

NEW

METROL

Reasonable Price

High Radio Transmission Performance

High-Precision Wireless Touch Probe RC-K3X Series

- CNC machine tool workpiece dimension measurement and centering
- Greatly reduces the cost of setup and measurement

Improving your productivity with on-machine measurement.

Touch Probe RC-K3X is extremely low cost even high quality.
No more cost concerns about expensive implementations or spare parts.

Applications

- ✓ Automates workpiece centering and setup measurement.
- ✓ Reduces manpower by quick measuring of the workpiece on the jig in CNC machine tools.
- ✓ Eliminates movement and setup waste that accompanies off-machine inspections.

1. Reasonable Price

You can reduce costs by replacing more expensive touch probe with Metrol Touch Probe.
Our engineers also provide quick after-sale service.

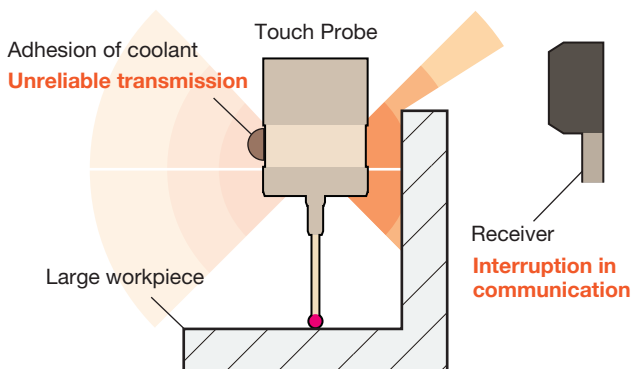
2. High Wireless Communication Performance

Our proprietary communication method provides highly reliable wireless communication performance with a stable $1\mu\text{m}$ (2σ) repeatability even in locations subject to interference from Wi-Fi, Bluetooth, or other signals or that are surrounded by shielding materials, which are factors that interfere with accuracy.



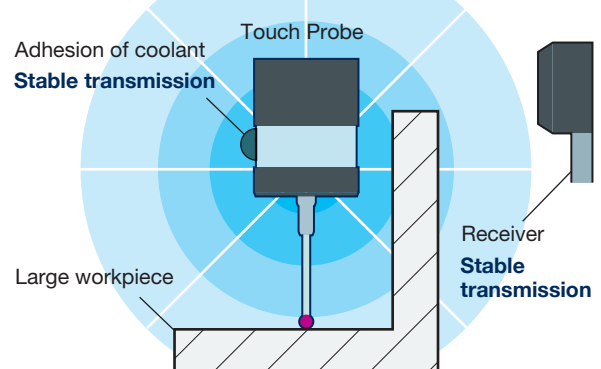
Conventional infra-red optical communication

Affected by obstacles and coolant



Metrol's new wireless transmission system

Uninterrupted by coolant or noise

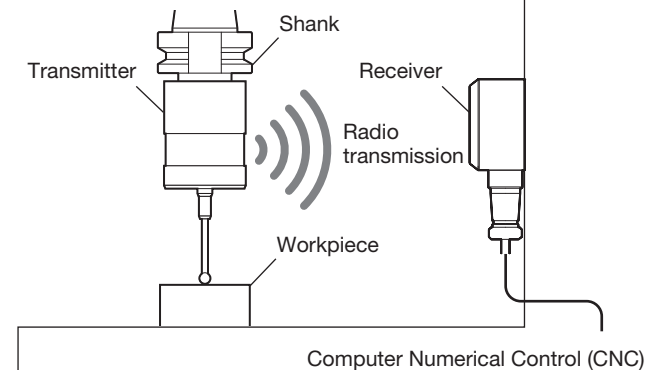


Transmitter (Touch Probe)

Stable transmission using electromagnetic waves is possible even for 5-axis machine tools with complex wiring and areas surrounded by shielding materials.

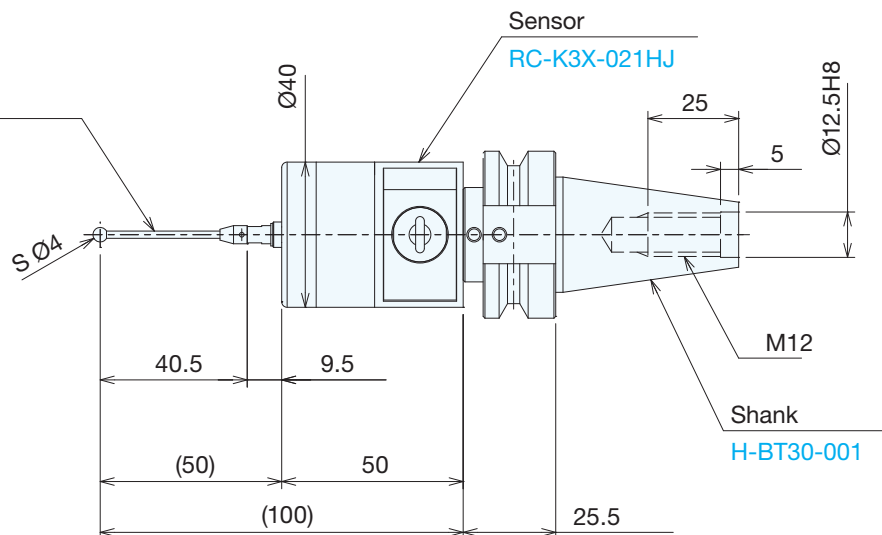


System structure



RC-K3X

Stylus
F-R40T-405



(mm)

*You can select the required stylus and shank.

Specifications

Repeatability	1 μm (2 σ) *At the Speed of : 150 mm/min **	Wireless communication quality maintenance function	Interfering signal avoidance function using automatic channel changing
Contact life time	3 million	Waterproof design	IEC IP67 for both transmitter and receiver
Contact force	XY: 0.5N Z: 5.5N	Operating environment	For indoor use only
Sensing directions	5 directions $\pm X$ $\pm Y$ $+Z$	Display	Transmitter LED in two locations
Overtravel	XY directions: $\pm 13^\circ$ $+Z$ direction: 4 mm	LED display	POWER, BATTERY, TOUCH, SIGNAL#1/#2/#3
Contact signal	Single point NC	Operating temperature	5°C to 50°C: 20% to 80% (no condensation)
Frequency	2,404MHz - 2,476MHz	Weight	Sensor unit: Approx. 250g (with battery) Receiver: Approx. 290g
Communication distance	Max. 15 meters (Estimated distance) **	Transmitter power supply	1/2 AA lithium-thionyl chloride battery: 2 batteries
ID control	Paired transmitter ID No. and communication (Number of units with which communication is possible: 1 unit)	Receiver power supply	24VDC $\pm 10\%$ 100mA

*1 When conducting measurement perpendicular to the stylus using a standard stylus (L: 40mm) that is fixed to the probe.

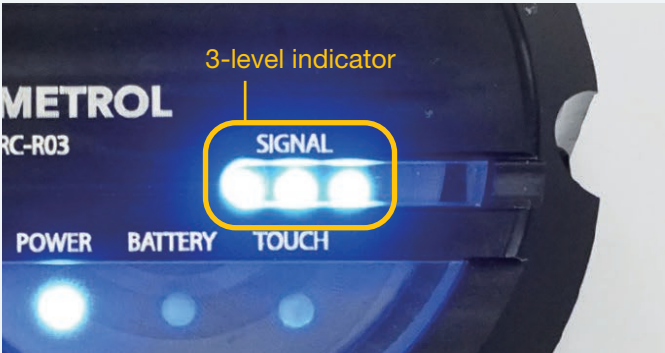
*2 The communication distance is shorter when communicating in an environment that interferes with electromagnetic waves or when the receiver is installed off the machine.

Receiver

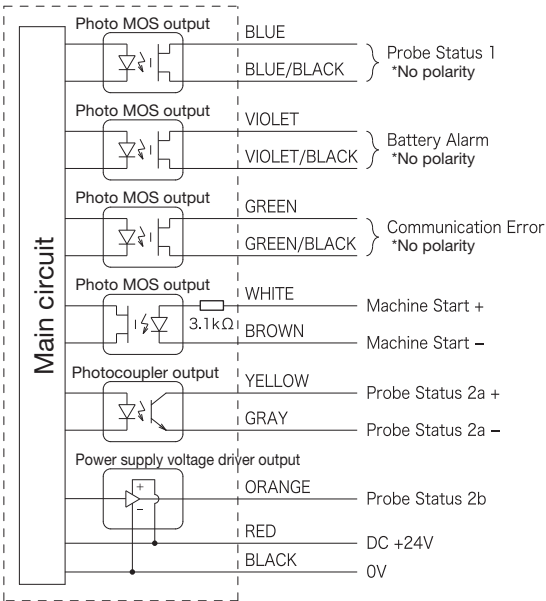
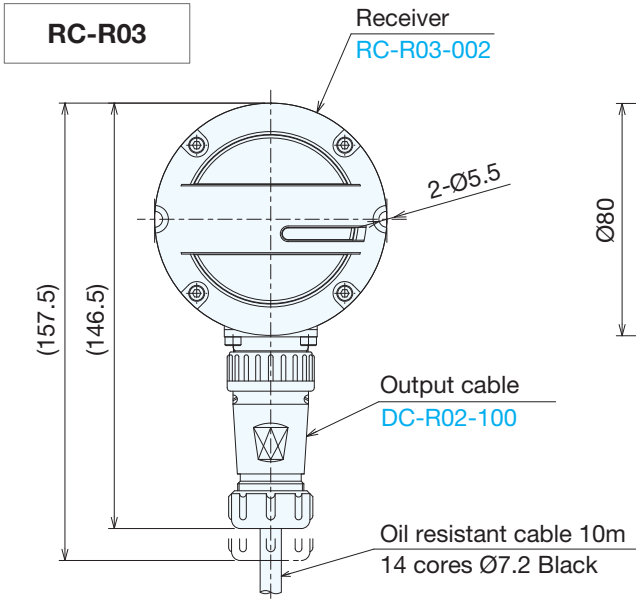
Using IP67, the receiver can be installed in the machine and stable wireless communication achieved even in poor environments.
Communication is possible even when the receiver is installed on the back of the equipment.



The receiver can be installed in any location, even on the side surrounded by metal.



The 3-stage LED shows the communication stability and reception strength.



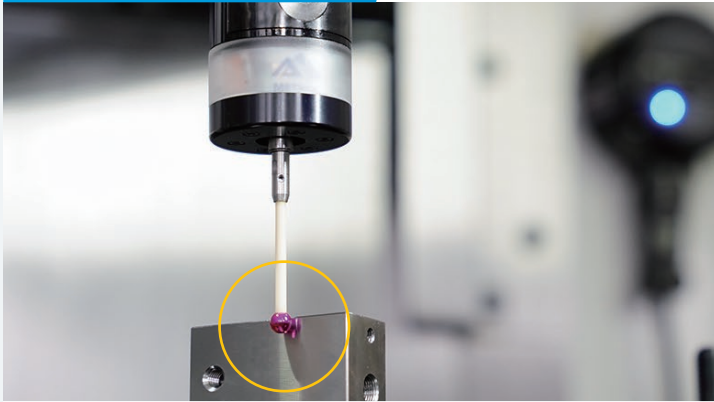
*For the output signal details, refer to the explanation for the modes.

Name	Specifications	Explanation
Probe Status1	No polarity photo MOS relay output Output voltage up to 40V Output current up to 100mA	Outputs the communication status and sensor ON/OFF status.
Battery Alarm	No polarity photo MOS relay output Output voltage up to 40V Output current up to 100mA	Outputs the sensor battery alarm information.
Communication Error	No polarity photo MOS relay output Output voltage up to 40V Output current up to 100mA	Outputs the communication error information.
Machine Start	Polarized input wire Input voltage 24V±10%	Used to switch the operation mode.
Probe Status2a	Polarized photocoupler output Output current up to 50mA	Outputs the sensor ON/OFF status.
Probe Status2b	Polarized power supply voltage driver output Output current up to 50mA	Outputs the sensor ON/OFF status.

Example Installations in CNC Machine Tools

Machining Center

Zero point setting and on-machine measurement of workpiece



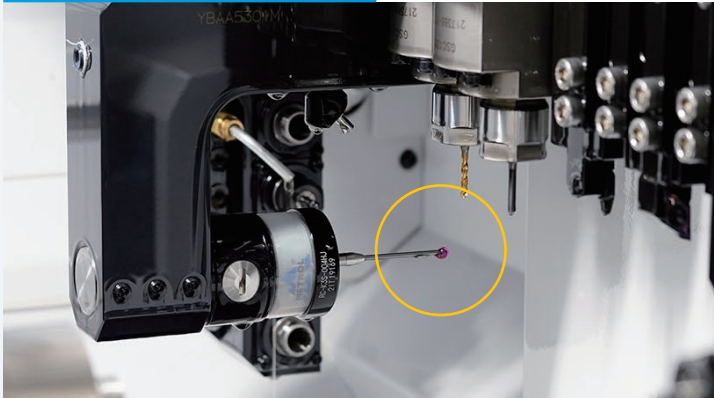
Low-cost, on-machine measurement is possible using No.30 machining center.



Manufacturer: Brother Industries
Model: SPEEDIO

CNC lathe

On-machine measurement of workpiece inside & outside diameter



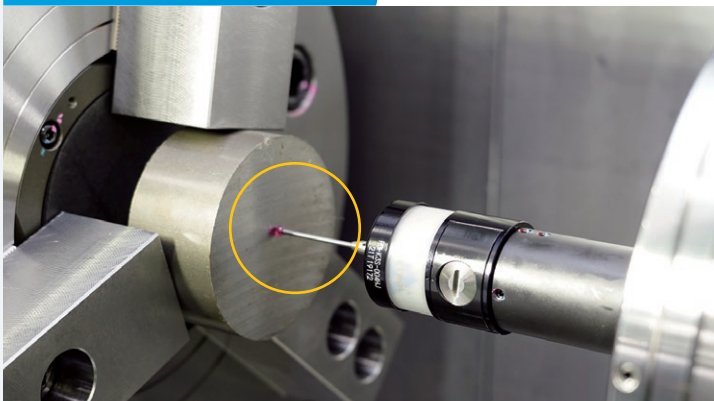
Can even be installed inside small automatic lathes.



Manufacturer: CITIZEN MACHINERY
Model: Cincom L20

CNC multi-tasking machine

Zero point setting and on-machine measurement of workpiece



Stable communication is possible even inside large multi-tasking machine.



Manufacturer: Yamazaki Mazak
Model: INTEGREX

Optional accessories

Shank

We can provide shanks meeting a variety of standards, so please contact us for more information.



Size : BT30
Shank No. : **H-BT30-001**

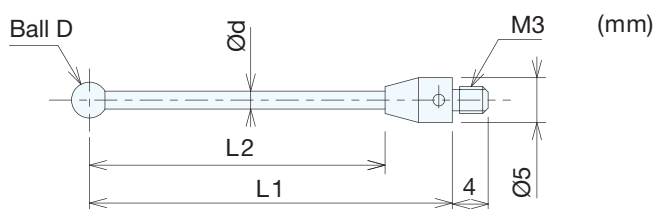


Size : BT40
Shank No. : **H-BT40-001**

Stylus

Please contact us for other stylus shapes and materials.

Stylus No.	D	Ød	L1	L2
F-R50T-405	5.0	2.5	40.5	33
F-R40T-405	4.0	2.0	40.5	33
F-R30T-405	3.0	1.5	40.5	33
F-R20T-205	2.0	0.8	20.5	13



Stylus No.

F - R Ball diameter (D) T - Length (L1)

Shaft material (T: Tungsten carbide, H: High speed steel)

Ball material (R: Ruby, T: Tungsten carbide)

— Precautions —

- 1) Use the shortest stylus as possible.
Long stylus are more likely to cause chattering and malfunctions due to vibrations or impacts.
- 2) The stylus should be firmly fixed to the sensor head.
- 3) Clean the stylus frequently and remove adhesion of coolant or cutting chips on it in order to prevent variation in signal point.
- 4) Replace the stylus when it is worn or stuck with foreign substances which cannot be cleaned up.
- 5) Using big ball reduces the effect of surface finishing of the workpiece being inspected, avoiding erroneous measurement.
- 6) When the stylus has an extremely small stem diameter (Ød), the shear screw may not be effective.
- 7) Using the stylus with extremely small stem diameter (Ød) at high feed speed may result in breakage or variations in accuracy.

Contact

Please feel free to contact us about your product selection questions and technical inquiries. Our highly-experienced switch development designers will directly handle your inquiry.

● Technical Inquiries Desk

(Available: 8:30 a.m. to 5:30 p.m. on weekdays)

TEL +81-50-5558-7366

Please contact us by telephone if you are in a hurry (mobile phone OK)

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● Website

We feature a technical blog for engineers and improvement case studies on the Metrol website.

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