

# Model 1531 Ceramic Force Transducers

## Description

Model 1531 force transducer is manufactured through BCM thick-film technology. The design of 1531 is optimized for its best performance to measure tension.

This model is designed for yarn break detection or yarn tension measurement which is often necessary in textile industry. For this purpose, the geometry of the 1531 is specially developed to be integrated into a yarn break detector or a yarn tension transducer with a metal or plastic housing, so as to be able to easily installed in the twisting device or tufting equipment.

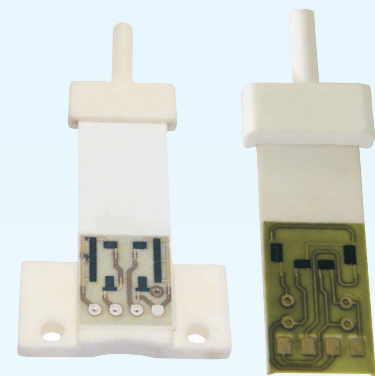
With a sensor signal conditioning circuit, its output can be conditioned to either analogue (e.g., 1~5Vdc) or digital (e.g., I2C) signal output.

## Features

- made from ceramics
- manufactured by thick film technology
- single bending beam of piezo-resistive working principle
- low profile with wide range of capacities from 0.1kg to 0.4kg
- low nonlinearity, hysteresis, and nonrepeatability errors

## Applications

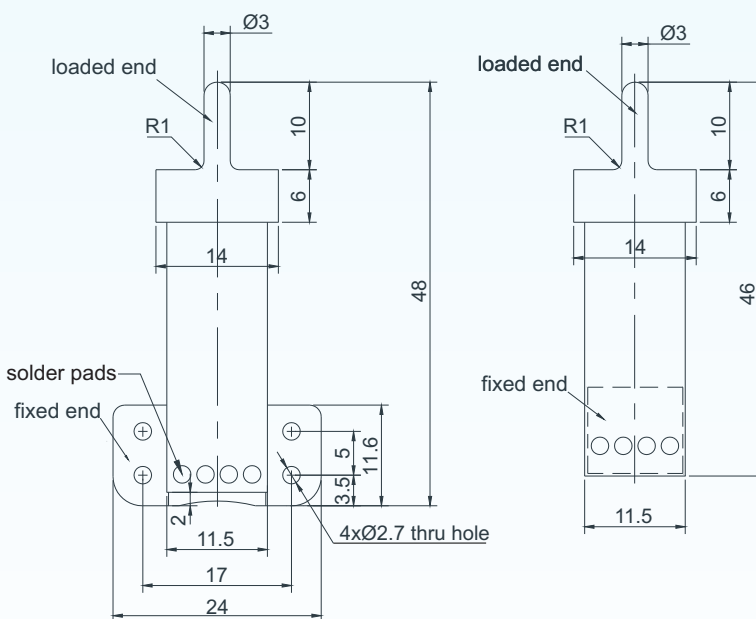
- yarn break detection
- yarn tension measurement
- tension or compression force measurement



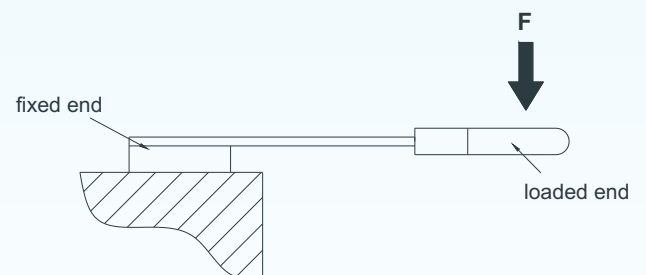
type 1

type 2

## Dimensions



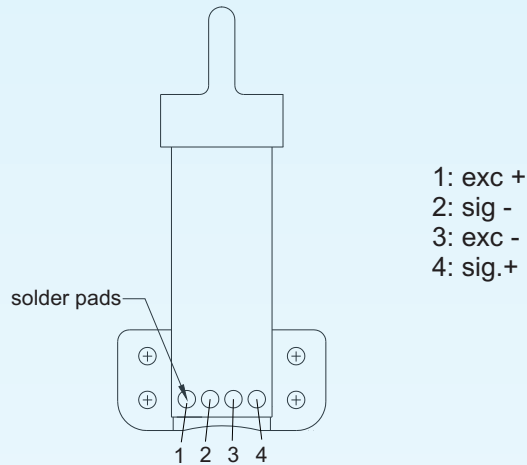
## Schematic Diagram of Mounting Arrangement



**BCM SENSOR TECHNOLOGIES BVBA**

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## Electrical Connections



## Technical Data

Parameters	Units	Specifications
capacity	kg	0.1, 0.2, 0.3, 0.4
safe load limit	%fs	120
ultimate overload	%fs	150
output sensitivity at fs	mV/V	≥ 2.5, ≥ 1.8 (capacity of 0.2kg), ≥ 0.9 (capacity of 0.1kg)
zero unbalance	mV	≤ ±1
accuracy	%fs	±0.5 (standard), ±1
creep error (30 min.)	%fs	±0.02
excitation	Vdc	5, ..., 25
max. excitation voltage	Vdc	30
input resistance	kΩ	11 ±2
output resistance	kΩ	9.5 ±2
insulation resistance	MΩ	≥100 @50Vdc
storage temp. range	°C	-25 ~ +85
operating temp. range	°C	-25 ~ +85
compensated temp. range	°C	-20 ~ +55
temp. coefficient of zero	%fso/°C	≤ ±0.04
temp. coefficient of span	%fso/°C	≤ ±0.04
load cell body material		ceramics (96% Al <sub>2</sub> O <sub>3</sub> )
mechanical interface		refer to the dimensions on the datasheets
electrical interface		4 solder pads
environment protection		IP65
unit weight	g	~1

The listed specifications are subject to change without prior notice.

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## Ordering Information

<b>position (pos.) 1: model</b>				
1531(type1)		1531(type2)		
<b>pos. 2: capacities</b>				
0.1kg		0.2kg	0.3kg	0.4kg
<b>pos. 3: output sensitivity</b>				
2.5mV/V (capacity: 0.3kg or 0.4kg)				
1.8mV/V (capacity: 0.2kg)				
0.9mV/V (capacity: 0.1kg)				
<b>pos. 4: non-linearity or accuracy class</b>				
0.5%fs (standard)			1%fs	
<b>pos. 5: customized specifications</b>				
“(*)” is necessary only if any customized parameter is required, otherwise it is neglectable.				
<b>pos.1</b>	<b>pos. 2</b>	<b>pos. 3</b>	<b>pos. 4</b>	<b>pos. 5</b>

### Examples of Ordering Code

- standard transducer:  
1531(type1)-0.3kg-2.5mV/V-0.5%fs
- customized transducer:  
1531(type2)-0.5kg-2.5mV/V-0.5%fs-(\*)  
(\*): Customized capacity = 0.5kg.

