

## Dorland Industrial Intrinsically Safe Smart Multimeter Multimeter 87v EX

Developed by Beijing Dorland System Control Tech Co. Ltd., the industrial intrinsically safe smart multimeter Multimeter 87v EX adopts advanced technology. a newly designed, developed, and produced industrial grade 6000 bit true RMS digital multimeter. It is sturdy and durable, with 6000 bit counting, VFD testing function, LoZ function, full model automatic range, and true RMS testing, ensuring easy application in the industrial and maintenance fields. In addition, it is also suitable for outdoor construction, pipeline inspection, etc. It can be used in conjunction with various applications such as OA office systems, inspection positioning systems, data collection systems, etc. This model is especially suitably used in dangerous environment such as petroleum, chemical, pharmaceutical, oil depot, tank farm as well as the dangerous sites with combustibile and explosive gas. It is convenient for users' timely production dispatching and communication.

Ex-marking: Ex ib IIB T4 Gb

Certificate NO.: CE24.7162X

IP Grade: IP20

6000 bit count

Shell: Double injection molding

Impact (drop test): 2 meters

TRMS true effective value measurement

Super bright large screen display

Fully automatic range

LoZ: Low impedance input to prevent erroneous  
data readings caused by stray voltages



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<b>Explosion proof certificate parameters</b>			
<b>Ex-Marking</b>	Ex ib IIB T4 Gb		
<b>Certificate NO.</b>	CE24.7162X		
<b>IP grade</b>	IP20		
<b>Specification parameters</b>			
<b>Shell</b>	Double injection molding, waterproof		
<b>Impact (drop test)</b>	2 meters		
<b>Diode testing</b>	The maximum test current is 0.9mA, and the typical open circuit voltage is 3.2VDC		
<b>Continuity check</b>	When the resistance is less than 50 $\Omega$ , the buzzer sounds and the test current is less than 0.35mA		
<b>Input impedance</b>	>10M $\Omega$ VDC, >10M $\Omega$ VAC		
<b>Communication response</b>	True effective value		
<b>ACV bandwidth</b>	45Hz~1KHz		
<b>display</b>	6.000 digit counting LCD display		
<b>Over range indication</b>	Display 'OL'		
<b>Automatic shutdown</b>	About 15 minutes, this feature can be disabled		
<b>Polarity</b>	Automatic; The negative sign (-) indicates negative polarity		
<b>Measurement rate</b>	2 times per second, nominal value		
<b>Low battery level indicator</b>	If the battery voltage drops below the operating voltage, it will display "  "		
<b>Battery</b>	A 9-volt (NEDA 1604) battery		
<b>Fuse</b>	MA, $\mu$ A range: 0.8A/1000V ceramic fast melting A range; 10A/1000V ceramic rapid melting		
<b>Operating environment</b>	0°C~55°C		
<b>Storage environment</b>	'-20°C~60°C(-40°F~140°F)		
<b>Working humidity</b>	The maximum humidity reaches 80% at 31 °C(87 °F) and decreases linearly to 50% at 40 °C (104°F)		
<b>Storage humidity</b>	<80%		
<b>Working altitude</b>	Within 2000 meters		
<b>Function</b>	<b>Range</b>	<b>Resolution ratio</b>	<b>Accuracy</b>

<b>DC voltage</b>	60.00mV	0.01mV	±(0.9%+9 digits)
	600.0mV	0.1mV	
	6.000V	0.001V	±(0.5%+5 digits)
	45.00V	0.01V	
<b>AC voltage 45Hz~1KHz</b>	60.00mV	0.01mV	±(0.9%+9 digits)
	600.0mV	0.1mV	±(0.8%+3 digits)
	6.000V	0.001V	
	45.00V	0.01V	
All AC voltage ranges are from 5% to 100% of the specified range. AC voltage bandwidth: 45Hz~1KHz (sine wave): 50/60HZ (all waveforms).			
<b>DC current</b>	600.0μA	0.1μA	(1.0%+3 digits)
	6000μA	1μA	
	60.00μA	0.01μA	
	600.0μA	0.1μA	
	6.000μA	0.001A	±(1.5%+3 digits)
	500.00mA	0.01A	
<b>AC current 45Hz~1KHz</b>	600.0μA	0.1μA	±(1.5%+3 digits)
	6000μA	1μA	
	60.00μA	0.01mA	
	600.0μA	0.1mA	
	6.000μA	0.001A	±(2.0%+3 digits)
	10.00A	0.01A	
All AC current ranges are from 5% to 100% of the specified range. AC current bandwidth: 45Hz~1KHz (sine wave): 50/60Hz (all waveforms).			
<b>Resistance</b>	600.0Ω	0.1Ω	±(1.0%+2 digits)
	6.000KΩ	0.001KΩ	±(0.8%+2 digits)
	60.00KΩ	0.01KΩ	
	600.0KΩ	0.1KΩ	
	6.000MΩ	0.001MΩ	±(1.2%+2 digits)
	60.00KΩ	0.01MΩ	±(1.0%+5 digits)
<b>Capacitance</b>	99.99nF*	0.01nF	±(5.0%+20 digits)
	999.9nF	0.1nF	±(4.0%+5 digits)
	9.999μF	0.001μF	
	99.99μF	0.01μF	
	999.9μF	0.1μF	
	9.999mF	0.001mF	±10% reading

	99.99mF	0.01mF	
<b>Frequency(electronic)</b>	9.999Hz	0.001Hz	±(0.1%+4 digits)
	99.99Hz	0.01Hz	
	999.9Hz	0.1Hz	
	9.999KHz	0.001KHz	
	99.99KHz	0.01KHz	
	999.9KHz	0.1KHz	
	9.999MHz	0.001MHz	
Sensitivity: When the duty cycle is between 20% and 80% and <100kHz, the minimum is 0.8V RMS; Minimum 5Vrms at 20% to 80% duty cycle and >100kHz.			
<b>Frequency (electronic)</b>	10.00-1KHz	0.01Hz	±0.5% reading
Sensitivity: AC mV range (≥ 100mV), ACV range (≥ 6% range); 6000 μ A/500.0mA 600.0 μ A/60.00mA			
<b>Duty cycle</b>	0.1~99.9%	0.10%	±(1.2%+2 digits)
Pulse width: 100 μ s~100ms; Frequency: 5Hz~150KHz			
<b>Temperature</b>	'-40~1000°C	1°C	±(3.0%+3°C/5°F digits) (Excluding probe accuracy)
	'-40~1832°F	1°F	

Attention: Accuracy specifications include two elements:

1. (% reading) - This is the accuracy of the measurement circuit.
2. (+digits) - This is the accuracy of the analog-to-digital converter.

Attention: Accuracy is expressed under conditions of 18 ° C~28 ° C (65 °F~83 °F) and relative humidity less than 75%.



 **CONFORMITY CERTIFICATE OF EXPLOSION-PROOF**

Certificate No.: CE24.7162X

Name of Product: Dorland Industrial Intrinsically Safe Smart Multimeter  
Type of Product: Multimeter 87v EX  
Marking: **Ex ib II B T4 Gb**  
Technical Documents: Q/DLM 007-2023  
Drawing No.: BZ01

For notes of this certificate see annex.

Note (s):

By verifying the drawings and technical documents and checking samples, the product complies with the following standards:

GB/T 3836.1-2021

GB/T 3836.4-2021

Issued to: Beijing Dorland System Control Technology Co., Ltd.

Date of Expire: 2029-09-26

Date of Issue: 2024-09-26

Seal



Director

**Han Yongqiang**

**CenerTech Tianjin Chemical Research and Design Institute Co.,Ltd.**  
**National Explosion-proof Product Quality Inspection and Testing Center (Tianjin)**  
**(Supervision & Test Center of Ex-products of China Petroleum & Chemical Industry)**

Note: This certificate is only valid for the documents approved and for the products that are in accord with samples tested and verified.

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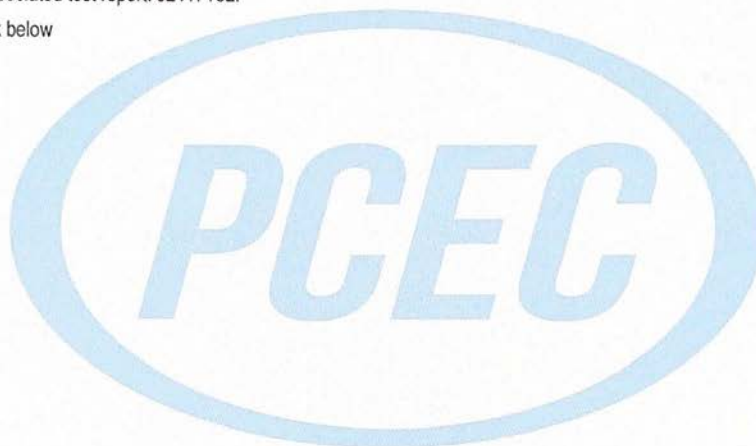


**ANNEX OF CONFORMITY CERTIFICATE OF EXPLOSION-PROOF**

**Certificate No.: CE24.7162X**

1. The battery used in the product is type 6F22 9V lithium battery. This battery pack contains a series resistor to limit the current.
2. Ambient temperature of the product:  $0^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$ .
3. The certificate number suffix "X" indicates that the product has a special condition of use: Where the product is used in the hazardous areas, it can only measure intrinsically safe products that have obtained the explosion-protection certificate of conformity. And the measuring voltage shall not be greater than 45V and the measuring current shall not be greater than 500mA.
4. Associated test report: J2417162.

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**CenerTech Tianjin Chemical Research and Design Institute Co.,Ltd.**  
**National Explosion-proof Product Quality Inspection and Testing Center (Tianjin)**  
**(Supervision & Test Center of Ex-products of China Petroleum & Chemical Industry)**



Note: This certificate is only valid for the documents approved and for the products that are in accord with samples tested and verified.

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