also possible. It is not disturbed by chips, coolants or lubricants.

Practical

Since the tool's position is stored in memory the scanning speed and torque of the wand can be controlled allowing the wand to gently touch an object. This allows the system to check tooling as small as 0.1mm or smaller in diameter without damaging the tool.

Thanks To The Compact Design Of The Scanner And The Wide Scanning Range It Is Even Possible To Scan Under Difficult Monitoring Conditions.

Perfect for Swiss Style Machines

Checks tooling as small as 0.3mm or smaller in diameter.

BK MIKRO® Scanners



TK94A / TK94RL

Robust, High-Speed

The TK94A checks a single tool or object and the TK94RL checks two tools or objects. This scanner is designed for harsh environments and has a built-in air purge and strong/fast motor. This scanner would be used in applications that previously

used the BK Mikro model 4 or 5 scanners.



TK96A / TK96RL

Super Compact, Stainless Steel

The TK96 series scanner is the most compact in the BK Mikro line and comes with a durable stainless steel body which helps resist wear from chips and other flying debris. With a diameter of only 12mm it is ideal for tight spaces where other scanners may



not fit such as in Swiss style machines or multi-spindle heads. Because of its small size it provides less area for chips and other debris to collect.



TK7A / TK7RL Compact, Fast

The two scanner variations of the type TK7 have identical features. The only difference is that in variation "A" the rotational movement is limited by a mechanical stop inside the housing while the scanner "RL" can rotate in both directions without stopping.



This is for checking two tools. These scanners are best suited for tight spaces where a larger scanner may not fit, such as Swiss style machines or multi-spindle heads.

Mechanical Dimensions

(99)

ø20

-42.5

(254)

-ø32-

RO BK

RO RI

RO BK

BB

(123)



TK8A Compact, Precise

This scanner is mainly designed to be mounted in the tool changer area of machining centers and to check the tools perpendicular to their tips. Its 380 mm long wand with plate allows the checking of tools varying in lengths as much as 380 mm from



longest to shortest. The scanner has an accuracy of 0.15 degrees allowing for very precise measurements.

TK91A

Powerful Drive, High Precision

The TK91A uses up to 610mm long wands with plates to monitor tool tips in machining center tool changers. The TK91A is the most accurate rotary scanner available with a resolution of 0.05 degrees. This high accuracy allows

for checking the smallest deviations for tool breakage or other applications such as checking part profiles or contouring applications.

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2

32.5

-26.5--

127



Linear, Precise The "LIN" series is designed for probing functions where rotating scanning is not suitable or possible. Its main uses are for checking cavities, bore holes, part positioning or fixturing and assembly applications. Any area between the home

and

position

maximum

(100)

HomePositio

TK9LIN50 / TK9LIN100

max. stroke



stroke can be checked for presence or free space (through holes). Different tips can easily be installed on the probe to meet application specific needs. The TK9LIN scanners have an improved tolerance of +/- 0.05mm.

TK9LIN Scanners Have An Improved Tolerance of +/- 0.05mm.

12

BK MIKRO® Scanners

Scanner (Type)	Shaft (ø)	Body (ø)	Wand Length (max.)	Plate	Time for 180°-Rotation (ca. sec)	Repeat Accuracy (+/- [°] max.)	Ţ	K94A &
TK94A/RL	4 mm	32 mm	250 mm	no	0.25 s	1.20		K94KL
TK96A/RL	3 mm	12 mm	165 mm	no	1.25 s	1.20		
TK7A/RL	3 mm	20 mm	250 mm	no	0.40 s	1.20		Cn ?
ТК8А	3 mm	20 mm	380 mm	yes	1.30 s	0.15		
ТК91А	4 mm	32 mm	610 mm	yes	1.80 s	0.05		Discourse
			Stroke Length		Time for 1 Stroke	Repeat Accuracy		BK MIN
			(max.)		(ca. sec)	(mm)		BK MIKI
TK9LIN50	-	-	50 mm	-	1.40 s	0.05		BK MIK
TK9LIN100	-	-	100 mm	-	1.80 s	0.05		BK MIK

The list of scanner and scanning cycle data provides an overview of the technological features and

typical uses of the systems.

All Scanners: Protection Class IP67(Lin:IP64), > 5 Million Scanning Cycles





BK MIKRO® 9 Control Units



BK MIKRO[®] 9 Control Units : Minimum Size, Maximum Performance

Advanced Features





Packed Full of Features

The compact, din rail mounted control unit mounts easily in the electrical cabinet and provides a full line of advanced functions.

- Clockwise and/or counter-clockwise rotation of the wand is programmable allowing an optimum adaptation to the machine.
- The scanning intensity is adjustable in 8 steps. Even rotating drills with small diameters can be checked.
- The scanning results are displayed as "OK" or "KO" and signalled by LEDs on the front side of the device.
- The PROFIBUS is a standard Sub-D 9 pin connection; the USB connection is a USB-mini plug / type B and meets the 2.0 specification.
- Three digital inputs serve to activate the functions: "Teach-in" to learn the position to be scanned, "Start" to initialize the scanning process and "Configurable" for receiving a stop command.
- Two digital outputs provide the signals for the message "OK" or "KO".
- The relay contacts are configurable as N/C or N/O connections. They can be set as momentary (valid with start or timed) or latching.
- Convenient configuration software for programming and setting of tool data is available at no cost.

A Full Line of Advanced Functions Is Available

BK MIKRO® 9 Control Units



BK MIKRO 91 / 92 Premium

- PROFIBUS/DeviceNet interface for direct field bus connection to machine control
- 3 digital control inputs (positive or negative logic)
- Start and teach signal
- One configurable input
- 2 relay outputs selectable as N/C or N/O contact
- Signal all clear message ("OK")
- Signal error message ("KO")

- Mini USB for PC connection
- Scanner connection
- 4 LEDs for status display
- Opening for top hat plug for optional connection to I/O extension module
- Din rail mounting
- The BK MIKRO 92 has the same features as BK MIKRO 91, but without PROFIBUS interface and is also available as the BKM92KIO with attached I/O unit



- Mini USB for PC connection
- 3 digital control inputs (positive or negative logic)

66

- Start and teach signal
- Stop input
- 2 relay outputs selectable as N/C or N/O contact
- Signal all clear message ("OK")
- Signal error message ("KO")



Mechanical Dimensions



- Scanner connection
- 4 LEDs for status display
- Opening for top hat plug for optional connection to I/O extension module
- Din rail mounting





BK MIKRO 9I/O Extension Module

- 10 digital inputs to select/activate up to 512 different tool positions (positive or negative logic)
- 2 configurable digital outputs
- · 3 rotary switches
- Selection of scanner
- Selection of scanning angle adjustable in 24°steps from 0° to 360°
- 4 LEDs for current status display
- Top hat plug for connection to control module
- Din rail connection

- · 8 toggle switches
- · Selection of Object or Free-space monitoring
- Defining the rotational direction (clockwise and/or counter-clockwise rotation of wand)
- Configuring the relay outputs' as N/C or N/O plus momentary or latching
- Defining the scanning intensity in two steps (soft/ hard)
- Selection of tolerance range ±0.1° / ±1.0° / ±3.0° / ±10.0°

BK Mikro Has Controllers For Every Application

BK MIKRO® Scanner Accessories

Adapting To Work With A Wide Range Of Applications

In order to be able to meet the requirements of most monitoring functions BK MIKRO[®] offers a number of components from its selection of accessories and spare parts which can adapt to work with a wide range of applications.



Wands & Wand Holders

- · Wands in different lengths and types (e.g. with HSS-tips)
- Wands for lateral / axial scanning (with plate only for axial applications)
- · Wands from solid / hollow material can be shortened to any length
- Easy replacement
- Different designs
- For surroundings with fine / medium-sized / big chips
- In case the coolant clumps together with chips

There Are Accessories for Every Application

Accessories and Spare Part Components

Mounting Brackets

- Perfect mounting of the scanner
- · Models with 32 mm, 20 mm and 12 mm diameters
- Anodized aluminum and Stainless Steel
- Dimensions: 32 mm x 32 mm, 50 mm x 50 mm or 14 mm x 20 mm
- Self-locking screw connection





Air Adapters

Under certain circumstances aggressive combinations of coolants or emulsions can damage the scanner seals. The air barrier adapter has been developed especially for the operation of BK MIKRO[®] scanners in adverse ambient conditions. By means of an air barrier the adapter keeps liquids and chips away from important seals, thus increasing the life cycle of the scanners.

Suitable air barrier adapters are available for most scanners: models for TK-shafts with diameters of 20 mm and 32 mm, for wands with a thickness of 1.2 mm / 3 mm / 4 mm and with air connection 90° or 180°. The recommended pressure is 0.5 bar. The assembly is quick and easy.

TECHNA-CHECK®

Ideal For Monitoring Tools On Single Spindle Heads . .





- The Techna-Check® is a Tool Monitoring system designed to use the PWM series power transducers or the VM series vibration transducers to determine if there is a Broken, Dull or Missing tool. The PWM measures true power on a machine spindle or axis motor. It can be used on standard motors, AC servo motors, variable frequency drives and DC drives. The VM uses an accelerometer to monitor for excess
 - vibrations on spindles, fixtures,
 - parts or tooling.
- Grinding machines



Applications

.. TECHNA-CHECK[®] Keeps Your Machines Running Longer

Key Features

Easy Installation

No mechanical modification of the machinery is necessary. The entire system mounts easily in your electrical cabinet.

Easy Set-up

Easy to use set-up software eliminates the need for outside service, allowing you to make modifications and adjustments on the floor.

Idle Power Monitoring

Detection of idle power faults can alert you to broken belts or bad bearings.

Adjusts to Tool Grind

The built-in "learn" function enables the system to compensate for differences in tool grind, improving the monitoring while reducing nuisance faults.

Key Benefits

Proper Machining

The detection of missing or broken tools helps insure that the proper machining is being performed.

Improved Finish and Tolerance

Detection of tool wear and damage can help improve surface finish and tolerances.

Protection of Spindle and Feed Mechanism

By detecting catastrophic tool failure, TECHNA-CHECK can prevent serious damage to your head and feed mechanisms, not just at the station being monitored, but at down-stream stations where "chain reaction" effects can occur.

Crash Protection

Preventing crashes & tool breakage can help eliminate costly damage to your spindle.

Broken Tool Protection

Catching tool breaks minimizes scrap while guaranteeing perfect parts.

Worn Tool Protection

Measuring for worn tools helps you maximize your tool life.

Maximized Tool Life

By detecting for tool wear and damage, expensive tooling can be changed before the damage gets too severe. This detection also reduces dependence on hit or miss part counting schemes.

Improved Up Time

By creating the process improvements listed above, TECHNA-CHECK[®] keeps your machine running longer.



TECHNA-CHECK®

Principle of Operation

The TECHNA-CHECK[®] interfaces to the machine control and is given a 24vdc or Profibus signal from the machine to tell the unit when to start monitoring. Depending on the system being used it will learn between 1-128 different cutting profiles. The tool selection is done via 24vdc binary inputs which are typically given using M-codes/ custom macro or by using Profibus.

Once the unit has been told to monitor, the system will measure the power that is used just to turn the spindle; this is labeled as the **idle consumption** within the image to the right. High and low limits can be set for the idle power to determine if a belt has broken or bearings are going bad in the spindle.

The unit then learns the amount of power it takes to cut the material (labeled as **measurement** within the image to the right). As a tool becomes blunt (dull) the tool will begin to require more power to complete a machining cycle. When the tool breaks a short energy peak or spike is created and if no tool is present or the part has already been machined, the power consumption drops back to zero. If any of these situations occurs the TECHNA-CHECK will output a fault which will immediately stop the machine.



Additionally the TECHNA-CHECK can monitor "Touch Point". This is used in grinding and balancing applications where the tool is fed into the part at a rapid rate. As soon as a rise above idle power is detected the system outputs a signal telling the machine control to slow the feed rate of the machine.

If a Broken, Missing, or Dull Tool Occurs, The TECHNA-CHECK®

Techna-Check Monitoring Software



The Windows based TECHNA-CHECK programs implement a powerful tool monitoring software for use on PC systems using 2000/XP/Vista/WIN7 32 Bit. The software is only required for use with the PCI system but may be used with any Techna-Check system to enhance system capabilities.

- Enables the user to carry out a convenient, interactive system setup and to permanently monitor the progress of the machining process.
- Collects data which can later be exported and viewed to determine if there were any faults or problem parts.
- The software opens a separate window for every unit (motor) which graphically displays the progress of the tool monitoring and allows for the adjustment of monitoring parameters.
- All parameters from the unit can be saved on the hard disk and loaded or restored from there.



Easy to Use Software

TECHNA-CHECK® PCI



- · Convenient configuration with TTMON Windows based software
- · Available pre-installed in industrial PC with touch screen for retrofit applications
- 1-20 motors/sensors can be connected to a single PCI card
- Available sensors PWM3100T, VM100T, IO100T
- Monitors 1-128 tools or cutting processes per motor
- Independent limits for Break, Blunt, Missing and Idle supervision
- · Curve enveloping feature for limits
- Profibus compatible
- Measurement data can be transferred via PROFIBUS or TTBUS
- Touch Point limit used for grinding and balancing machines
- Data logging
- · Easily Retro-fitable

Capable Of Monitoring Up To 128 Different Cutting Processes Per Sensor

This system is based on the PCI platform which can be integrated into either a Windows[®] based CNC control with a free PCI slot or into a separate stand alone computer. It is capable of monitoring up to 128 different cutting processes per sensor and can network up to 20 sensors/channels back to a single card. Compatible with Windows[®] XP or WIN7 32 bit.



Network Up to 20 Sensors to a Single Card

TECHNA-CHECK[®] 6400



The TC6400 is a stand alone system capable of monitoring between 1-8 motors with one unit. Each channel has the capability to monitor up to 64 unique tools or cutting processes. It has an 8" color display and all programming can easily be done through the face of the unit without the need for an external PC. The 6400 utilizes the TTBUS transducers making the system ideal for monitoring a cell of machines or a transfer machine with a single system.

- Built in 8" color display and membrane keyboard
- Monitors 1-64 tools or cutting processes per motor
- Up to 8 motors can be connected to a single system
- Available sensors PWM3100T, VM100T, IO100T
- · Parameter setup is done through the front plate of the unit
- Panel door mounted or custom enclosure available
- Independent limits for Break, Blunt, Missing and Idle supervision
- · Curve enveloping feature for limits
- On board data collection
- Optional Profibus and Ethernet available
- · Touch Point limit used for grinding and balancing machines
- Password protected

The 6400 Utilizes The TTbus Transducers Making The System Ideal For Monitoring A Cell Of Machines Or Transfer Machine With A Single System.





TECHNA-CHECK® 3200



The TC3200 is a stand alone system capable of monitoring between 1-4 motors with one unit. Each channel has the capability to monitor up to 64 unique tools or cutting processes. It has a 5.7" color display and all programming can easily be done through the face of the unit without the need for an external PC.



- · Built in 5.7" color display and membrane keyboard
- Monitors 1-64 tools or cutting processes per motor
- · Up to 4 motors can be connected to a single system
- Available sensors PWM125, PWM3100A, VM100
- · Parameter setup is done through the front plate of the unit
- · Capable of networking up to 24 units back to a single PC using RS485 and Toolmon software for data collection
- · Panel door mounted or custom enclosure available
- · Independent limits for Break, Blunt, Missing and Idle supervision
- · Touch Point limit used for grinding and balancing machines
- · Password protected

The TC3200 Is A Stand Alone System Capable Of Moni







TECHNA-CHECK® TC101



The TC101 is a stand alone system capable of monitoring 1 tool or cutting profile. Programming can be done through the face plate but is preferably done with the Toolmon software.

- LED display
- Monitors 1 tool or cutting process per motor
- Available sensors PWM125, PWM3100A, VM100
- Parameter setup is done through the front plate of the unit or using the included Toolmon software
- Capable of networking up to 24 units back to a single PC using RS485 and Toolmon software for data collection
- Panel door mounted
- Independent limits for Break, Blunt, Missing and Idle supervision
- Touch Point limit used for grinding and balancing machines
- Low cost system

toring Between 1-4 Motors, While The TC101 Is Capable Of Monitoring 1 Tool Or Cutting Profile.

Affordable + Effective Power Monitoring = Superb Product

TECHNA-CHECK® Ultra Fast & Precise Transducers



The Ultra fast Techna-Check transducers are developed specifically for Machine Tool Monitoring applications and can monitor both AC and DC loads. These sensors mount in the electrical cabinet of the machine and communicate with the Techna-Check units using either the TTBUS network or 0-20mA signals.

- Technologically advanced three-phase sensors guarantee exact measurements of the input or output supply of a motor drive
- Economic single-phase sensors are also available for some models
- Vibration sensors are available to sense damage to tools or improper spindle balance
- Compact Din rail mounted design
- Units available for monitoring 0-100 Amp motors







Vibration Sensors Are Available To Sense Damage To Tools Or Improper Spindle Balance

Ultra Fast System + Precise Transducers = Cutting Edge Technology

Production Monitor TECHNA-CHECK® PM-1

The Techna-Check® model PM-1 is a production monitoring system which is easily mounted in your machine's electrical cabinet. The PM-1 monitors the production from any machine on your shop floor and reports back the machine's production through Ethernet to our custom software, also viewable via a webpage.

Principle of Operation

The Techna-Check PM-1 receives signals from the machine telling it when a part or process is complete, a part is bad, and when the machine is running. This data for each shift is stored in the unit and sent via Ethernet to the Production Monitoring software.

The software will allow you to set your production rate, daily production goals and time a machine is down before an email is sent. Once these values are set the software will display the current number of good parts, bad parts, run time, maximum parts per hour, current parts per hour, machine utilization and percentage of shift production goal. It also shows what machines are currently online and which machines are not running. The unit firmware is easily upgradeable through the software if any new features are added.





- · Compatible with any machine whether it is controlled by PC, PLC, CNC or Relays
- · Compatible with any 24 VDC sensor or switch
- · Stand alone- no computer required on the machine to support the unit
- Standard Ethernet connection
- · Can be used with wireless networks (requires a wireless bridge)
- Expandable from 1-100 units
- Software generates custom reports
- · Email alerts sent if machine is down
- · All data is logged into an Access database at the end of each shift
- Windows 98, ME, NT, 2000, XP and Vista compatible software
- Removable Phoenix connector for easy wiring
- · OEE (Overall Equipment Effectiveness) data collection and display
- Assignable loss codes for machine downtime
- · Relay outputs to stop machine until loss code is assigned







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FECHNA-TOOL