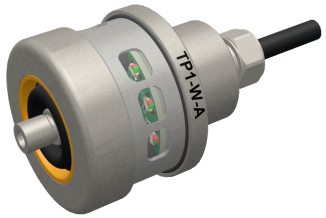
CNC Touch Probe

M4, ±X ±Y −Z, 0.002 mm 2σ, 50 µs response

TP1-W-A

HIGHLIGHTS

- High repeatability, 0.002 mm 2σ (0.00008 in)
- Five measuring directions, ±X, ±Y, −Z
- Power and signal via one 8 m, 4-wire cable with flying leads
- TOUCH_NO or TOUCH_NC wire sets the NO or NC output function
- No receiver or battery: PNP output connects directly to the skip input
- Compact size, Ø1.614 × 2.559"



Parameter	Value
Model No.	TP1-W-A
Connection	Axial cable (flying leads)

APPLICATIONS

- Multidirectional measurement
- Workpiece measurement
- Tool measurement
- Broken tool detection
- Tool wear measurement
- Tool length measurement
- Tool diameter measurement
- Thermal axis compensation
- Low- and high-volume production

PRODUCT OVERVIEW

The TP1-W-A is a general-purpose, wired touch-trigger probe designed for a wide range of workpiece setup and tool measurement applications on CNC machines. It provides 0.002 mm 2σ repeatability (30 mm stylus), with a kinematic 3-point seat that returns the stylus to the same rest position after every deflection.

The unit is housed in a compact, IP65-sealed body with an M4 stylus thread, a Ø25h8 shank, and an 8 m, 4-wire cable with flying leads at the axial outlet. Two of its wires carry the 5–24 V DC supply, the other two the PNP TOUCH output. Either TOUCH_NO or TOUCH_NC connects directly to the skip input of the machine control.

KEY FEATURES

Feature	Advantages
0.002 mm 2σ repeatability	A kinematic 3-point seat returns the stylus to the same rest position after every deflection for precise probing in ±X, ±Y, and −Z.
No receiver or battery required	All signals run directly through the output cable. A PNP-compatible skip input is all that is needed for probing — no receiver, no batteries.
IP65 sealed body	Dust-tight and protected against water jets according to IEC 60529.
NO and NC wire output	TOUCH_NO and TOUCH_NC wires with PNP switching provide broad compatibility with Fanuc, Haas, Siemens, Mazak, and other CNC controls.

CNC Touch Probe

M4, ±X ±Y −Z, 0.002 mm 2σ, 50 µs response

TP1-W-A

MECHANICAL SPECIFICATIONS

Parameter	Conditions	Value	Unit
Measuring directions	-	±X, ±Y, −Z	-
Repeatability, 2σ	Stylus length 30 mm	0.002	mm
Measuring force, XY	Stylus length 30 mm	2	N
Measuring force, Z	Stylus length 30 mm	6	N
Stylus overtravel, XY	-	±10	°
Stylus overtravel, Z	-	4.5	mm
Maximum probing speed	-	2	m/min
Stylus thread	-	M4	-
Degree of protection	IEC 60529	IP65	-
Probe weight	-	260	g

ELECTRICAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Supply voltage, DC	-	5	-	24	V
Current consumption	-	-	-	100	mA
Output current	-	-	-	200	mA
Response time	On stylus deflection and return	-	50	-	µs

ABSOLUTE MAXIMUM RATINGS

Parameter	Value
Operating temperature	+10 °C to +40 °C
Storage temperature	−20 °C to +70 °C
Supply voltage, DC	24 V
Output current	200 mA
Stylus overtravel, XY	±10°
Stylus overtravel, Z	4.5 mm

Permanent damage may occur if any of these limits are exceeded.

CONNECTIONS

Model	Cable	Conductors	Output Signals
TP1-W-A	8 m, axial outlet, flying leads	4 × 0.25 mm^2	TOUCH_NO, TOUCH_NC

OUTPUT CONFIGURATION

Setting	Value
Output type	PNP
Output function	NO or NC
Selected by	TOUCH_NO or TOUCH_NC wire

WIRE ASSIGNMENT

Color	Signal
White	GND
Brown	VCC
Yellow	TOUCH_NO
Green	TOUCH_NC

TYPICAL PERFORMANCE CURVES

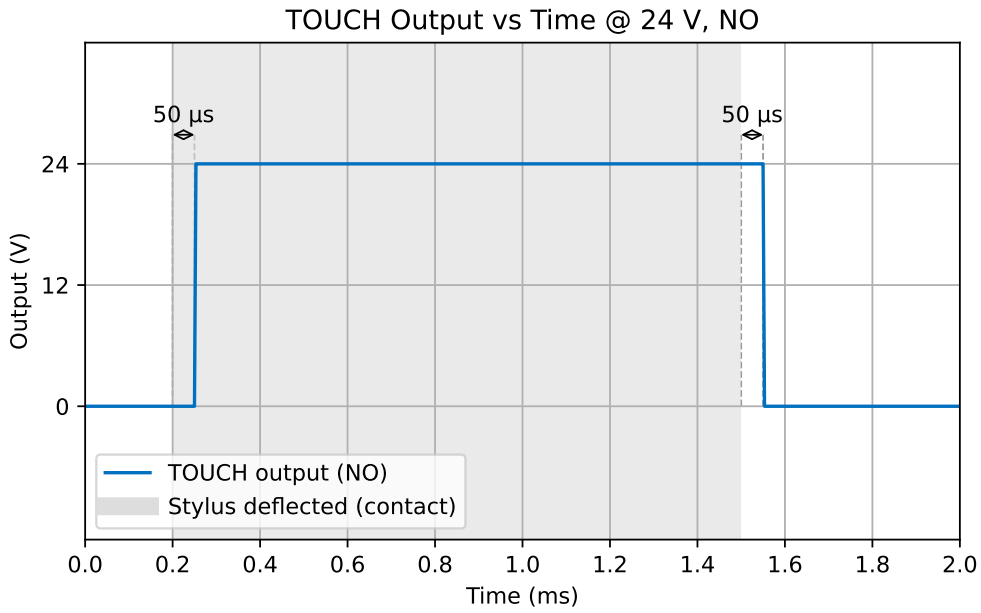


Figure 1: Output vs. Time

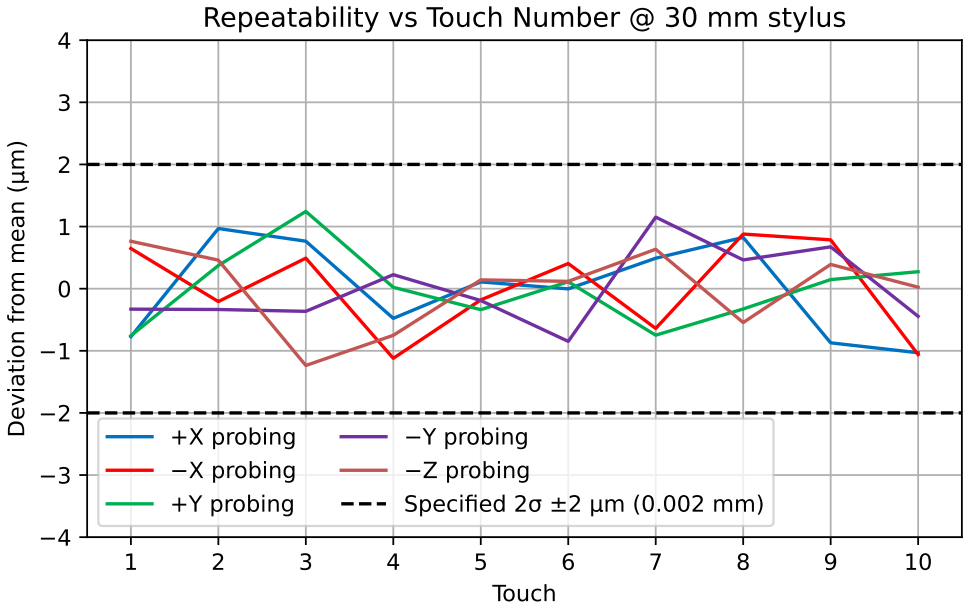


Figure 2: Repeatability vs. Touch Number

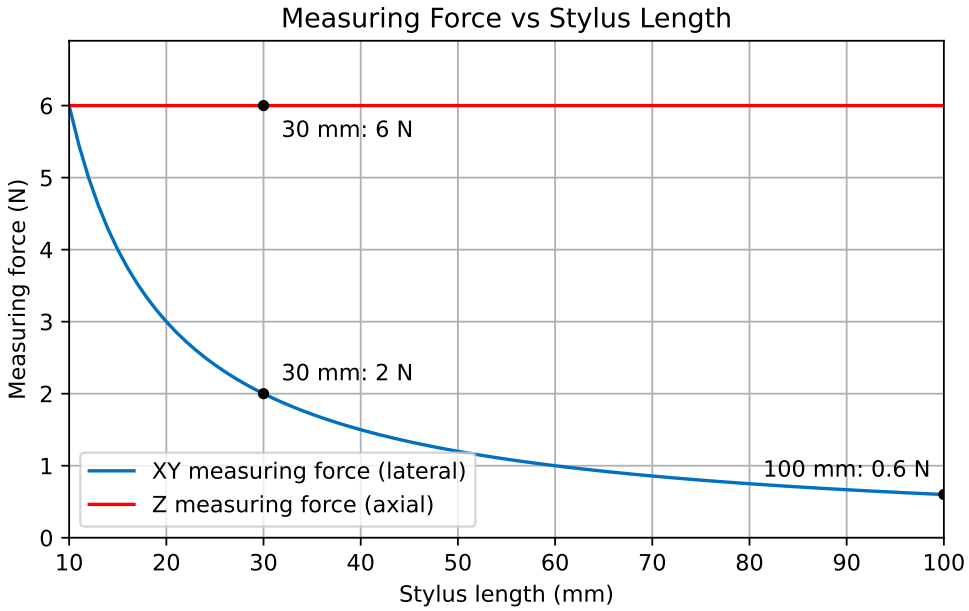


Figure 3: Measuring Force vs. Stylus Length

WEB INTERFACE (WEBUI)

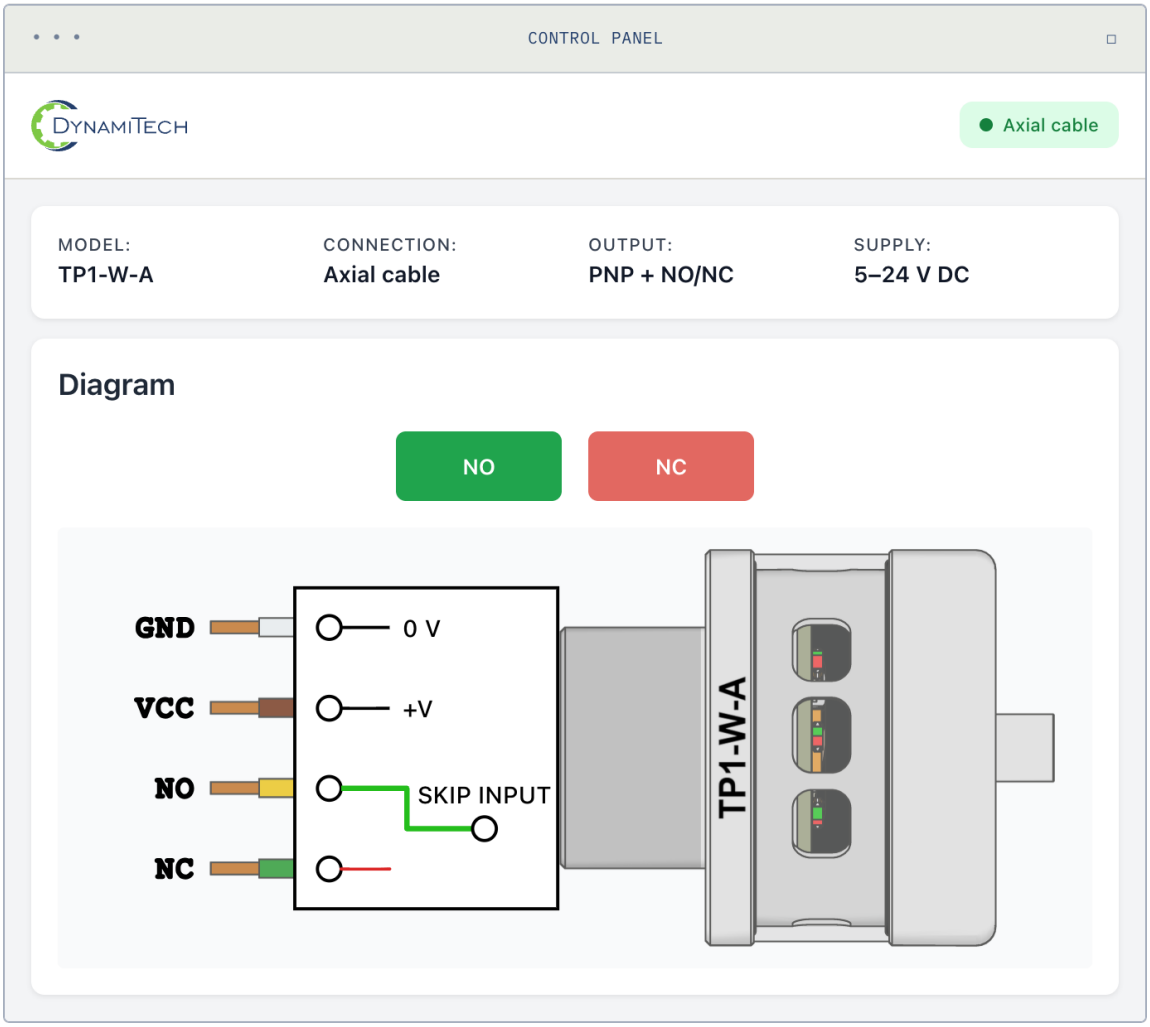


Figure 4: Web Interface (WebUI)