

Digital Panel Meters

LED & LCD Panel Meters

AC & DC Ammeters

2-Wire AC & DC Voltmeters

4-20mA Readouts

Process Monitors

Powering Innovation...

DATEL Digital Panel Meters

For more than 25 years, the DATEL offering of digital panel meters has been recognized as the industry's most versatile and affordable. If a standard product does not meet your requirements, our experienced team of Designers can quickly develop a special custom design to accommodate your specific requirements. DATEL digital panel meters are expertly designed for a variety of applications, including:



Recreational Vehicles



Marine



Emergency Vehicles

Test & Measurement



About Murata Power Solutions

Murata Power Solutions was established by Murata Manufacturing Corporation in September 2007 with its acquisition of the Power Electronics Division of C&D Technologies, Inc. In addition to C&D's extensive offering of DC/DC and AC/DC products, the acquisition also brought with it a comprehensive offering of products and capabilities from market leading companies previously acquired by C&D, including:

- **DATEL, Inc.**
 - Medium to high power DC/DC converters
 - Hybrid technologies
 - Digital panel meters
- **Newport Components Ltd.**
 - Miniature low power DC/DC
 - Magnetic products
- **Power Systems Division of Celestica, Inc.**
 - AC/DC front end power supplies
 - Processor power (VRMs)
 - PoL DC/DCs
- **Celab Ltd.**
 - Power conversion products for harsh environments


Murata Power Solutions is currently the World's No.1 supplier of DC/DC converters, and the 5th largest supplier of power electronics overall, with global sales, manufacturing, and design teams operating from facilities in the United States, Canada, China, Japan, Singapore, England, France, and Germany. Supported by a global network of the leading electronics distributors, Murata Power Solutions can effectively support your local and global requirements. Manufactured to the highest standards in ISO 9001:2000 Certified facilities, our designs undergo the strictest verification testing, so you can be sure that they perform to, and often beyond, their specifications.

Contents

3½ & 4½ Digit LED/LCD Panel Meters.....	2
AC Ammeters.....	3
DC Ammeters	4
Daylight Readable Panel Meters NEW!	4
2-Wire AC Voltmeters.....	5
Loop-Powered 4-20mA Readouts	7
Locally Powered 4-20mA Readouts.....	7
0-5V & 0-10V Process Monitors.....	7
Panel Meter Accessories.....	8
Energy Efficient Products.....	9
Murata Power Solutions Product Overview	10

www.murata-ps.com

3½ Digit, Subminiature LED/LCD Panel Meters



- Large (0.37"/9.4mm) LED or LCD displays
- 12-pin DIP packages, panel or board mountable
- Low-current LED models (7mA)
- 4 input ranges: $\pm 200\text{mV}$, $\pm 2\text{V}$, $\pm 20\text{V}$, $\pm 200\text{V}$
- Built-in color filters and bezels (LED models)
- Single +5V supply or 9V battery (LCD models)
- Moisture/vibration resistant encapsulated packages
- DISPLAY ENABLE function for "power down" mode
- DISPLAY TEST and HOLD functions (optional)

Ordering Guide

DMS-20PC-1-R S-C

LED Model

Input Range

0 $\pm 200\text{mV}$

1 $\pm 2\text{V}$

2 $\pm 20\text{V}$

3 $\pm 200\text{V}$

RoHS Compliant

Intensity/Power (+5V Supply)

S Standard Brightness

H High Intensity (Red LED only)

L Low Power (Red, green, blue LED)

LED Color

Y O A R G B

DMS-20 Series

Package Dimensions


1.38"L x 0.88"W x 0.475"D (LED) or 0.425"D (LCD)

35.1mm L x 22.4mm W x 12.07mm D (LED) or 10.8mm D (LCD)

Datasheets

LED: DMS-20PC Series / LCD: DMS-20LCD Series

3½ Digit, Miniature LED/LCD Panel Meters



- Large displays: 0.56"/14.2mm (LED)
0.40"/10.2mm (LCD)
- Low-current LED models (12mA)
- 12-pin DIP packages, panel or board mountable
- 4 input ranges: $\pm 200\text{mV}$, $\pm 2\text{V}$, $\pm 20\text{V}$, $\pm 200\text{V}$
- Built-in color filters and bezels (LED models)
- Moisture/vibration resistant encapsulated packages
- Single +5V supply or 9V battery (LCD models)
- Numerous application boards available

Ordering Guide

DMS-30PC-1-R S-C

LED Model

Input Range

0 $\pm 200\text{mV}$

1 $\pm 2\text{V}$

2 $\pm 20\text{V}$

3 $\pm 200\text{V}$

RoHS Compliant

Intensity/Power (+5V Supply)

S Standard Brightness

H High Intensity (Red LED only)

L Low Power (Red, orange and green LEDs only)

LED Color

Y O A R G B Q

DMS-30 Series

Package Dimensions


2.17"L x 0.92"W x 0.56"D (LED) or 0.43"D (LCD)

55.1mm L x 23.4mm W x 14.22mm D (LED) or 10.92mm D (LCD)

Datasheets

LED: DMS-30PC Series / LCD: DMS-30LCD Series

4½ Digit, Miniature LED/LCD Panel Meters



- Scientific-grade accuracy, ± 2 counts
- Large displays: 0.52"/13.2mm (LED)
0.40"/10.2mm (LCD)
- 12-pin DIP packages, panel or board mountable
- Low-current LED models (35mA)
- Display HOLD function standard
- 4 input ranges: $\pm 200\text{mV}$, $\pm 2\text{V}$, $\pm 20\text{V}$, $\pm 200\text{V}$
- LCD models have dual input ranges
- Moisture/vibration resistant encapsulated packages

Ordering Guide

DMS-40PC-1-R S-C

LED Model

Input Range

1 $\pm 2\text{V}$

2 $\pm 20\text{V}$

3 $\pm 200\text{V}$

RoHS Compliant

Intensity/Power (+5V Supply)

S Standard Brightness

H High Intensity (Red LED only)

L Low Power (Red LED only)

LED Color

Y R G B

DMS-40 Series

Package Dimensions

2.17"L x 0.92"W x 0.56"D (LED) or 0.43"D (LCD)

55.1mm L x 23.4mm W x 14.22mm D (LED) or 10.92mm D (LCD)

Datasheets

LED: DMS-40PC Series / LCD: DMS-40LCD Series

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AC Ammeters



ACA-20PC Series

Built-in CT's for AC currents to 100A

- 4 ranges from 0-2A to 0-100A; 12 models
- Functionally complete with on-board CT's; Red LEDs
- 2A and 20A models include all connections for load and power
- AC (85-264V @ 50/60Hz with "self-power") or DC (5-40V)
- UL/CSA recognized; 2000V isolation between load and supply

ACA-20PC Series are the first digital AC ammeters to incorporate on-board current transformers. Simply pass the current-carrying load wire through the on-board CT, apply power to the two power supply terminals, and you're instantly measuring AC currents up to 100A. No external shunts or expensive CTs are required.

Package Dimensions 1.38"L x 1.36"W x 2.01"D
35.1mm L x 34.54mm W x 51.05mm D

Ordering Guide

ACA-20PC-1-AC1-RL-C

LED Model

RoHS Compliant

Input Range

- 1 1.999A
- 2 19.99A
- 3 50.0A
- 4 100.0A

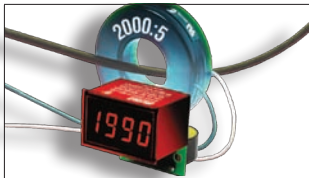
LED Color



Power Supply

AC1 85-264Vac @ 50/60Hz
DC1 +5-40Vdc

Datasheets ACA-20PC Series



ACA5-20PC Series

External CT's for AC currents to 2000A

- 14 ranges from 0-50A to 0-2000A; 42 models
- Functionally complete; Bright red LED readouts
- Scales/digitizes/displays the signal from 5A current transformers
- UL/CSA recognized; Zero-burden inputs with 2000V isolation
- AC (120/220V @ 50/60Hz) or DC (5-40V) power

ACA5-20PC Series scale and display the output of 5A current transformers (50:5A, 500:5A, 1000:5A, etc.). 14 input ranges measure AC currents from 0-50A to 0-2000A. They accept outputs from previously installed high-current CTs to instantly bring digital precision to older AC ammeter installations.

Package Dimensions 1.38"L x 1.36"W x 2.01"D
35.1mm L x 34.54mm W x 51.05mm D

Ordering Guide

ACA5-20PC-1-AC1-RL-C

LED Model

RoHS Compliant

Input Range

14 selections,
50.0A to 1999A.
See data sheet
for details

LED Color

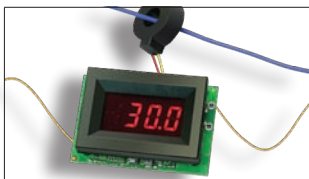


Power Supply

AC1 85-264Vac @ 50/60Hz
DC1 +5-40Vdc

Datasheets ACA5-20PC Series

RMS Reading AC Ammeters



ACA-20RM Series

External CT's for AC currents to 2000A

- Accurately measure complex waveforms
- Built-in CTs measure up to 50A
- Self-powered from 120Vac or 220Vac
- Large 0.37 inch red LED displays
- UL and CSA recognized

World's first digital AC-ammeters with built-in CTs to directly measure the true-RMS value of complex non-sinusoidal AC currents. Now available with split-core CT's for easy installation.

Package Dimensions 2.100"L x 1.400"W x 1.25"D
53.3mm L x 35.56mm W x 31.75mm D

Ordering Guide

ACA-20RM -1-AC1-RL-C

LED Model

RoHS Compliant

LED Color



Input Range

- 0 = 199.9mA
- 1 = 1.999mA
- 2 = 19.99A
- 4 = 50.0A (with split-core flying-lead CT)
- 5 = 30.0A (with flying-lead CT)

Power Supply

AC3 85-140Vac @ 50/60Hz
AC4 170-264Vac @ 50/60Hz

Datasheets ACA-20RM Series

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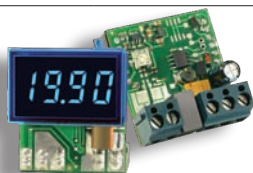
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DC Ammeters



DCA-20PC Series

Built-in shunts for DC currents to 20A

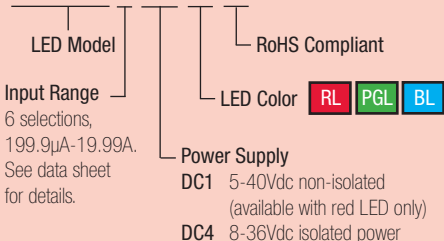
- 6 ranges from 0-200 μ A to 0-20A; 24 models
- Functionally complete with on-board 20mV shunts
- On-board load/supply connections for 3-wire operation
- 8-36Vdc isolated supplies for high-side shunts
- 5-40Vdc supplies for 5/12/24V; 48V telecom option

DCA-20PC Series are the first digital DC ammeters to include built-in low loss shunts for measuring currents up to 20A. Six ranges provide for precision measurement of DC currents from 200 μ A to 20A. These ammeters are 100% self-contained, so no calibration or user-supplied components are required.

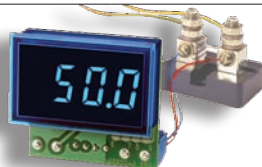
Package Dimensions	1.38"L x 1.46"W x 1.04"D 35.1mm L x 37.08mm W x 26.41mm D
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Ordering Guide

DCA-20PC-1-DC1-RL-C



Datasheets DCA-20PC Series



DCA5-20PC Series

External shunts for DC currents to 2000A

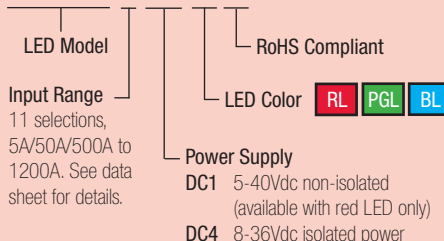
- 11 ranges from 0-1A to 0-2000A; 44 models
- Functionally complete with on-board interface circuitry
- Scales/digitizes/displays the output of 50/100mV shunts
- Wide-range, isolated/non-isolated power; 48V telecom option
- Subminiature packages with screw-style terminal blocks

DCA5-20PC Series DC ammeters scale and display the output of 50mV and 100mV DC-shunts. 25 ranges provide for measurement of DC currents from 1A to 2000A. With the exception of an external shunt, the unit is 100% self-contained—no calibration or additional components are required.

Package Dimensions	1.38"L x 1.46"W x 1"D 35.1mm L x 37.08mm W x 25.4mm D
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Ordering Guide

DCA5-20PC-1-DC1-RL-C

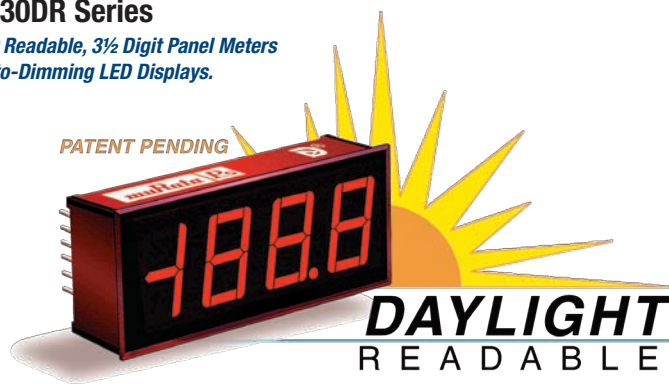


Datasheets DCA5-20PC Series

NEW! Daylight Readable Panel Meter

DMS-30DR Series

Daylight Readable, 3½ Digit Panel Meters with Auto-Dimming LED Displays.

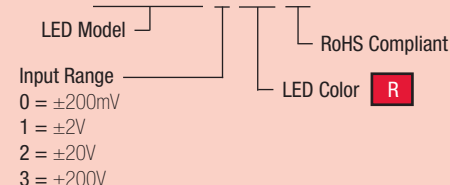


Package Dimensions	2.17"L x 0.92"W x 0.56"D 55.1mm L x 23.4mm W x 14.2mm D
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- Super-bright LED displays are readable in direct sunlight
- Automatic display-brightness adjustment
- Includes provision for external brightness adjustment
- Power consumption: Less than 1 Watt at max. brightness
Less than 0.1 Watt at normal brightness

Ordering Guide

DMS-30DR -1 -R -C



Datasheets DMS-30DR Series

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2-Wire AC Voltmeters



DMS-20 LM Series

- The easiest-to-use products of their type
- 120V model plugs directly into wall outlets
- Screw-terminal inputs simplify panel mounting
- Large, easy-to-read, red, green, or blue LED displays
- 3-digit readouts; $\pm 1V$ accuracies
- Rugged, epoxy-encapsulated construction

DMS-20PC-LM Series AC voltmeters are component-size, self-contained, low-cost, 2-wire AC voltmeters. They require no additional components or auxiliary power. Just connect an AC voltage to their two rear terminals and you are instantly reading AC voltages with one-volt resolution. The large (0.37"/9.4mm), bright red, blue, or green LED display makes DMS-20PC-LM voltmeters easily readable under any lighting conditions.

Display Type	Input Range	Resolution	Accuracy	Maximum Current Drain	Package Dimensions ①②		Model Number (Display Color)	Datasheet Title
					Inches	mm		
LED	85-264Vac @ 47-63Hz	1V	$\pm 1V$	50mA _{rms}	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-1-LM-C (Red)	DMS-20PC-1-LM
	85-264Vac @ 47-63Hz	1V	$\pm 1V$	50mA _{rms}	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-1-LM-F-C (Red)	DMS-20PC-1-LM
	85-264Vac @ 47-63Hz	1V	$\pm 1V$	50mA _{rms}	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-1-LM-B-C (Blue)	DMS-20PC-1-LM
	85-264Vac @ 47-63Hz	1V	$\pm 1V$	50mA _{rms}	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-1-LM-BF-C (Blue)	DMS-20PC-1-LM
	85-264Vac @ 47-63Hz	1V	$\pm 1V$	50mA _{rms}	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-1-LM-G-C (Green)	DMS-20PC-1-LM
	85-264Vac @ 47-63Hz	1V	$\pm 1V$	50mA _{rms}	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-1-LM-GF-C (Green)	DMS-20PC-1-LM
	85-140Vac @ 350-450Hz 240-310Vac @ 47-99Hz	1V	$\pm 1V$	50mA _{rms}	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-2-LM-C (Red)	DMS-20PC-2-LM
	350-600Vac @ 47-63Hz	1V	$\pm 1V$	50mA _{rms}	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-3-LM-C (Red)	DMS-20PC-3-LM

① Panel-mount front bezels, with or without sealing gaskets, may be ordered separately. Visit www.murata-ps.com for details.

② AC voltmeters have screw terminals on the back of their packages. DMS-20PC-1-LM-F has "blade" terminals that plug directly into USA-style wall outlets.

For full product data download a datasheet at www.murata-ps.com



2-Wire Frequency Meters



DMS-20 FM Series

- Ideal for emergency power-generating equipment
- 50/60Hz or 400Hz versions; 120/220Vac inputs
- 60Hz/120V model plugs directly into wall outlets
- 3-digit readouts accurate to ± 0.1 Hertz (60Hz models)
- Easy-to-read, large (0.4"/10.2mm), red LED displays
- Rugged, epoxy-encapsulated construction

DMS-20PC-FM Series are the world's smallest, self-powered, AC frequency meters. Simply connect the AC line to the two rear terminals, and the unit is fully operational. All models feature epoxy encapsulated construction and an ultra-stable, quartz-crystal-controlled, microcontroller to provide accuracies of ± 0.1 Hz (50/60Hz models) or ± 1 Hz (400Hz model) over the entire operating temperature range of -25 to $+60^\circ\text{C}$.

Display Type	Input Range	Resolution	Accuracy	Maximum Current Drain	Package Dimensions ①②		Model Number	Datasheet Title
					Inches	mm		
LED ③	85-140Vac @ 47-99Hz	0.1Hz	± 0.1 Hz	50mA _{rms}	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-1-FM-C	DMS-20PC-FM
	85-140Vac @ 47-99Hz	0.1Hz	± 0.1 Hz	50mA _{rms}	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-1-FM-F-C	DMS-20PC-FM
	85-140Vac @ 350-450Hz	1Hz	± 1 Hz	50mA _{rms}	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-2-FM-C	DMS-20PC-FM
	170-246Vac @ 47-99Hz	0.1Hz	± 0.1 Hz	50mA _{rms}	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-3-FM-C	DMS-20PC-FM

① Panel-mount front bezels, with or without sealing gaskets, may be ordered separately. Visit www.murata-ps.com for details.

② All AC frequency meters have screw terminals on the back of their packages. The DMS-20PC-1-FM-F has "blade" terminals that plug directly into USA-style wall outlets.

③ All LED displays are red and have a digit height of 0.4"/10.2mm.

For full product data download a datasheet at www.murata-ps.com



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2-Wire DC Voltmeters



DMS-20 DCM Series

12V and 24V Battery Monitors

Ideal replacements for analog panel meters

- Monitor 9/12/24/28/36V batteries or power supplies
- LED or LCD displays with 0.37"/9.4mm digit heights
- Input ranges:
 - 12V models: 4.5-19.99V (LED), 6.5-18V (LCD)
 - 24V models: 8-50.0V (LED and LCD)
- $\pm 10\text{mV}$ accuracy (12V models); $\pm 0.1\text{V}$ (24V models)
- 13mA/3mA (LED/LCD) maximum current drains
- Built-in "VDC" annunciator (LCD models)
- Reverse polarity protected
- Self-powered, only two connections required
- Reliable, epoxy-encapsulated construction
- Subminiature 1.38" x 0.88" x 1.0" packages
- -25 to $+60^\circ\text{C}$ operating temperature range (LED)
- Available in red, blue, or green LEDs

DMS-20PC-DCM Series of self-powered DC voltage monitors are great replacements for older, hard-to-read, analog panel meters. Simply connect your DC voltage across the two rear terminals and the meters are fully operational—no additional components or power supplies are required. Their large, 0.37" (9.4mm), displays can be easily read from 15 feet away. Built-in reverse polarity protection assures simple, trouble-free installation.



-48V for Distributed Power Systems

- Precision readout for -48Vdc power buses in telecom, datacom and computer/networking equipment
- -36.0 to -75.0Vdc input range
- 0.1V resolution; $\pm 0.1\text{V}$ accuracy
- Negligible power consumption (13mA, max.)
- Self-powered, only two connections required
- -25 to $+60^\circ\text{C}$ operating temperature range
- Withstands -200V input transients
- Reverse polarity protected to $+100\text{V}$
- Subminiature 1.38" x 0.88" x 1.0" plastic package

DMS-20PC-7-DCM self-powered digital voltage monitor is designed for monitoring -36 to -75V intermediate bus voltages in modern telecom, datacom and computer equipment. Its compact size, large LED display, and low power consumption (8mA typ. at -48V) make it the ideal replacement for analog panel meters.

Display Type ①	Input Range	Resolution	Accuracy	Maximum Current Drain	Package Dimensions ②		Model Number (Display Color)	Datasheet Title
					Inches	mm		
LED	+2 to +11.00Vdc	0.01V	$\pm 0.01\text{V}$	50mA	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-3-DCM-C (Red)	DMS-20PC-3-DCM
	+4.50 to +19.99Vdc	0.01V	$\pm 0.01\text{V}$	13mA	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-0-DCM-C (Red)	DMS-20PC-0/1/2/8-DCM
	+4.50 to +19.99Vdc	0.01V	$\pm 0.01\text{V}$	13mA	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-0-DCM-B-C (Blue)	DMS-20PC-0/1/2/8-DCM
	+4.50 to +19.99Vdc	0.01V	$\pm 0.01\text{V}$	13mA	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-0-DCM-G-C (Green)	DMS-20PC-0/1/2/8-DCM
	+8.0 to +50.0Vdc	0.1V	$\pm 0.1\text{V}$	13mA	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-1-DCM-C (Red)	DMS-20PC-0/1/2/8-DCM
	+8.0 to +50.0Vdc	0.1V	$\pm 0.1\text{V}$	13mA	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-1-DCM-B-C (Blue)	DMS-20PC-0/1/2/8-DCM
	+8.0 to +50.0Vdc	0.1V	$\pm 0.1\text{V}$	13mA	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-1-DCM-G-C (Green)	DMS-20PC-0/1/2/8-DCM
	+30.0 to +199.9Vdc	0.1V	$\pm 0.1\text{V}$	7mA	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-8-DCM-C (Red)	DMS-20PC-0/1/2/8-DCM
	+30 to +264Vdc	1V	$\pm 1\text{V}$	7mA	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-2-DCM-C (Red)	DMS-20PC-0/1/2/8-DCM
	-4.50 to -19.99Vdc	0.01V	$\pm 0.01\text{V}$	13mA	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-4-DCM-C (Red)	DMS-20PC-4/5/6-DCM
	-18.0 to -50.0Vdc	0.1V	$\pm 0.1\text{V}$	13mA	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-5-DCM-C (Red)	DMS-20PC-4/5/6-DCM
	-30.0 to -264Vdc	1V	$\pm 1\text{V}$	7mA	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-6-DCM-C (Red)	DMS-20PC-4/5/6-DCM
LCD	-36.0 to -75.0Vdc	0.1V	$\pm 0.1\text{V}$	13mA	1.38 x 0.88 x 1	35.1 x 22.4 x 25.4	DMS-20PC-7-DCM-C (Red)	DMS-20PC-7-DCM
	+6.50 to +18.00Vdc	0.01V	$\pm 0.01\text{V}$	3mA	1.38 x 0.88 x 0.66	35.1 x 22.4 x 16.76	DMS-20LCD-0-DCM-C	DMS-20LCD-0/1-DCM
	+8.0 to +50.0Vdc	0.1V	$\pm 0.1\text{V}$	2.5mA	1.38 x 0.88 x 0.66	35.1 x 22.4 x 16.76	DMS-20LCD-1-DCM-C	DMS-20LCD-0/1-DCM
	+18.0 to +90.0Vdc	0.1V	$\pm 0.1\text{V}$	3mA	1.38 x 0.88 x 0.66	35.1 x 22.4 x 16.76	DMS-20LCD-2-DCM-C	DMS-20LCD-2/3-DCM
	+50.0 to +150.0Vdc	0.1V	$\pm 0.1\text{V}$	2mA	1.38 x 0.88 x 0.66	35.1 x 22.4 x 16.76	DMS-20LCD-3-DCM-C	DMS-20LCD-2/3-DCM

For full product data download a datasheet at www.murata-ps.com

① Both LED and LCD displays have a digit height of 0.37"/9.4mm.

② Panel-mount front bezels, with or without sealing gaskets, may be ordered separately. Visit www.cd4power.com for details.

www.murata-ps.com

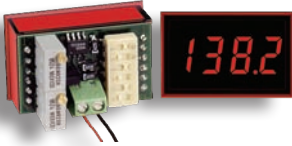
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Loop-Powered 4-20mA Readouts



DMS-20 4/20 Series

- Totally loop powered—no external supplies
- 3½ and 4½ digit resolutions; LED/LCD displays
- Industry's only loop-powered, full-size LED readouts
- Small packages; Large digits: 0.37"/9.4mm
- Optional unipolar, bipolar, or "positive" polarities
- DIP-switch selectable span/offset/decimal points

DATEL's loop-powered LED and LCD displays derive operating power directly from the 4-20mA loop, providing for simple 2-wire operation. Display options include 3½ and 4½ digits; LCD models feature loop burdens as low as 1.8V. All models feature non-interacting, multi-turn trim pots for offset and span adjustments.

Ordering Guide

DMS-20PC-4/20 Series	Unipolar, bipolar, and positive reading, loop-powered LED meters
DMS-20LCD-4/20 Series	Unipolar, bipolar, and positive reading, loop-powered LCD meters
DMS-30LCD-4/20 Series	Unipolar, bipolar, positive, and inverse reading, loop-powered LCD meters
DMS-40LCD-4/20S	4½ digit loop-powered LCD meter

Package Dimensions

1.38"L x 0.88"W x 0.95"D (LED) or 0.9"D (LCD)
35.1mm L x 22.4mm W x 24.13mm D (LED) or 22.86mm D (LCD)

Datasheets

LED: DMS-20PC-4/20 Series
LCD: DMS-20, -30, -40LCD-4/20 Series

Locally Powered 4-20mA Readouts



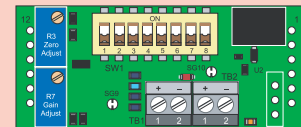
DMS-30, -40 Series

- 3½ and 4½ digit resolutions; LED/LCD displays
- 4 LED options including low-current & hi-intensity red
- 3 power-supply options: +5V, +24V "I" or 7.5-32V
- 24V "I" models isolate loop inputs from power ground
- DIP-switch selectable span/offset/decimal points
- On-board gain/span and zero/offset trim pots

DMS-30PC and DMS-40PC 4-20mA current loop displays can be powered from popular 5V, 12V, or 24V supplies and are available with isolated or non-isolated current loop inputs. All models feature a 2V maximum loop burden and large, easy-to-read, digits in a choice of red, blue, or green LEDs.

Ordering Guide

DMS-30PC-4/20S Series	Available in red, green, and blue LEDs
DMS-40PC-4/20S Series	Available in red and green LEDs



Back View

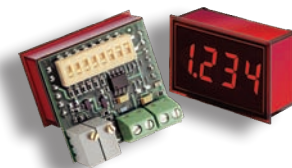
Package Dimensions

2.17"L x 0.92"W x 1.02"D
55.1mm L x 23.4mm W x 25.91mm

Datasheets

LED: DMS-30PC-4/20 & DMS-40PC-4/20 Series

0-5V & 0-10V Process Monitors



DMS-20PC-0/5 Series

- 3½ digit readouts, 0-1V, 0-5V, 1-5V, 0-10V inputs
- 4 connections . . . 2 for signal, 2 for power
- Single +5V or +5-40V supply (9mA drain @24V)
- DIP-switch selectable span/offset/decimal points
- On-board gain/span and zero/offset trim pots

DMS-20PC-0/5 3½ digit process monitors provide the ultimate in convenience when you need to convert 0-5V or 0-10V analog signals to common process parameters (temperature, pressure, flow, etc.). Built-in DIP-switch activated attenuators and two trim pots greatly simplify setup to get you up and running quickly. LED colors include, red, blue, green, and high-intensity red.

Ordering Guide

DMS-20PC-0/5-5RS-C	+5V supply, standard-intensity red LEDs
DMS-20PC-0/5-5GS-C	+5V supply, standard-intensity green LEDs
DMS-20PC-0/5-5BS-C	+5V supply, bright blue LEDs
DMS-20PC-0/5-5RL-C	+5V supply, low-power red LEDs
DMS-20PC-0/5-5RH-C	+5V supply, high-intensity red LEDs
DMS-20PC-0/5-24RL-C	+5V to +40V supply, low-power red LEDs

Package Dimensions

1.38"L x 0.88"W x 0.95"D
35.1mm L x 22.4mm W x 24.13mm D

Datasheets

LED: DMS-20PC-0/5 Series

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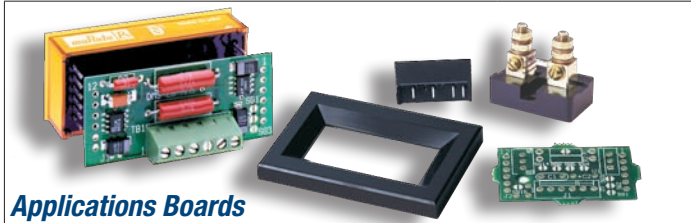
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Panel Meter Accessories



Applications Boards

Description	Part No.
Multi-Purpose Application Board for DMS-30 -40 Series	DMS-EB-C
Multi-Purpose Application Board for DMS-20PC/LCD Series	DMS-EB2-C
AC Primary Power Application Board for DMS-30PC-X-RL and DMS-40LCD Meters	DMS-EB-AC/DC-C
DC/DC Converter and Isolation Board for DMS-30PC/LCD	DMS-EB-DC/DC-C
Temperature (Celsius) Sensor for DMS-30PC/LCD Meters	DMS-EB-HTBC-C
Temperature (Fahrenheit) Sensor for DMS-30PC/LCD Meters	DMS-EB-HTBF-C
AC-to-RMS Converter Board for DMS-30PC/LCD Meters	DMS-EB-RMS-C

Bezels and Panel Cutout Punches

Description	Part No.
Bezel for DMS-30 and DMS-40	DMS-BZL1-C
Bezel with EPDM sealing gasket for all DMS-30 -40 Meters	DMS-BZL2-C
Bezel for all DMS-20 Meters	DMS-BZL3-C
Bezel with EPDM sealing gasket for all DMS-20 Meters	DMS-BZL4-C
Panel cutout punch for DMS-30 and DMS-40 Meters	DMS-30-CP
Panel cutout punch for DMS-20 Meters	DMS-20-CP

High-Efficiency Switching Regulators

Part No.	Output Voltage	Output Current	Input Voltage
Standard Pin Package			
7803SR-C	+3.3Vdc	0.5A	+7.5-36Vdc
7805SR-C	+5.0Vdc	0.5A	+7.5-36Vdc
7812SR-C	+12.0Vdc	0.4A	+15-36Vdc
78SR-3.3/2-C	+3.3Vdc	2.0A	+8-32Vdc
78SR-5/2-C	+5.0Vdc	2.0A	+8-32Vdc
Horizontal Pin Package			
7803SRH-C	+3.3Vdc	0.5A	+7.5-36Vdc
7805SRH-C	+5.0Vdc	0.5A	+7.5-36Vdc
7812SRH-C	+12.0Vdc	0.4A	+15-36Vdc
78SRH-3.3/2-C	+3.3Vdc	2.0A	+8-32Vdc
78SRH-5/2-C	+5.0Vdc	2.0A	+8-32Vdc

AC/DC Instrumentation Power Supplies

Part No.	Rated Power (Watts)	V1 Output (Vdc/A)	V2 Output (Vdc/A)	V3 Output (Vdc/A)
DMS-PS1-CM-C	5	5/1	N/A	N/A
DMS-PS2-CM-C	5	5/0.65	4.85/0.2	N/A
DMS-PS3-CM-C	5	5/0.35	4.85/0.2	4.85/0.2
DMS-PS4-CM-C	10	24/0.45	N/A	N/A
DMS-PS5-CM-C	10	24/0.35	4.85/0.2	N/A
DMS-PS6-CM-C	10	24/0.30	4.85/0.2	4.85/0.2
DMS-PS7-CM-C	16	24/0.70	N/A	N/A
DMS-PS8-CM-C	16	24/0.60	4.85/0.2	N/A
DMS-PS9-CM-C	16	24/0.55	4.85/0.2	4.85/0.2
DMS-PS10-CM-C	16	12/1.35	N/A	N/A

Current Transformers

Part No.	Current Ratio	Accuracy	Burden--VA (Ohms)
7020-01036-0	50:5	±2%	1.5 (0.06)
7020-01037-0	75:5	±2%	3.0 (0.12)
7020-01038-0	100:5	±1%	3.0 (0.12)
7020-01039-0	150:5	±1%	6.0 (0.24)
7020-01040-0	200:5	±1%	8.0 (0.32)
7020-01041-0	250:5	±1%	10.0 (0.40)
Not available as RoHS	300:5	±1%	12.5 (0.50)
Not available as RoHS	400:5	±1%	12.5 (0.50)
Not available as RoHS	500:5	±1%	20.0 (0.80)
7020-01042-0	600:5	±1%	10.0 (0.40)
7020-01043-0	750:5	±1%	10.0 (0.40)
7020-01044-0	1000:5	±1%	10.0 (0.40)
7020-01045-0	1500:5	±1%	12.5 (0.50)
7020-01046-0	2000:5	±1%	15.0 (0.60)

DC Current Shunts

DATL Part No	Rated Current/Output	Resistance @ 25°C
3020-01096-0	50A/50mV	0.001
3020-01097-0	5A/50mV	0.01
3020-01098-0	20A/50mV	0.0025
3020-01099-0	100A/50mV	0.0005
3020-01100-0	150A/50mV	0.00033
3020-01101-0	200A/50mV	0.00025
3020-01102-0	300A/50mV	0.000167
3020-01103-0	500A/50mV	0.0001
3020-01104-0	800A/50mV	0.0000625
3020-01105-0	1000A/50mV	0.00005
3020-01106-0	1200A/50mV	0.0000417
3020-01107-0	10A/100mV	0.01
3020-01108-0	100A/100mV	0.001

Panel Mount Connectors

Description	Part No.
6-position connector housing. Use with crimp terminal 4400-01032-0.	4320-01069-0
Crimp terminal for connector housing 4320-01069-0. Accepts 22-26 AWG wire.	4400-01032-0
Crimp tool for 4400-01032-0 terminals	39-2099000

Miscellaneous Items

Description	Part No.
Unpopulated DMS-eb2 PC-Board	5302-01243-0
Unpopulated DMS-eb PC-Board	5302-01236-0
DMS-20 Retaining Clip	5252-01127-0
DMS-30 Retaining Clip	5252-01126-0
DMS-30 Red Case	5252-01145-0
DMS-20 Red Case	5252-01130-0
DMS-30 Bezel and Red Filter	5252-01160-0
DMS-20 Bezel and Red Filter	5252-01161-0
DMS-30 Panel Mount Adapter	4652-01101-0
DMS-20 Panel Mount Adapter	4652-01100-0
12-position PC-Board Socket	4320-01072-0
6-position PC-Board Socket	4320-01074-0

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Energy Efficient Products



- Replacements for hard-to-read LCD displays
- Increase battery life in portable applications
- Eliminate the need for fans and heat sinks
- Excellent long-term reliability

All products listed to the right were designed to provide outstanding performance and ultra-low power consumption. These high-efficiency LED display instruments and switching power supplies can significantly reduce long-term energy costs.

Low power LED meters and accessories

3½ and 4½ Digit DC Voltmeters

Series	Display Options	Digit Height	Power Consumption	Operating Temp.
DMS-20PC-X-RL	3½ Digit Red LED	0.37in./9.4mm	8mA @ 5Vdc	0 to +60°C
DMS-30PC-X-XL	3½ Digit Red, Green, or Orange LED	0.56in./14.2mm	15mA @ 5Vdc	0 to +60°C
DMS-40PC-X-RL	4½ Digit Red LED	0.52in./13.2mm	35mA @ 5Vdc	0 to +50°C

4-20mA Process Monitors

Series	Display Options	Digit Height	Loop Drop	Operating Temp.
DMS-20PC-4/20	3½ Digit Red LED	0.37in./9.4mm	+4Vdc @ 20mA	0 to +60°C

High-Efficiency Switching Regulators

Series	Voltage Outputs	Package	Efficiency	Operating Temp.
78XXSR	3.3V, 5V, 12V	LM78XX compatible SIP	To 95%	-40 to +70°C

AC/DC Instrumentation Power Supplies

Series	Rated Output	Voltage Outputs	Efficiency	Operating Temp.
DMS-PSX-CM	5, 10, 16 Watts	Single, Dual, Triple	To 82%	-25 to +70°C

Quality Assured

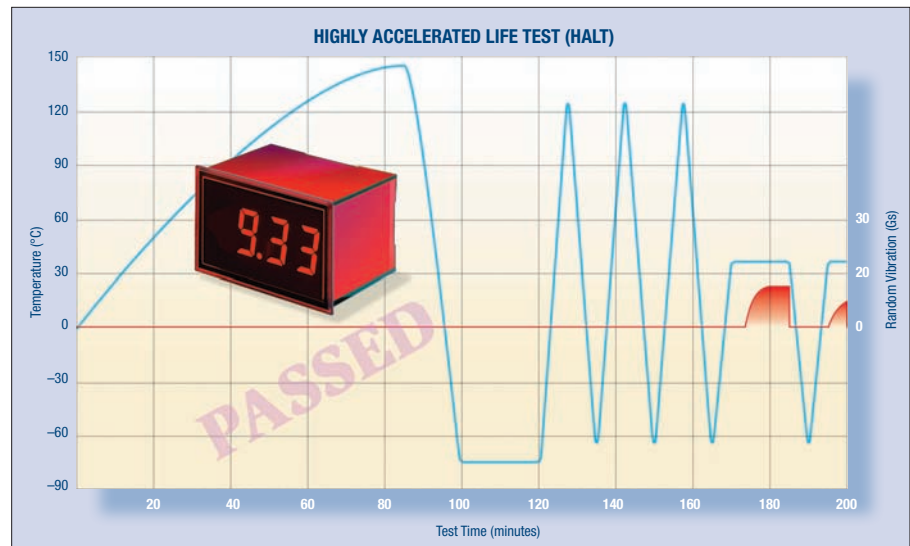
The QA Engineer who instituted our Design-for-Reliability Program performed routine HALT (Highly Accelerated Life Testing) on a randomly selected 2-wire meter and the device "passed." Devices are not supposed to pass HALT. The intent of HALT is to "reveal latent defects or design weaknesses that may eventually cause field failures" by subjecting devices to progressively higher stress levels, until something breaks.

The Engineer then decided to see how much stress it would take to make a second meter succumb. With the maximum applied input voltage, the meter (mounted in a metal panel using a DATEL bezel assembly) was subjected to the following: operating case-temperature extremes of +145°C and -75°C; non-operating cold soak at -75°C (after which the meter still operated correctly); three temperature cycles (-65 to +125°C) at a transition rate of 30°C per minute; 15 minutes of 3-axis random longitudinal and rotational vibration at 10 to 15Gs; a temperature spike down to -65°C; and lastly, more vibration.

During the last vibration, the meter pulled away from the bezel assembly (which had melted during the +145°C temperature extreme!), and one segment of

one LED digit went blank. Upon troubleshooting, the Engineer discovered all meter electronics—including the drive circuit to the failed LED segment—were working fine. The failure was traced to the display itself. The Engineer's report gave the device a "conditional pass," pending failure analysis of the LED display.

Now you know why we confidently specify our standard digital panel meters with an operating temperature range of 0 to +60°C and boast about their rugged, vibration and moisture-resistant, epoxy-encapsulated packages.



Custom Designs



For high-volume OEM applications, we can quickly and easily modify any of our standard LED or LCD-display instruments to accommodate your specific needs. For minimal additional cost, you can have a finished product that displays the exact readings you want for the input signal you are monitoring, without the need for any user modifications or external components.

The products shown here are full customs, designed to meet their customers' unique physical and electro-optical requirements. Both products incorporate user-selectable range settings via 2-position slide switches and precision trimpots. We even designed a completely new LED for the 1-inch round (25.4mm) display. Contact our Applications Engineering Group for complete details.

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DC/DC Converters

Murata Power Solutions are proud to offer the largest range of DC/DC Converters available from a single manufacturer. Our ever-increasing product portfolio includes all the options you'll ever need, including:



■ Isolated DC/DC Converters

Single, dual, triple, and quad output from 0.25 to 340 Watts



■ Point-of-Load Converters

From 0.75 to 5V outputs (including user-selectable versions) at current levels from 0.5 to 50A



■ Processor & Memory Support

Support for 64 & 32-bit processors and DDR1 & DDR2 memory



■ Bus Converters

Designed to take advantage of the high-efficiency and cost savings of intermediate bus architectures

AC/DC Power Supplies

Murata Power Solutions can develop AC/DC power supplies to meet almost every possible application requirement in terms of power, performance, efficiency, protection, size, approvals compliance, and cooling requirements.



■ Front End Modules for DPAs

AC to 12Vdc or 48Vdc ultra compact front end supplies for distributed power architectures with active power factor correction



■ Configurable

400-1000W, up to 12 Output

■ CATV / Telco

Ultra-reliable, ruggedized power supplies for harsh CATV and Telecommunications



■ High-Rel

Our Celab division has over 30 years' experience designing and producing custom power supplies.

Magnetics

Two essential elements of the vast majority of power electronics applications are filtering and isolation. Whether you need to reduce noise or protect vital components, Murata Power Solutions can offer a wide range of products to suit your requirements.



■ Inductors & Transformers

Over 800 highly advanced and optimized inductor and transformer solutions with the emphasis on miniaturization, reliability, and ease of handling.

These power oriented designs comprise the following through-hole & surface-mount products:

- Inductors
- Common-mode chokes
- Pulse transformers (general purpose/digital audio/silicon support)
- Current sense transformers
- Agency approved transformers
- Databus isolators
- Custom designs



■ DC/DC Converter Filters

To reduce differential and common mode noise



Hybrid Technologies

Our leadership status in high-performance data acquisition components is unchallenged in the areas of electrical performance, small packaging, and low-power consumption.



■ Electronic Imaging

Resolution from 8 to 18-bits and sampling rates 20MSPS, low-cost commercial and High-Rel versions



■ A/D Converters

■ Sampling A/D Converters

Ideal for high-end applications such as medical or life-science imaging, analytical instrumentation, and military pulse and spread-spectrum applications



■ Digital-to-Analog Converters

Settling times to 20 nanoseconds, update rates to 100MHz



■ Sample/Hold Amplifiers

Accuracies from 0.01% to 0.0008% (12 to 16 bit equivalent resolution)



■ Single-Package Data Acquisition

Multi-channel with differential or single-ended options



■ Multiplexers

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- 2 Life Support Device means any device, system or ancillary equipment intended for implant into the body or used in relation to supporting or sustaining life.

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