EMD8A

 \blacklozenge When making an inquiry or placing an order, specify the

above product code.

Connector

Analog output

Comparison output

(Example)

Maximum scale value (for ± range, provide "±" as well)

Ра kPa

6P

4–20 mA 1–5 V

NPN transistor

PNP transistor

D

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EMD8A

	LINDOA								
List of products									
WO81	 24×48 type digital fine differential pressure sensor Product compliant with the UL standard and the EU directive Designed with consideration for ease of incorporation into the device, such as employment of RITS connector and snap-in type panel mounting method The displacement sensor employs a high-performance diaphragm and a differential inductance method. Variation of fourteen ranges in total, including five zero center range types Easily visible 12 mm high red LED display Equipped with a variety of functions that include a movement average filter, maximum/minimum value memory, and comparison output Sign inversion function convenient for negative pressure measurement (negative 								
WO71									
FR51A									
MS99									
MS99S									
MS61A-RA	value indication is possible)								
QDP33									
EMD8A	lease to get - and the second and								
EMD7	2 Manostar EMD8A Pa								
EMT1									
EMTGP1									
EMT1H									
EMT6	*The wiring side connector and cable are not supplied. If they are necessary, use the RITS plug/connector 5P (refer to page 70).								
EMP5A									
EMRT1									
HWS15A	Main application fields> • Semiconductor manufacturing equipment Product code • Pressure range code • • • • • • • • • • • • • • • • • • •								
Accessories	Negative pressure for dust collector/differential pressure of air conditioners Filter pressure loss management Precision machine manufacturing EMD8A N 1 6 D 100								
Application	Ine General factory management								
Precautions	equipment Unit								
Maintenance	Measurement of internal pressure of indoor device Connect								
	Detection of clogging of air filter Measurement of clogging of bug filter Measurement of dynamic pressure								
	at ventilation/exhaust device Room pressure measurement in a clean room Compar								



*(Refer to pages 114 to 117)

EMD8A

List of products

EMD8A

Specifications

- Model	EMD8A						WO81
Pressure unit	Pa, kPa		Analog outp	out	Accuracy	± 1.5% FS (at 20°C)	woor
Pressure measurement method	Differential pressure method				• EMD8A 1	cs ± 0.15% F5/ C (200 + spain)	14071
Measured gas	Air and noncorrosive gas (liquid cannot be measured)				4 to 20 mA (blased pl to +50% FS) Load resistance: 0 to	ressure: 0 to FS, ±: at pressure of -50% 250 Ω	WOTI
Pressure-receiving element	Diaphragm (silicone rubber)			 EMD8A 4 1 to 5 V (biased press 	sure: 0 to FS, ±: at pressure of −50% to		
Mounting orientation	Mounting on vertical surface			+50% FS) Load resistance: 10 k	Ω or higher	FR51A	
Operating ambient temperature	0°C to 60°C (no freezing allowed)	Power volta	ge	12 to 24 V DC ± 10% (ripp	ble of 10% or below)		
Operating ambient humidity	35% to 85% RH (no condensation allo	Maximum co current	onsumption	 EMD8AN (comparison o Total consumption: 100 r EMD8AP (comparison of 	utput: NPN transistor type) nA (internal consumption only) utput: PNP transistor type)	MS99	
Instrument body withstanding pressure	10 kPa (refer to page 118)		Internal consumption: 100 mA Total consumption: 300 mA (including load current for comparison output of 100 mA x 2)		0 mA mA (including load current for 0 mA × 2)		
Withstanding pressure of pressure-receiving element	10 kPa (refer to page 118)	Insulation re	esistance	Between terminal and cas	e: 10 MΩ or higher (500 V DC megger)	MS99S	
Exterior material	Polycarbonate		Withstand v	oltage	Between terminal and cas	e: 500 V AC, 50/60 Hz, for one minute	
Electric signal conversion method	Variable inductance	Installation	category	Standard IEC 60664 level II (However, this product must be connected to the secondary side of a safety insulation transformer such as DC switching power.)		MS61A-RA	
Display	Display section 7-segment LED, red 3-1/2 digits Accuracy ± 1.5% FS ± 1 digit (at 20°C) Temperature (characteristics) ± 0.15% FS/°C (zero + span)		Operating a	ltitude	Altitude of 2000 m or below		
			Protection l	evel	Standard: IEC 60529 Grad	J: IEC 60529 Grade code: IP40 (front panel)	
Zero adjustment method	Push-type automatic zero return (The displayed value and analog outp at the same time.)	Degree of contaminati	on	Standard: IEC 60664 Grade: 2 (If it is not possible to install this product in a dry clean location, house it in a housing.)			
Comparison output	Setting method Push-type digital setting Output display Red LED × 2 Output type • EMD8AN Two systems of NPN open collector		Durable vib	ation	5 to 10 Hz Amplitude of 10 mm, 10 to 50 Hz Acceleration of 39 m/s ² (two hours each for thr axial directions)		EIVIDOA
			DBAN Durable impact 10 Two systems of NPN open collector 10 <td< td=""><td colspan="2">100 m/s² (six times each for three axial directions)</td><td>EMD7</td></td<>		100 m/s ² (six times each for three axial directions)		EMD7
	Maximum load current: 100 m. Maximum load voltage: 30 V D	In how current: To that of lower (per output) um load voltage: 30 V DC or lower It saturated voltage: 1 V DC or lower (at load ht of 100 mA)		pipe	Vinyl pipe or rubber pipe (inner diameter of 4 mm)	
	• EMD8AP Two systems of PNP open col			у	Indicating high-pressure s and "LOW" marks, respec	ide and low-pressure side with "HIGH" tively, at piping connection base part.	EMT1
	Maximum load current: 100 mA or lower (per output) Maximum load voltage: 30 V DC or lower Output saturated voltage: 2 V DC or lower (at load		Connector		RITS Connector 6P (TE C For the connector on the v accessory (refer to page 7	connectivity) wiring side, use the separately sold ′0).	
	current of 100 mA)		Mass	s Approx. 60 g			EMTGP1
Pressure range code	Rating pressure range	LED displa	у	Com	parison output	Analog output	
D 50	0-50 Pa	0.0-50.0					EMTIH
D 100	0-100 Pa	0.0-100.0					
D 200	0-200 Pa	0-200					
D 300	0-300 Pa	0-300					EMT6
D 500	0-500 Pa	0-500					
	0.2 kPo	0-1000		N	PN transistor	4–20 mA	
E 2 E 3	0-2 KFa	0.00-2.00			or	or	EMP5A
E 5	0-5 kPa	0.00-5.00		Р	NP transistor	1–5 V	
D +- 50	-50 to +50 Pa	-50.0 to 50.0					
D +-100	-100 to +100 Pa	-100 to 100					EMRT1
D +-200	-200 to +200 Pa	-200 to 200					
D +-300	-300 to +300 Pa	-300 to 300					
D +-500	-500 to +500 Pa	-500 to 500					HWSI5A

◆For the use environment, refer to page 118.

Conforming standards	Accessories			
1. EU directive				
This product is compliant with the EMC directive of EU.				
EMC directive basic requirements Standard No EN 61326–1				
This product in combination with HWS15A-24/A (TDK-Lambda Corporation) is confirmed to be compliant with the EMC				
directive.				
when using this product with other power unit, have the final system go through the EMC test.				
2. UL standard				
This product is certified as an UL standard recognition part. It is also certified with Canada Standard (C-UL).				
However, use this product in accordance with the installation conditions shown in (3) below.				
(1) Requirements standard NoUL 61010–1				
(2) File NoE220685				
(3) Installation conditionAs the DC power source to be connected to this product, use NEC (National Electrical				
Code) Class 2 power source or LPS (Limited Power Source) power source.				

EMD8A

Name

Case

Base

Core

Cover

Main frame

Diaphragm

Coil bobbin

Plate spring

Display film

Main board

Connector

side base

Connector board

Display board

EMD8A

List of products







EMT6

EMP5A

EMRT1

HWS15A

Accessories

Application Precautions Maintenance

EMD8A

Operation panel



Functions of EMD8A►►►

Display function

Pressure indication

Easily visible 12 mm high seven-segment red LED display Push type automatic zero reset

- Zero-resets the pressure indication and analog output at the same time.
- Movement average filter (for indication use) When the measured pressure greatly fluctuates, this function increases the response time to alleviate the fluctuation of display value.
- Maximum value/minimum value memory function Memorizes and displays the maximum pressure and minimum pressure during measurement.

Comparison output function (NPN or PNP transistor output)

• Equipped with two systems of the exact same function, each of which operates independently.

(Transistor output and output monitor red LED are equipped for each system.)

- •By changing the following parameter settings, it is possible to use this instrument for various applications.
 - 1. Comparison mode (hysteresis mode or window mode)
 - 2. Comparison pressure setting point
 - 3. Output mode (OFF, N.O., N.C.)
 - 4. Output on-delay time
 - 5. Output off-delay time
 - 6. Power supply on-delay time

Analog output function

- •Analog output (4 to 20 mA or 1 to 5 V) This function performs zero setting and movement average filter processing of a digital pressure measurement value, and then performs D/A conversion of the value and outputs it as an analog value. •Movement average filter (for output use)
- When the measured pressure greatly fluctuates, this function FMTGP1 increases the response time to alleviate the fluctuation of analog output.

Other functions

- EMT1H Test mode function It is possible to check the setting value and operation without EMT6 applying pressure. Display low cut function When the measurement pressure is near zero, the pressure EMP5A indication can be forcefully set to zero. •Measurement indication symbol inversion function The indication values in the pressure indication mode and EMRT1 maximum/minimum indication mode are displayed with their symbols inverted HWS15A Analog output inversion function Under normal conditions, when the differential pressure being measured rises, the analog output value also rises. However, Accessories turning on the analog output inversion function makes an opposite action. •Low power consumption function Application Reduces the power consumption by decreasing the LED display Precautions brightness. Maintenance •Setting protection function Protects setting values in various setting modes from erroneous
 - operation and others.
- Setting clear function

This function can revert the setting values in all setting modes to the factory default state.

EMD8A

List of products

QDP33

EMD7

FMT1

EMD8A

EMD8A



EMD8A

EMD8A

List of products Mode changeover WO81 Maximum value/minimum value indication Zero adjustment Setting value protection Sub setting mode Selects the operation mode of output 1 function Maximum value indication Blinks twice Output 1 function setting Pa 98 Protection setting 1 P: 45 Hysteresis mode I LF E WO71 secoń 000 LoE Undow mode MODE ENT Clearing of retained value / Selects the output mode of output 1. Alternates between Output 1 output mode setting Set and Cancel FR51A Minimum value <u>lo</u>P Cancellation of protection Every second indication : UnL 13 WODE the on-delay time of output 1 function Clearing of retained value Output 1 on-delay time setting 0.0 to 2.0 seconds (in units of 0.1 seconds) MS99 ¥ lon VODE ts the off-delay time of output 1 function. WODE $\blacksquare + \blacktriangledown$ Output 1 off-delay time setting 0.0 to 2.0 seconds **MS99S** Hold dow Hold down (in units of 0.1 seconds) : 1.o F Output 1 power supply on-delay time setting Measure indication Sets the output 1 power supply on-delay time. MS61A-RA 0 to 20 minutes When no key has been pressed for 15 seconds, the mode automatically returns to the pressure indication mode (excluding that duration without pressing of key 10 Normal display (in units of 1 minute) MCDE Hold : LdP Upper limit over range indication Biased pressure range: NODE FFF Biased pressure range: +110% FS or higher +-Range: +60% FS or more Selects the operation mode of output 2 function QDP33 MODE Hold Output 2 function setting ower limit over range indication Biased pressure range: without pressing of key at the time of standby HYSTERESIS mode : 2.FE - F F F Biased pressure range: -10% FS or lower +- range: - 60% FS or lower for entry by Up/Down key in sub setting mode). MODE Selects the output mode of output 2 Pressure indication Output 2 output mode setting N.C. N.O. mode : 2.oP WODE MODE Hold down MODE EMD7 Sets the on-delay time of output 2 function. Output 2 on-delay time 0.0 to 2.0 seconds settina Main setting mode . 2.on (in units of 0.1 seconds) 0.56 FMT1 MODE Output 1 Output 1 Sets the off-delay time of output 2 function function in function in Output 2 off-delay time setting 0.0 to 2.0 seconds (in units of 0.1 seconds) hysteresis window mode : <u>2.o</u> F mode Output 1 pressure setting point P1 setting Pal EMTGP1 Output 2 power sup : <u>(P</u> : <u>(</u>,H) Sets the output 2 power supply on-delay time. out 2 power sup delay time setti 0 to 20 minutes Output 1 pressure setting point P2 setting Output 1 pressure setting 2.dP (in units of 1 minute) EMT1H point Lo setting NODE lects the display filter. t P à Explanation of marks 2 (Lo Display filter setting F [] 0.2 seconds F [] 1.0 seconds F [] 2.0 seconds F [] 4.0 seconds MODE : Press the <<Mode>> key. WODE NODE FLd Press the <<Up>> key. EMT6 ▼ :Press the <<Down>> key WODE ENT : Press the <<ENT>> key. Output 2 Output 2 function in hysteresis mode Selects the output filter. Hold down: Press continuously F 0.2 F 1.0 F 2.0 F 4.0 function in window mode Output filter setting 0.2 seconds for 2 seconds or more FLo 1.0 seconds EMP5A Output 2 pressure setting point P1 setting Output 2 pressure setting 2.0 seconds WODE 4.0 seconds : <u>2</u>.H, - 2.P 1 ets the indication low cut value Display low cut setting EMRT1 Output 2 pressure setting point P2 setting Output 2 pressure se point Lo setting LLd 0 to 5% FS (in units of 1% FS) tting Measurement indication Sets the symbol inversion for measurement indication value 2.92 - <u>2.L o</u> symbol inversion se HWS15A o F F : <u>56</u>n Symbol inversion WODE NCOE Normal WODE Sets inversion of analog output. At the pressure setting points (P1, P2, Hi, and Lo), analog output inversion setting At the pressure setting points (P1, P2, Hi, and Lo), pressure values are set. Setting range: Within the pressure range Unit: Pa, kPa P1: Pressure setting point in hysteresis mode P2: Hysteresis pressure setting point in hysteresis mode Hi: Upper limit pressure setting point in window mode Lo: Lower limit pressure setting point in window mode Accessories Output inversion : RnR WODE Selects the power consumption mode. Application er consumption setting Low power consumption mode EEo Precautions DFF Normal power mode WODE Enters the test mode, and sets a simulated pressure value. Pressure setting range: biased pressure range -10 to +110% FS + range -60 to +60% FS Unit: Pa, kPa (when error occurs: When two errors have occurred Maintenance Error display at the same time) Test mode setting **F** 5 F Error code indication Measurement pressure indication Error code indication rement pres WODE E.0 1 10 I 10 : E.O.Z This function reverts the setting value to the factory default. Setting clear Does not clear the setting value. 42ES Clears the setting value. Lr After every indication of pressure, the error codes are automatically displayed MODE in order at intervals of one second.

EMD8A

EMD8A



EMD8A

EMD8A List of products EMD8A accessories RoHS WO81 **RITS 5P cable w/connector** This is a cable with connector used for connection with EMD8A WO71 In the sheath cable and other constituting parts of this product, vinyl chloride is not intentionally used. RITS plugs and connectors are products of TE Connectivity. RITS plug/connector 5P FR51A Core wire insulation sheath color Terminal Sheath cable (black, ϕ 4, five cores) Item number Cover color number Brown 1 MS99 (2) Blue CAB-RITS5-15 3 Yellow Pink (15) 1500 +50 (50) Black 4 White **MS99S** (5) This product is not UL-certified. Core wire sheath outer diameter: 1.0 mm Standard: AWG#24 Caution MS61A-RA RITS plug/connector 5P (TE Connectivity) QDP33 Cover: yellow This is a wiring side plug/connector used on EMD8A. Applicable wiring Item number Color Nominal cross-Finish outer section area diameter EMD7 1473562-5 Yellow 0.1-0.5 mm² 1.0-1.15 mm *Cable is not supplied. When crimping of the connector is performed, use the dedicated tool (item number: 1729940-1 from TE Connectivity). EMT1 For other RITS connectors and details, contact TE Connectivity. Caution EMTGP1 Connectability of the RITS connector 0 ••• Connectable EMT1H <EMD8A main body 6P> <RITS plug/connector 5P> × Non-connectable Item number: 1473562-5 EMT6 EMP5A Without contact pin EMRT1 <EMD8 main body 5P> HWS15A <RITS plug/connector 6P> Discontinued product Accessories Application With contact pin Contact hole is sealed Precautions with resin. Maintenance As the connector on the wiring side, be sure to use the RITS plug/connector from TE Connectivity. As the RITS connector is not compliant with e-CON, it is not compatible with connectors from other manufacturers. Caution

Warranty

Warranty period

The warranty period for our product is one (1) year from delivery to the location specified by the orderer who makes a direct transaction with us.

Scope of warranty

If any failure or defect attributable to us becomes clear during the above warranty period, we will repair the product or supply a substitute product free of charge. However, even during the warranty period, we will exclude the product from the scope of the warranty if the failure or defect corresponds to any of the following:

- (1) The failure or defect was caused by an unreasonable condition, environment, handling, or usage not mentioned in the instruction manual, specifications, and our product catalog.
- The failure or defect was caused by a factor other than our product.
- (3) The failure or defect was caused by a modification or repair conducted by a party other than us.
- (4) The failure or defect was caused by an event that could not be foreseen at the scientific and technical levels at the time of product shipment from us.
- (5) The failure or defect was caused by an external factor not attributable to us, such as acts of God and disasters.

Please note that the warranty mentioned here means the warranty for our individual product, and damage provoked by a failure or defect of the product is excluded from the scope of the warranty.

*This warranty is valid only in Japan.

Application and usage

Our products are designed and manufactured as general-purpose instruments for general industries. Therefore, our products are not intended for the following uses, and our products used in such a manner are outside the scope of application.

- (1) Equipment that is anticipated to greatly affect lives and properties, such as nuclear power generation, aviation, railways, marine vessels, vehicles, and medical devices
- Utilities that include electricity, gas, and service water
- (3) Use in outdoor locations and under similar conditions or environments other than those stipulated in the instruction manual
- (4) Usage to which considerable safety consideration and attention equivalent to (1) and (2) above need to be given

Service

Scope of service

Because the product price does not include service expenses, such as the dispatch of engineers, we will separately charge for the expenses in the following cases:

(1) Instruction for installation and adjustment and a witnessed test run

- (2) Maintenance inspection, adjustments, and repairs
- (3)Technical guidance and technical education
- (4)Witnessed inspections of products at our factory

<<Note>>> The product specifications and information in this catalog are subject to change without prior notice for product improvement or other reasons.

For order placement, contact



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