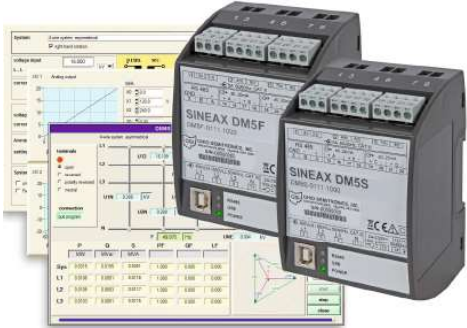


# PROGRAMMABLE MULTI-FUNCTION TRANSDUCER MODEL DM5

### DESCRIPTION

The DM5 series multifunction transducers measure all parameters of voltage, current and power in 1-, 2- and 3-phase systems with direct connections of up to 5Aac and 693V<sub>L-L</sub>. The included CB-Manager software allows the user to quickly and easily configure each device for specific applications through the convenient USB port or remotely via the RS485 Modbus/RTU interface option. This software allows the user full configuration access as well as data storage and acquisition, device setting and resetting, and security controls. All DM5 models are available with up to 4 bi-directional analog outputs. The DM5S also offers the capability of monitoring up to 32 energy meters with individual tariffs and base measurement quantities.



## MODEL SELECTION

**DM5** □ - **0 1 1 1 1** □ **E 0**

MEASUREMENT TIME	SYSTEM CONFIGURATION	COMMUNICATION INTERFACE	ANALOG OUTPUTS	TEST CERTIFICATE
<b>F</b>  Programmable, 1/2-, 1/2 (1)-, 1-, 2-, 4- or 8- cycle measurement	<b>1</b>  Universal for all applications (3 voltage inputs, 3 current inputs)	<b>1</b>  RS-485 (Modbus/RTU protocol)	<b>0</b>  (none)	<b>E</b>  Includes certificate in English
<b>S</b>  Programmable, 4- to 1024-cycle measurement plus energy metering			<b>4</b>  4 analog outputs, bidirectional ±20mA	

## SPECIFICATIONS

### INPUT

Current, Nominal..... 1 to 5Aac, adjustable  
 Maximum..... 7.5A (sinusoidal)  
 Overload without damage ..... 10A, continuous  
   100A, 10 x 1s, at 100s intervals  
 Burden..... ≤ I<sup>2</sup> / 3MΩ per phase  
 Voltage, Nominal.....57.7 to 400V<sub>L-N</sub>, 100 to 693V<sub>L-L</sub>  
 Maximum..... 480V<sub>L-N</sub>, 832V<sub>L-L</sub> (sinusoidal)  
 Overload without damage  
     480V<sub>L-N</sub>, 832V<sub>L-L</sub> continuous  
     600V<sub>L-N</sub>, 1040V<sub>L-L</sub>, 10 x 10s, at 10s intervals  
     800V<sub>L-N</sub>, 1386V<sub>L-L</sub>, 10 x 1s, at 10s intervals  
 Burden..... ≤ V<sup>2</sup> / 3MΩ per phase  
 Impedance..... 1.54 MΩ per phase  
 Frequency Range .....45...50/60...65Hz  
 True RMS measurement up to 63rd harmonic

### INSTRUMENT POWER

Nominal ... 100-230Vac ±15%, 50-400Hz or 24-230Vdc ±15%  
 Burden..... ≤ 10VA

### SYSTEM CONFIGURATIONS ACCOMMODATED

- Single-phase
- Split-phase (2 phase system)
- Three-phase....3-wire, balanced load (1 1/2 element)
- 3-wire, bal. load, phase shift (DM5S only)
- 3-wire, unbalanced load (2 ele., 3 ele.)
- 3-wire, unbalanced load, Aron connection
- 4-wire, balanced load (1 ele.)
- 4-wire, unbalanced load (2 1/2 ele., 3 ele.)
- 4-wire, unbalanced load, Open-Y

### CONFIGURATION INTERFACE

Type ..... USB, max. 10ft. (3m)  
 Physical.....Socket USB-B  
 Device Class ..... Human interface device (HID)

### COMMUNICATION INTERFACE

Modbus/RTU..... RS-485 (max. 32 devices)  
 Physical.....max. 4000ft. (1200m), via plug-in terminals  
 Baud Rate ..... 2.4k to 115.2kBaud

### SPECIFICATIONS

#### ANALOG OUTPUTS

Connections..... plug-in terminals, galvanically isolated  
 Linearization..... linear or kinked  
 Range .....  $\pm 20\text{mA}$  (24mA max.), bipolar  
 Uncertainty.....  $\pm 0.1\%$  (included in basic accuracy)  
 Response Time (50Hz)  
 DM5S ..... 85...165ms (for 4 cycles measurement)  
 DM5F..... 15...25ms (for  $\frac{1}{2}$  cycle measurement)  
 Burden .....  $\leq 500\Omega$  (max. 10 V / 20 mA)  
 Burden Influence.....  $\leq 0.1\%$   
 Residual Ripple.....  $\leq 0.2\%$

#### MEASUREMENT UNCERTAINTY

Ref. Cond..... Ambient  $23^\circ\text{C} \pm 1^\circ\text{C}$ , sinusoidal, PF=1,  
 (acc. IEC/EN 60688), 50-60 Hz, Burden 250  $\Omega$ ,  
 DM5S ..... Measurement over 8 cycles  
 DM5F..... Measurement over 1 cycle  
 Voltage, Current.....  $\pm 0.15\%$  F.S. Volts / F.S. Amps <sup>1) 2)</sup>  
 Power.....  $\pm 0.2\%$  (FSU x FSI) <sup>2)</sup>  
 Power Factor.....  $\pm 0.1^\circ$  <sup>2)</sup>  
 Frequency .....  $\pm 0.01$  Hz  
 Active Energy (DM5S only)..... Class 0.5S, EN 62 053-22  
 Reactive Energy (DM5S only)..... Class 2, EN 62 053-23

- 1) F.S. Volts / F.S. Amps represents the configured maximum value of voltage and current inputs.
- 2) Additional uncertainty if neutral wire is not connected for 3-wire connections:  
 Voltage, Power..... 0.1% of Rdg.  
 Load factor.....  $0.1^\circ$   
 Energy ..... Voltage influence x 2, Angle uncertainty x 2

#### SAFETY

Current Inputs are galvanically isolated from each other.  
 Protection Class..... II (protective insulation, voltage inputs via protective impedance)  
 Pollution Degree ..... 2  
 Protection Rating ..... IP30 (housing), IP20 (terminals)  
 Overvoltage Category..... CAT III up to 600V

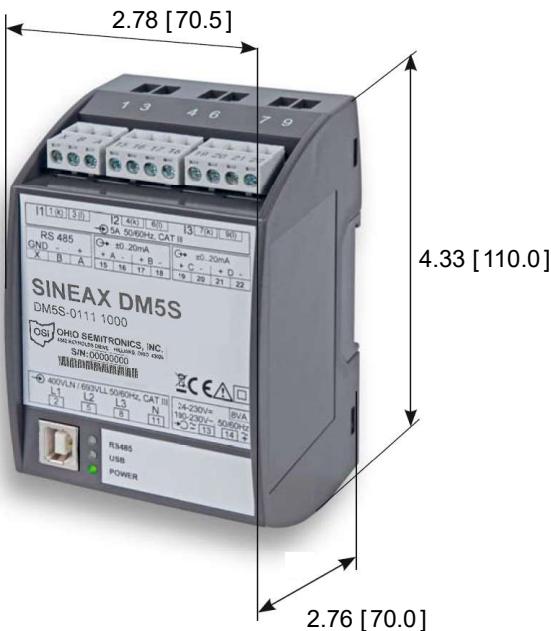
#### PHYSICAL AND ENVIRONMENTAL

NOTE: Intended for indoor use only!

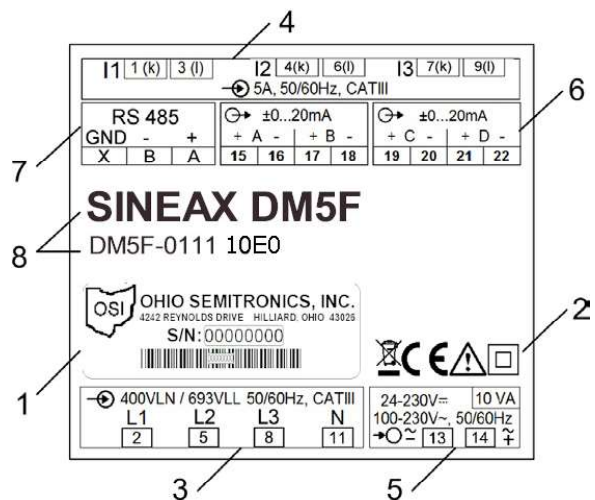
Operating Temperature.....  $-20 \dots 22 \dots 24 \dots + 55^\circ\text{C}$   
 Storage Temperature .....  $-25$  to  $+70^\circ\text{C}$   
 Temperature Effect..... 0.5 x basic uncertainty per  $10^\circ\text{C}$   
 Long-term Drift..... 0.5 x basic uncertainty per year  
 Others ..... Usage group II (EN 60 688)  
 Relative Humidity.....  $< 95\%$  non-condensing  
 Altitude.....  $\leq 6561\text{ft.}$  (2000m) max.  
 Enclosure Material ..... Polycarbonate  
 Weight..... 1.1 lb. (500 g)  
 Flammability Class..... UL94V-0, self-extinguishing, non-dripping, halogen-free

NOTE: Refer to the Device Handbook (Operator's Manual), ModBus Basics, Modbus Interface and Safety Instructions for additional information.

### CASE DIMENSIONS AND CONNECTIONS



All dimensions in inches [mm].  
 Tolerance -  $0.00 \pm 0.03\text{in.}$  (unless otherwise specified)



- Measurement Input
- Input Voltage
- Input Current
- System Frequency
- Voltage Inputs
- Current Inputs
- Power Supply
- Analog Outputs
- Modbus
- Model Number