

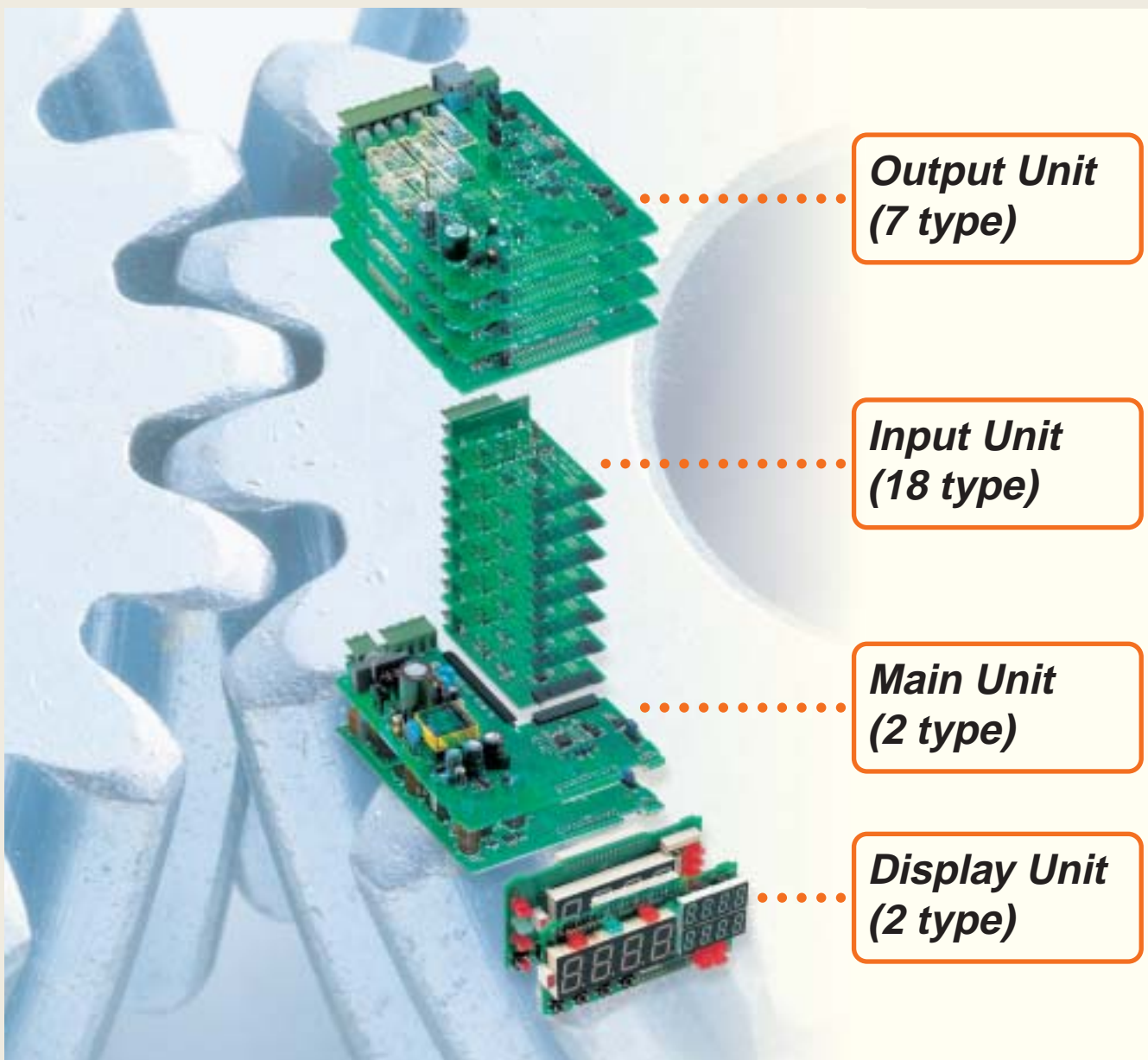
Fuji Digital Panel Meter Universal Type FD5000 Series



Universal Type Digital Panel Meter FD5000 Series

Features

- * **No adjustment after unit replacement is required**
- * **Free power supply voltage (90 to 264VAC, 9 to 60VDC)**
- * **Enabling short delivery and quick response to any applications even in small stock**
- * **The communication function (RS-232C/RS-485) enables personal computers to easily process and control various data**
- * **CE/UL/CSA (To be acquired soon)**



UNIVERSAL TYPE DIGITAL PANEL METER

FD5000 SERIES



New Standard

Main Unit



Main Board

Two type of main board

1. 90 to 264VAC power supply
2. 9 to 60VDC power supply

Output Unit



Output Board

Seven type of output board

0. None
1. HI & LO setpoint
2. Analog output
3. RS-232C
4. RS-485
5. HI & LO setpoint+analog output
6. HI & LO setpoint+analog output+RS-232C
7. HI & LO setpoint+analog output+RS-485

Input Unit



Input Board

Eighteen type of input board

01. DC voltage ($\pm 99.99\text{mV}$)
02. DC voltage ($\pm 999.9\text{mV}$ to $\pm 600\text{V}$)
03. DC current ($\pm 9.999\text{mA}$ to $\pm 999.9\text{mA}$)
04. AC voltage AVG (99.99mV to 9.999V)
05. AC voltage AVG (99.99V to 600V)
06. AC voltage RMS (99.99mV to 9.999V)
07. AC voltage RMS (99.99V to 600V)
08. AC current AVG (9.999mA to 999.9mA)
09. AC current AVG (5A)
10. AC current RMS (9.999mA to 999.9mA)
11. AC current RMS (5A)
12. Resistance (99.99Ω to $99.99\text{k}\Omega$)
13. Temperature (Thermocouple)
14. Temperature (RTD)
15. Frequency (Open collector, Logic, Magnet)
16. Frequency (50 to 500Vrms)
17. Strain gauge
18. 1 to 5V, 4 to 20mA

Display Unit



Display Board

Two type of display board

1. Single display
2. Multiple (monitor HI and LO setpoint) display



Input Specification

● DC voltage, current

Range	Measurement range	Display	Maximum Resolution	Input Impedance	Input Protection	Accuracy
11	±99.99mV	offset ±9999 full scale 0 to ±9999	10μV	100MΩ	±100V	±(0.1% of FS)
12	±999.9mV	offset ±9999 full scale 0 to ±9999	100μV	100MΩ	±100V	±(0.1% of FS)
13	±9.999V		1mV	1MΩ	±250V	±(0.1% of FS)
14	±99.99V		10mV	10MΩ	±250V	±(0.1% of FS)
15	±600V		100mV	10MΩ	±600V	±(0.15% of FS)
23	±9.999mA	offset ±9999 full scale 0 to ±9999	1μA	10Ω	±100mA	±(0.2% of FS)
24	±99.99mA		10μA	1Ω	±500mA	±(0.2% of FS)
25	±999.9mA		100μA	0.1Ω	±3A	±(0.3% of FS)

Input configuration : Single ended
 Measuring method : $\Delta\Sigma$ type
 Normal mode rejection : More than NMR 50dB(50/60Hz)

● AC voltage, current (Average)

Range	Measurement range	Input Frequency	Display	Maximum Resolution	Input Impedance	Input Protection	Accuracy
11	99.99mV	40Hz to 1kHz	offset ±9999 full scale 0 to ±9999	10μV	more than 1MΩ	100V	±(0.2% of rdg + 10digit)
12	999.9mV			100μV		100V	±(0.2% of rdg + 10digit)
13	9.999V			1mV		250V	±(0.2% of rdg + 10digit)
14	99.99V	40Hz to 1kHz	offset ±9999 full scale 0 to ±9999	10mV	more than 1MΩ	250V	±(0.2% of rdg + 10digit)
15	600V			100mV		600V	±(0.3% of rdg + 10digit)
23	9.999mA	40Hz to 1kHz	offset ±9999 full scale 0 to ±9999	1μA	10Ω	100mA	±(0.5% of rdg + 10digit)
24	99.99mA			10μA		500mA	±(0.5% of rdg + 10digit)
25	999.9mA			100μA		3A	±(0.5% of rdg + 10digit)
26	5A	50Hz or 60Hz	offset ±9999 full scale 0 to ±9999	1mA	CT	8A	±(0.5% of rdg + 10digit)

● AC voltage, current (TRUE-RMS)

Range	Measurement range	Input Frequency	Display	Maximum Resolution	Input Impedance	Input Protection	Accuracy
11	99.99mV	40Hz to 1kHz	offset ±9999 full scale 0 to ±9999	10μV	more than 1MΩ	100V	±(0.2% of rdg + 20digit)
12	999.9mV			100μV		100V	±(0.2% of rdg + 20digit)
13	9.999V			1mV		250V	±(0.2% of rdg + 20digit)
Range	Measurement range	Input Frequency	Display	Maximum Resolution	Input Impedance	Input Protection	Accuracy
14	99.99V	40Hz to 1kHz	offset ±9999 full scale 0 to ±9999	10mV	more than 1MΩ	250V	±(0.2% of rdg + 20digit)
15	600V			100mV		600V	±(0.3% of rdg + 20digit)
Range	Measurement range	Input Frequency	Display	Maximum Resolution	Input Impedance	Input Impedance	Accuracy
23	9.999mA	40Hz to 1kHz	offset ±9999 full scale 0 to ±9999	1μA	10Ω	100mA	±(0.5% of rdg + 20digit)
24	99.99mA			10μA	1Ω	500mA	±(0.5% of rdg + 20digit)
25	999.9mA			100μA	0.1Ω	3A	±(0.5% of rdg + 20digit)
Range	Measurement range	Input Frequency	Display	Maximum Resolution	Input Impedance	Input Protection	Accuracy
26	5A	50Hz or 60Hz	offset ±9999 full scale 0 to ±9999	1mA	CT	8A	±(0.5% of rdg + 20digit)

Input configuration : Single ended
 Response time : Approx 1 sec
 Crest factor : 4:1 at fullscale (only for TRUE-RMS)
 Dead zone : 0 to 99 digit

● Resistance

Range	Measurement range	Display	Maximum Resolution	Current	Accuracy
11	99.99Ω	offset ±9999 full scale 0 to ±9999	10mΩ	5mA	±(0.2% of FS)
12	999.9Ω		100mΩ	0.5mA	±(0.1% of FS)
13	9.999kΩ		1Ω	50μA	±(0.1% of FS)
14	99.99kΩ		10Ω	5μA	±(0.1% of FS)

● Thermocouple

Range	Sensor type	Measurement range	Maximum Resolution	Accuracy
KA	K	-50.0 to 199.9°C	0.1°C	±(0.5% of FS)
KB	K	-50 to 1200°C	1°C	±(0.2% of FS)
J	J	-50 to 1000°C	1°C	±(0.2% of FS)
T	T	-50 to 400°C	1°C	±(0.6% of FS)
S	S	0 to 1700°C	1°C	±(0.4% of FS)
R	R	-10 to 1700°C	1°C	±(0.4% of FS)
B	B	100 to 1800°C	1°C	±(0.4% of FS)over 500°C

available Fahrenheit display
 Cold junction compensator accuracy : ±1°C(10 to 40°C)
 Sensor lead resistance : less than 50Ω
 Linearizing method : Digital linearizing
 Burn out alarm : -----

● RTD

Range	Sensor type	Measurement range	Maximum Resolution	Accuracy
PA	PT100Ω	-100.0 to 199.9°C	0.1°C	±(0.15% of FS)
PB	PT100Ω	-100 to 600°C	1°C	±(0.3% of FS)

available Fahrenheit display
 Current for resistance : Approx 1mA
 External lead resistance : Less than 10Ω/lead
 Linearizing method : Digital linearizing
 Burn out alarm : -----

● Frequency

Range	Measurement range	Display	Maximum Resolution	Display Renewal time	Accuracy
11	0.1 to 200Hz	Prescale : 0.001 to 5 1 to 100	0.1Hz	1 to 10s	±(0.2% of FS)
12	1 to 2000Hz		1Hz	1s	±(0.2% of FS)
13	0.01 to 20kHz		10Hz	100ms	±(0.2% of FS)
14	0.1 to 200kHz		100Hz	100ms	±(0.2% of FS)

Input type	Input voltage level	Input Protection
Open collector	L : less than 1V(5V, 2.2KΩ)pullup	30V
Logic	L : less than 1V, HI : 2.5 to 15V	15V
Magnet	0.3 to 30V P-P	15V
Input type	Input voltage level	Input Protection
Voltage	50 to 500V rms	500V

● Strain gauge

Power supply for sensor	Zero adjustment range	Span adjustment range	Maximum Resolution	Accuracy
5V	-0.3 to +2mV/V	1 to 3mV/V	0.5μV/digit	±(0.1% of FS)+2 digit
10V			1μV/digit	

Sesnor : 350 Ω
 Power supply for sensor : 5V±5% (less than 15mA)
 10V ±5% (less than 30mA)

● Process

Range	Measurement range	Display	Input Impedance	Input Protection	Accuracy
1V	1 to 5V	offset ±9999	1MΩ	±100V	±(0.2% of FS)
2A	4 to 20mA	full scale 0 to ±9999	10Ω	±100mA	±(0.2% of FS)





PLC

Recorder



Computer



Output Specification

● HI & LO setpoint output



Comparative condition:

Indication > High setpoint	HI
High setpoint \geq Indication \geq Lo setpoint	GO
Indication < Lo setpoint	LO

Setting range : -9999 to 9999
 Hysteresis : 1 to 999 digit for each setpoints
 Relay contact capacity : AC240V 8A resistive load
 DC30V 8A resistive load

● Analog output



Output	Resistive load	Accuracy
0 to 1V	more than 10K Ω	$\pm(0.5\%$ of FS)
0 to 10V	more than 10K Ω	
1 to 5V	more than 10K Ω	
4 to 20mA	less than 550 Ω	

Output method : PWM method
 Scaling : Digital scaling

● RS-232C output



RS-232C(Conforming to EIA RS-232C)

Communication method : Full duplex
 Transmission speed : 2400/4800/9600/19200/38400 bps
 Start bit : 1 bit
 Data length : 7 bit/8 bit
 Parity : Even parity/ odd parity
 Stop bit : 1 bit/2 bit
 Character code : ASCII code
 Transmission control process : Ignord process

● RS-485 output



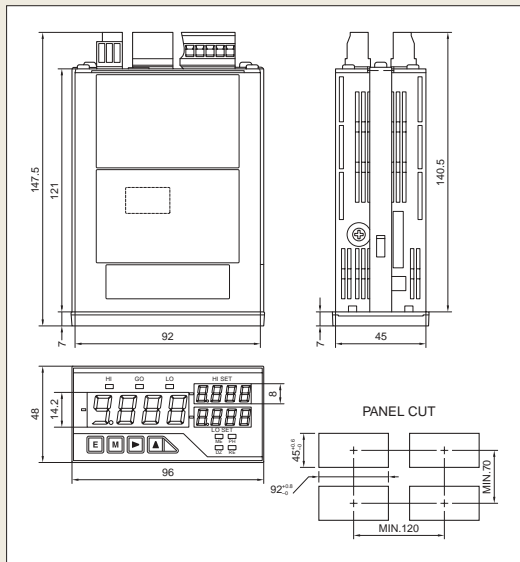
RS-485(Conforming to EIA RS-485)

Communication method : Full duplex
 Transmission speed : 2400/4800/9600/19200/38400 bps
 Start bit : 1 bit
 Data length : 7 bit/ 8 bit
 Parity : Even parity/ odd marity
 Error detection : BCC
 Stop bit : 1 bit/2 bit
 Character code : ASCII code
 Transmssion control process : Ignord process
 Signal name : +non reversal output
 -reversal output
 Maximum no of meter connected : 31
 Line length : Up to 500m in total

Common Specification

Display	: Main display Red LED 14.2mm height Sub display Green LED 8mm height	
Conversion rate	: 12.5times/sec	
Maximum display	: 9999	
Ovrerrange indication	: When input exceeds the maximum display, display OL or -OL	
Zero display	: Leading zero suppression	
Decimal point	: Settable to any digit position	
External control	: Start/Hold, Peak Hold, Digital Zero	
Operating temp.	: 0 to 50°C 35 to 85% RH	
Storage temp.	: -10 to 70°C less than 60% RH	
Power supply	: AC100 to 240V±10% (AC main unit) DC9 to 60V (DC main unit)	
Power consumption	: approx 4VA (at 100V)	
Dimensions	: 96mm×48mm(H) 147.5mm(D) DIN size	
Weight	: approx. 450g	
Dielectric strength(AC)	: Power supply/input terminal/output terminal AC2000V/1min Input terminal/output terminal DC500V/1min Case/power supply/input terminal/output terminal AC2000V/1min.	
Dielectric strength(DC)	: Power supply/input terminal/output terminal DC500V/1min Input terminal/output terminal DC500V/1min Case/power supply/input terminal/output terminal AC2000V/1min.	
Insulation resistance	: DC500V more than 100MΩ at the above terminals	

Dimensions (unit:mm)



Ordering Code

FD 5 □ □ □ - □ □

Input

01. DC voltage ($\pm 99.99\text{mV}$)
02. DC voltage ($\pm 999.9\text{mV}$ to $\pm 600\text{V}$)
03. DC current ($\pm 9.999\text{mA}$ to $\pm 999.9\text{mA}$)
04. AC voltage AVG (99.99mV to 9.999V)
05. AC voltage AVG (99.99V to 600V)
06. AC voltage RMS (99.99mV to 9.999V)
07. AC voltage RMS (99.99V to 600V)
08. AC current AVG (9.999mA to 999.9mA)
09. AC current AVG (5A)
10. AC current RMS (9.999mA to 999.9mA)
11. AC current RMS (5A)
12. Resistance (99.99Ω to $99.99\text{k}\Omega$)
13. Temperature (Thermocouple)
14. Temperature (RTD)
15. Frequency (Open collector, Logic, Magnet)
16. Frequency (50 to 500Vrms)
17. Strain gauge
18. 1 to 5V, 4 to 20mA

Output

0. None
1. HI & LO setpoint
2. Analog output
3. RS-232C
4. RS-485
5. HI & LO setpoint+analog output
6. HI & LO setpoint+analog output+RS-232C
7. HI & LO setpoint+analog output+RS-485

Display board

1. Single
2. Multiple

Main board

1. AC100 - 240V ($\pm 10\%$)
2. DC9 - 60V

Caution on Safety

* Before using this products, be sure to read its instruction manual in advice.

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