



COMARK C9500 Series Intrinsically Safe Pressure Meters User Manual

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COMARK

COMARK C9500 Series Intrinsically Safe Pressure Meters



GENERAL INFORMATION

These instruments have been certified by SGS Baseefa Limited and are suitable for use in accordance with the marks which have been applied. The marks comply with the requirements of the ATEX certification. The battery cover is attached by socket headed screws for which an Allen key is provided with the instrument. This key should be kept outside the hazardous area.

ON NO ACCOUNT SHOULD THE BATTERY COVER BE OPENED WITHIN THE HAZARDOUS AREA.

(A low battery voltage is indicated by the 'BAT' symbol appearing on the display).

INPUT HOSES SHOULD NOT BE DISCONNECTED FROM THE INSTRUMENT WHILST CONTAINING GASES WHICH ARE DANGEROUS AND/OR UNDER PRESSURE. Do not apply pressures beyond the over range maximum for the instrument or damage may occur. DO NOT USE ANY OTHER MEANS OF POWER SUPPLY TO THE INSTRUMENT OTHER THAN THE BATTERY TYPES AS LISTED ON THE INSTRUMENT LABEL. refer to section 3 — connection to pressure sources before operating the instrument.

- This instrument is manufactured in accordance with the Company's ISO 9001 Quality Approved System.
- This instrument complies with the Electromagnetic Compatibility Directive EN 61326-1.
- Declarations of Conformity available. Contact Comark Customer Support or your local Distributor.

In line with its policy of continuous development, Comark Instruments reserves the right to alter the instrument specification without prior notice. Further information is available from Comark Instruments or your distributor.

CALIBRATION, CERTIFICATION AND SERVICE

Certification

Comark can provide certificates of calibration for its whole product range, to suit ISO 9000 and other quality assurance procedures, food hygiene regulations, HACCPs and environmental regulations. Comark certificates are produced by independent quality controlled processes which compare product performance against agreed National Standards. For peace of mind and best practice Comark recommend annual certification/recalibration.

Two levels of certification are available for infra-red temperature and non temperature instruments, excluding humidity:- UKAS certificates via an external accredited laboratory and NPL traceable certificates from the Comark calibration laboratory.

Three levels of certification are available for contact temperature and humidity products and these are detailed here:

1. UKAS Temperature Certification

The Comark UKAS (United Kingdom Accreditation Service) accredited temperature calibration laboratory is one of the finest in the UK. Comark UKAS certificates can offer the lowest uncertainty of 0.01°C and provide independent proof of correct calibration using equipment and procedures audited by UKAS inspectors. The equipment used is fully traceable to the National Physical Laboratory.

2. UKAS Humidity Certification

In addition to the Comark temperature laboratory, the humidity laboratory continues the tradition of high accuracy certification and a wide range (25% to 90%RH) with uncertainties of 2.8% of reading. This range also includes Dew point measurements.

3. NPL Traceable Certification

Comark NPL certificates are traceable to the National Physical Laboratory and can offer uncertainty as low as 0.3°C.

Conformance

Certificates of conformance can be supplied for new, serviced and recalibrated instruments. These confirm that instruments are within their original manufactured specification.

Cleaning Instructions

Clean only with a Lint Free Cloth, supplied. Never use 70% Isopropyl Alcohol Wipe.

Service/Repairs

Regular servicing and any required repairs, under warranty or after, are available from the Comark Service Department. For more information on all Comark certification, calibration and service facilities please call Comark Customer Support or contact your local distributor.

Note: The last two digits of the instrument serial number indicate the year of manufacture. Eg. 12345/21-03 = 2003.

INTRODUCTION

The C9500 Series IS pressure meters includes:-

- C9501/IS Range 0 to ± 2 PSI / 0 to ± 140 mbar Differential
- C9503/IS Range 0 to ± 5 PSI / 0 to ± 350 mbar Differential
- C9505/IS Range 0 to ± 30 PSI / 0 to ± 2000 mbar Differential
- C9507/IS Range 0 to ± 100 PSI / 0 to ± 6900 mbar Differential

KEY FUNCTIONS

ON/OFF Key

Press once to switch on the instrument. Repeat to switch off. Holding down the key when switching on will display the maximum pressure range of the instrument in PSI. Holding down the key when switching off will display all segments as a test.

ZERO Key

Press to zero the current readings on the display to nullify any offsets caused by large temperature variations. The instrument will retain the zero value in memory even after switch off, so that the zero reading will be displayed

when the instrument is switched on again. The zero key can be used whenever offsets occur. Please note that pressing the zero key has no effect whilst the instrument is in hold or record modes.

SCALE Key

Press to display the pressure measurement in each of the different scales available. The selected scale unit is retained in memory even after switch off, so that the selected unit can be displayed when the instrument is switched on again.

HOLD Key

Press to hold the displayed reading and press again to resume measurement. The scale key will operate while the instrument is in hold mode so that the held reading can be displayed in different scales.

FILTER Key

Press to filter out transient readings. In filter mode the instrument will average the readings taken over the last 4 seconds (16 readings) to provide a more stable reading on the display. Press the key again to resume normal measurement

RECORD Key

Press once to put the instrument into record mode. This will be indicated by the word RECORD on the display. Maximum and minimum pressure readings can be stored and displayed while the instrument is in record mode. When the instrument is in record mode, press key once to display the current maximum reading and press again to display the current minimum reading. Pressing the key a third time will return the display to normal measurement. Record mode can be cancelled and the max/min readings cleared by pressing and holding down the key until the word RECORD disappears from the display. The scale key will operate while the instrument is in record mode so that the max/min readings can be displayed in different scales.

AUTO Switch Off

The instrument can be programmed to auto switch off by pressing and holding down the HOLD key while using the ON/OFF key to switch on the instrument. The word AUTO appears on the display to indicate auto switch off mode and the instrument will switch itself off approximately 3 minutes after the last use of the keypad. Auto switch off mode can be cancelled by pressing and holding down the HOLD key while switching on manually with the ON/OFF key.

CONNECTION TO PRESSURE SOURCES

- The C9500 Series IS instruments are fitted with 1/8" BSP female connectors. The following checks must be made before connecting the instrument to a pressure source:- Check the security of all fittings.
- Check that the pressure source does not exceed the ratings for the instrument as set out in Table 1.
- Check that the gases to be measured will not damage or corrode stainless steel, brass, glass, ceramic, silicon, nickel, aluminium, gold or epoxy resin.
- **Note:** Comark C9500 Series IS Pressure Measurement Instruments are not suitable for absolute pressure measurement.
- **Note:** Pressures in excess of maximum over range figure with respect to atmospheric pressure, should not be applied to either port as this could damage the instrument or represent a safety hazard.

TABLE 1

Instrument	Pressure Range	Maximum Over/ Under Pressure
C9501/IS	0 to ± 2 PSI/140mbar	6 PSI/400mbar
C9503/IS	0 to ± 5 PSI/350mbar	15 PSI/1000mbar
C9505/IS	0 to ± 30 PSI/2000mbar	90 PSI/6200mbar
C9507/IS	0 to ± 100 PSI/6900mbar	200 PSI/13700mbar

OTHER FUNCTIONS

Battery Low

Low battery is indicated by the symbol BAT on the display. Replace the battery as soon as possible after this symbol appears.

Over Range Pressure

If the pressure measured (either positive or negative pressure) exceeds the full scale of the instrument, the display will show — — — — If this occurs the pressure must be reduced to avoid damage to the sensor in the instrument.

Over 9999 Reading Indication

If the numeric value for display exceeds ± 9999 , with or without a decimal point, the display will blink and suppress the top (5th) digit, whilst continuing with correct values of the lower 4 digits.

Differential or Gauge Measurement

C9500 series instruments can be used in either a gauge or differential pressure measurement system.

Gauge: For positive gauge measurements the negative (-ve) port should be left open to atmospheric pressure and the positive (+ve) port used to input the pressure. For negative gauge measurements the positive (+ve) port should be left open and the 'vacuum' applied to the negative (-ve) port. Please note that in this case the reading displayed will be positive even though a vacuum is being measured.

Differential: When measuring differential pressures, ensure that the most positive (+ve) pressure is applied to the positive (+ve) port.

Battery Replacement

Unscrew the two Allen screws at the base of the instrument and slide off the battery cover. Replace the battery with a 9V PP3 type as specified on the label in the battery compartment. Replace the battery cover taking care not to over tighten the two screws. A 2.5mm A/F hex key is provided.


Note: Do not use any other means of power supply to the instrument other than the battery types as listed on the instrument label.

SPECIFICATION

		C9501/IS	C9503/IS	C9505/IS	C9507/IS
PSI	Range	0 to ± 2.031	0 to ± 5.076	0 to ± 30.46	0 to ± 101.5
	Resolution	0.001	0.001	0.01	0.1
mBar	Range	0 to ± 140	0 to ± 350	0 to ± 2100	0 to ± 7000
	Resolution	0.1	0.1	1	1
Bar	Range			0 to ± 2.100	0 to ± 7.000
	Resolution			0.001	0.001
inH₂O	Range	0 to ± 56.2	0 to ± 140.5	0 to ± 843.1	0 to ± 2810
	Resolution	0.1	0.1	0.1	1
inHg	Range	0 to ± 4.134	0 to ± 10.34	0 to ± 62.01	0 to ± 206.7
	Resolution	0.001	0.01	0.01	0.1
mmHg	Range	0 to ± 105.0	0 to ± 262.5	0 to ± 1575	0 to ± 5250
	Resolution	0.1	0.1	1	1
Torr	Range	0 to ± 105.0	0 to ± 262.5	0 to ± 1575	0 to ± 5250
	Resolution	0.1	0.1	1	1
Pa	Range	0 to ± 9999			
	Resolution	1			
KPa	Range	0 to ± 14.00	0 to ± 35.00	0 to ± 210.0	0 to ± 700.0
	Resolution	0.01	0.01	0.1	0.1
mmH₂O	Range	0 to ± 1428	0 to ± 3569		
	Resolution	1	1		
cmH₂O	Range	0 to ± 142.8		0 to ± 2141	0 to ± 7138
	Resolution	0.1		1	1
Kgcm⁻²	Range	0 to ± 0.143	0 to ± 0.357	0 to ± 2.141	0 to ± 7.138
	Resolution	0.001	0.001	0.001	0.001

- **CALIBRATED ACCURACY** $\pm 0.2\%$ of full scale (FS) at +23°C
- **REPEATABILITY** $\pm 0.1\%$ of full scale (FS) at +23°C
- **MEAN TEMPERATURE COEFFICIENT OF READING** $< 0.1\%$ per °C
- **OPERATING RANGE** 0 to 40°C, 10 to 90% RH non condensing
- **ENVIRONMENTAL RATING** IP67
- **CERTIFICATION** II 1G Ex ia IIC T4 Ga Baseefa 03 ATEX 0079
- **POWER SOURCE** Any PP3 Zinc Carbon or Zinc Chloride (6F22)
- **BATTERY LIFE** 100 hours
- **LOW BAT CHECK** Displays BAT just before end point of battery.
- **OVER PRESSURE INDICATION** – – – –
- **OVER READING INDICATION** 9999 Lowest 4 digits blink
- **CONNECTIONS** 1/8" BSP female
- **WEIGHT** 330gm including battery
- **EMC** Tested to EN 61326-1 Criteria B performance
Certification applicable at atmospheric pressure.

Documents / Resources

<p>COMARK C9500 SERIES INTRINSICALLY SAFE PRESSURE METERS USER MANUAL</p> <p>ENGLISH DEUTSCH FRANCAIS ITALIANO ESPAÑOL</p> 	<p>COMARK C9500 Series Intrinsically Safe Pressure Meters [pdf] User Manual C9500 Series Intrinsically Safe Pressure Meters, C9500, Series Intrinsically Safe Pressure Meters</p>
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