

## 7FCS Double Inverted Magnetron Quick-Start Cleanable Cold Cathode Sensor

Part Number: 2-2146-053



Operating Specifications <sup>1</sup>	
Operating Range	1 x 10 <sup>-11</sup> to 1 x 10 <sup>-2</sup> Torr
Analog Output	Controller-dependent
Supply Voltage	Controller-dependent
Mounting Orientation	Any
Calibration Medium	Dry air or nitrogen
Overpressure	150 PSI
Analog Output Resolution	Controller-dependent
Operating Temperature	0° to +50° C
Storage Temperature	-20° to +70° C
Bakeout Temperature	200° C
Response Time	≤ 10 ms
Starting (Dormant) Time	≤ 5 s (see description)
Accuracy	1 x 10 <sup>-9</sup> to 1 x 10 <sup>-2</sup> Torr ±0.2 decade

Physical Characteristics	
Electrical Connections	SHV5
Weight	944 g (2.08 lbs) (NW25)
Dimensions	See dimensional drawings

Materials Exposed to Vacuum	
Stainless Steel	
Ceramic	
Copper	
Tungsten	
Glass	
Aluminum	

- | Benefits   |
|--|
| <ul style="list-style-type: none"> <li>• Cleanable for extended sensor lifetime</li> <li>• Quick ignition at UHV</li> <li>• Mountable in any orientation</li> <li>• Resistant to inrushes of gas</li> <li>• Minimal stray magnetic field</li> <li>• Excellent customer support</li> <li>• Designed and manufactured in the United States of America</li> </ul> |

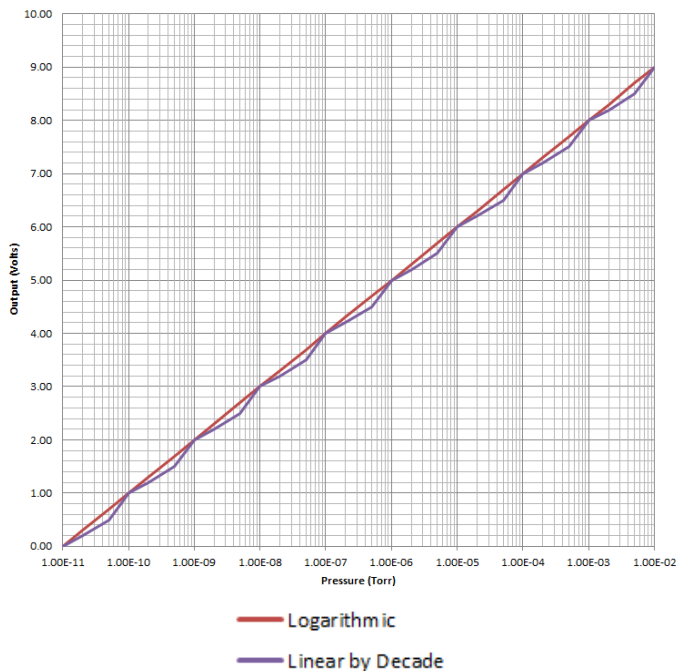
### Description

The 7FCS cold cathode sensor has a measurement range from 1 x 10<sup>-11</sup> up to 1 x 10<sup>-2</sup> Torr. It indirectly measures absolute pressure by ionizing gas in the presence of a magnetic field. Unlike hot filament sensors, the 7FCS is resistant to inrushes of gas. The design of this sensor allows for easy disassembly enabling quick cleaning and extended use.

In addition, the 7FCS sensor is specially designed for turn on at ultra high vacuum (UHV). If your application requires ignition in the 10<sup>-8</sup> Torr range or higher, turn on will occur in less than five seconds. The 7FCS utilizes Double Inverted Magnetron sensor technology combined with a thermionic emitter, which turns on automatically with the cold cathode for five seconds.

The 7FCS can be operated by the Televac MM200 rack mountable controller. This controller automatically operates the cold cathode to provide a full range vacuum measurement solution when the 7FCS is used in conjunction with rough vacuum sensors.

### Analog Output Behavior (MM200)



### Ratings and Compliance

- RoHS compliant

<sup>1</sup> See the Televac website at [www.televac.com](http://www.televac.com) for a list of definitions for terms used in the operating specifications. All test data was acquired at 23° C.





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**Part Number: 2-2146-053**



**Ordering Information**

<b>7FCS Cold Cathode Sensor</b>	2-2146-053
<b>Standard Cables</b>	2-9841-0XX
<b>Ignition Cables*</b>	2-9837-0XX
<b>High Temperature Cables (200 C)</b>	2-9842-0XX
<b>Triaxial Cables</b>	2-9835-0XX
<b>Radiation Resistant Cables</b>	2-9836-0XX
<b>Cable Length</b>	XX
10 ft (3 m)	10
20 ft (6.1 m)	20
35 ft (10.6 m)	35
50 ft (15.2 m)	50
<b>MM200 Base Unit</b>	2-7900-20
<b>MM200 7FCS Module</b>	2-6200-285

\*Note: A separate ignition cable is required for quick start capability.

**Related Products**

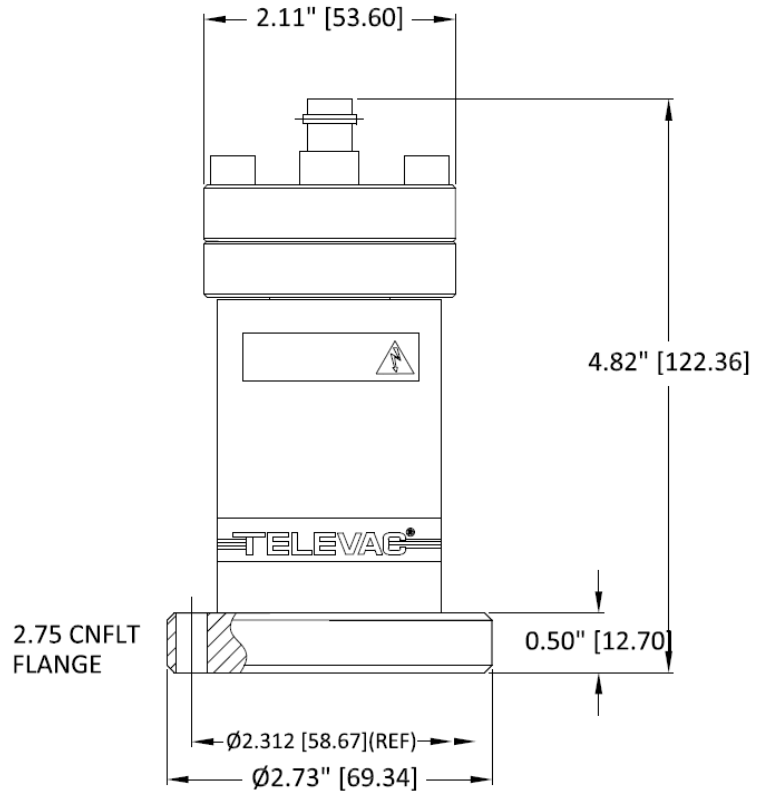
**7E Double Inverted Magnetron Cold Cathode Sensor** – This sensor has a measurement range from  $1 \times 10^{-8}$  up to  $1 \times 10^{-2}$  Torr. It indirectly measures absolute pressure by ionizing gas in the presence of a magnetic field. Unlike hot filament sensors, the 7E is resistant to inrushes of gas. The design of this sensor allows for easy disassembly enabling quick cleaning and extended use. The 7E can be operated by several Televac controllers, including the MM200, MC300, and MP7ER. The MM200 and MC300 controllers automatically operate the cold cathode to provide a full range vacuum measurement solution when the 7E is used in conjunction with rough vacuum sensors.

**7F Double Inverted Magnetron Cold Cathode Sensor** – This sensor has a measurement range from  $1 \times 10^{-11}$  up to  $1 \times 10^{-2}$  Torr. It indirectly measures absolute pressure by ionizing gas in the presence of a magnetic field. Unlike hot filament sensors, the 7F is resistant to inrushes of gas. The design of this sensor allows for an extended range of measurement and high bakeout temperatures up to 400° C. The 7F can be operated by several Televac controllers, including the MM200, MC300, and MP7FR. The MM200 and MC300 controllers automatically operate the cold cathode to provide a full range vacuum measurement solution when the 7F is used in conjunction with rough vacuum sensors.

**MM200 Vacuum Sensor Controller** - The MM200 controls any Televac vacuum sensor including cold cathode, convection, diaphragm, hot ion, and thermocouple sensors. It also has optional features including up to 8 relay set points and RS-232/RS-485 communications. The large, bright LED display makes it easy to read from a distance. The MM200 is a modular unit, allowing customers to choose a vacuum sensing solution specific to their needs.

Visit the Televac website at [www.televac.com](http://www.televac.com) for a full list of products and product applications.

**Dimensional Drawings**



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