

Universal Miniature Force Transducer

Model Series: **UMFT-10** | Range: **0 – 10 kg** (Tension & Compression)



1. OVERVIEW & KEY APPLICATIONS

The **NK Instruments Model UMFT-10** is a precision Universal Miniature Force Transducer engineered for high-accuracy bidirectional push and pull force measurement. Built with dual-sided threaded M3 mounting ports and an integrated 4-core shielded cable, model **UMFT-10** delivers an accurate **1.20 mV/V** output. It is tailored for space-critical robotics, automated micro-actuator force verification, medical push-pull testing, and industrial process control.

| 2. MECHANICAL SPECIFICATIONS

PARAMETER	SPECIFICATION
Model Number	UMFT-10 (Universal)
Rated Load (F_{nom})	10 kg (≈ 98.1 N)
Sensing Mode	Dual Side (Push / Pull)
Thread Interface	M3 x 0.5 Tapped Holes
Safe Overload	150% Full Scale
Ultimate Overload	200% Full Scale
Construction	Aluminum
Protection Rating	IP47 Dust

| 3. ELECTRICAL SPECIFICATIONS

PARAMETER	SPECIFICATION
Sensitivity Output	1.20 mV/V $\pm$ 5%
Zero Balance	± 0.10 mV/V
Excitation (Rec.)	3 V DC – 5 V DC
Excitation (Max.)	10 V DC
Bridge Resistance	700 Ω $\pm$ 10 Ω
Insulation Resistance	≥ 2000 M Ω (at 50V DC)
Cable Connection	4-Pin Cable Assembly

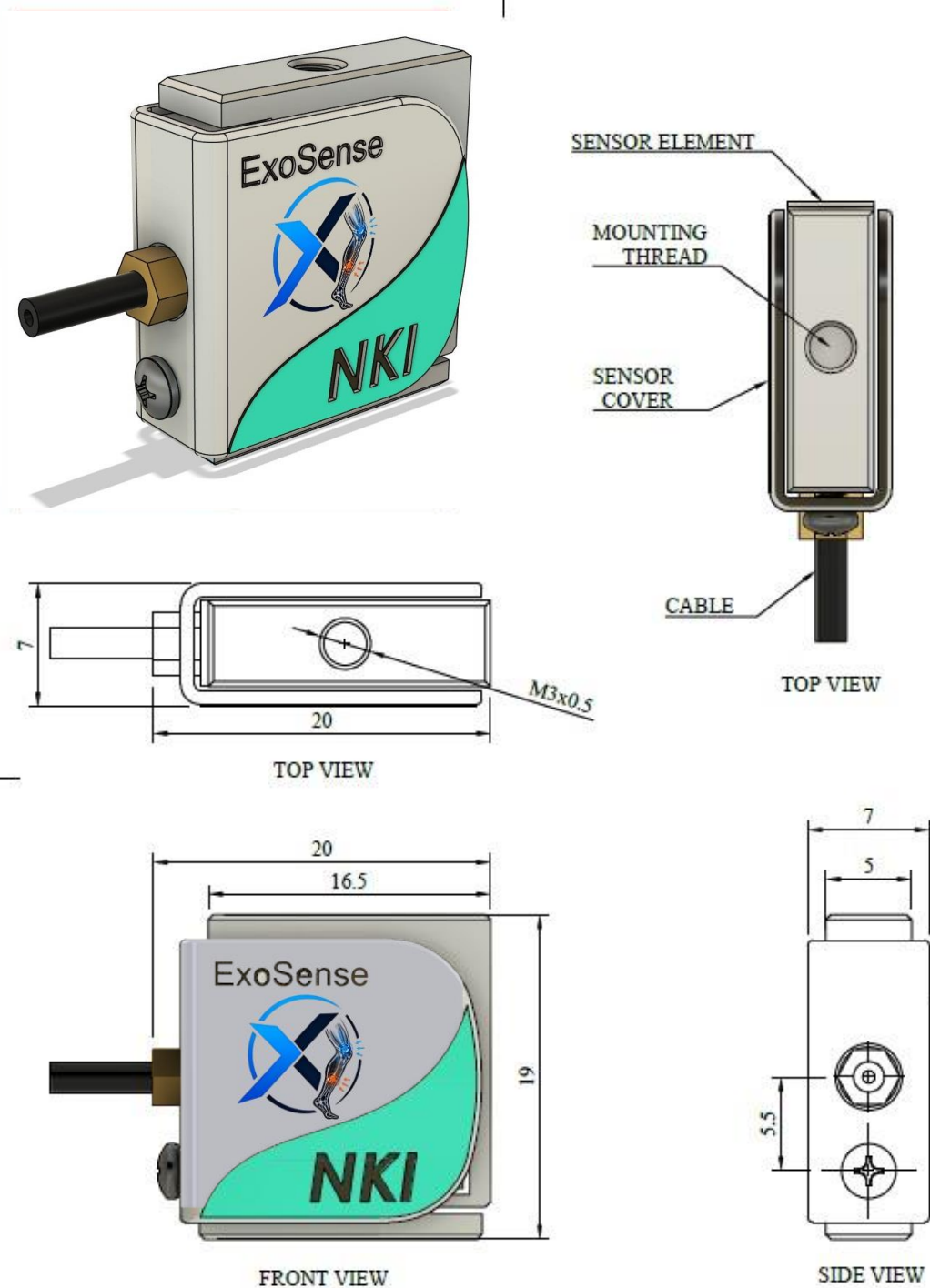
| 4. PERFORMANCE SPECIFICATIONS

PARAMETER	VALUE / TOLERANCE
Non-Linearity	≤ 0.05% F.S.
Repeatability	≤ 0.03% F.S.
Hysteresis	≤ 0.05% F.S.
Creep (30 min)	≤ 0.05% F.S.
Operating Temp Range	-10°C to +60°C
Compensated Temp Range	0°C to +40°C

| 5. 4-CHANNEL CABLE WIRING CONFIGURATION

WIRE COLOR	SIGNAL FUNCTION	SYMBOL	CONNECTION TYPE
RED 	Excitation Positive	<i>E+ / VCC</i>	Power Supply Input (+5V to +10V DC)
BLACK 	Excitation Negative	<i>E- / GND</i>	Power Supply Return Ground
WHITE 	Signal Output Positive	<i>S+ / OUT+</i>	Positive Output Signal (mV)
GREEN 	Signal Output Negative	<i>S- / OUT-</i>	Negative Output Signal (mV)

6. DESIGN



PARAMETER	SPECIFICATION
FORCE RANGE	0 - 100 N (10 kgf)
NO OF AXIS	1 (Both Tension & Compression)
MASS	25 gms (approx)
MOUNTING BOTH SIDES	M3x0.5
FATIGUE RATED	100 million cycles
MATERIAL	ALUMINUM 6075