

# P511

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## Air Velocity Monitor



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# 1. Introduction

## ***About this manual***

This manual was prepared to aid the engineer in the configuration, setup and implementation of the P511 with easy to understand terms and procedures.

## ***About the P511***

The P511 is a state of the art air velocity monitor using only the best quality components available. It offers air velocity indication with excellent accuracy.

The P511 is locally manufactured to international standards utilising the best components available. We offer 24/7 toll free technical support, backup service and training

## 2. P511 HMI

The P511 operates as a user friendly device with all audio/visual indicators. All parameters are adjustable via personal computer.

### **Audio**

The P511 uses a 93dB audible device configured to sound at pre-set alarm levels (Optional).

### **Visual**

The visual indication is visible 360° around the unit, with red and green for alarm and no alarm conditions respectively.

## 3. Warranty

The P511 carries a one year limited warranty on all parts and labour

## 4. Safety Information

- Dangerous voltages can occur on the connectors, even if the auxiliary voltage has been disconnected
- Only a certified electrician is allowed to carry out the electrical installation
- Breaking the seal on the fixing screws of the device will result in a loss of warranty
- Electrical safety regulations must always be followed

## 5. Air Velocity Sensors

Two embedded platinum sensors are used to ensure long term reliable operation in harsh conditions. Digital signal processing ensures accurate air velocity measurements over the full specified temperature range.

### Specifications

- Sensor range 0 to 10m/s
- Operating range 0 to 10m/s
- Operating temperature range -10°C to 50°C
- Response time 30 sec (P511 non-IS & Mains)
- Response time 120 sec (EX ia)

## 6. Models

### ***Intrinsic safe Ex ia***

The P511 is approved for use in hazardous locations including underground mines. The unit is battery powered and does not require power to be connected.

### ***Non-intrinsic safe***

The P511 is also available as a non-intrinsic safe version\* for use in non-hazardous locations. The non-intrinsic safe version is available with an operating voltage of 9 to 48VDC or 115/240VAC.

\* See ordering information

### ***Battery Backup***

All models include battery backup to ensure operation in case of a power failure. The backup battery is maintenance free and is automatically charged when connected to the supply line, battery backup is dependent on the specific model.

### ***Ordering information***

Model	Intrinsic safe	Operating Voltage	Part No
P511 Ex ia	Yes	Battery Powered / Charger	P511ExiaM10
P511 non-IS	No	9 to 48VDC	P511nonExiaM20
P511 Mains	No	85 to 265VAC	P511MainsM30

# 7. Operating Methodology

## ***The P511 Exia***

The P511 **Exia** is designed to operate in the following manner.

1. An averaged sampling of the velocity for 20 seconds.
2. Evaluated against the 1m/s (default) alarm level, if below the alarm level the red LEDs will be triggered, if equal to or above the alarm level the Green LEDs will be triggered.
3. A sensor standby state is entered for 130seconds, with the LEDs remaining in the triggered state till the new sampling is taken.

Quick Sampling P511 Exia. Measuring time 11 seconds. Standby 24 seconds. Total cycle 35seconds.

If unit is placed in quick samling battery backup will be reduced by 4.5 times. +-3 Days

The P511 Exia has a functional battery life of 14 days, minimum from a full charge.

## ***The P511 220 Standard and Extended***

The P511 **Standard/Extended** is designed to operate in the following manner.

1. An averaged sampling of the velocity for 20 seconds.
2. Evaluated against the 0.5m/s (default) alarm level, if below the alarm level the red LEDs will be triggered, if equal to or above the alarm level the Green LEDs will be triggered.
3. A sensor standby state is entered for 50seconds, with the LEDs remaining in the triggered state till the new sampling is taken.

Quick Sampling P511 220Standard. Measuring time 13 seconds. Standby 22 seconds. Total cycle 35seconds.

Battery life could be reduced by changing the sampling times.

The P511 220 Standard has a battery backup of 4 Hours and the P511 220 Extended has a battery backup of 12 Hours.

***Set points – Alarm Level***

The P511 can be set to one of two set points, 1m/s or 0.5m/s with a specialised program, accessible only to the factory or Ningi technicians.

Default set points

P511 ExIA = 1m/s

P511 220v = 0.5m/s

The set points can only be adjusted with a specialised program accessible only to the factory or a Ningi Technician



# 8. Approvals & Certificates

Marking:

Manufacturer:

PTYtrade357(Pty)Ltd

Type: P511 Environmental Monitor

Ex rating: Ex ia I (-20°C to +55°C)

IA No: MASC M/13-032X

Serial No: (See validity of report)

**WARNING: Static Hazard. Wipe only with a damp cloth.**

**WARNING: Do not charge or connect in hazardous area.**

Certificate:

Each P511 is issued with a calibration certificate.

# 9. Electrical Specifications

Description	Min	Nom	Max	Unit
Operating voltage Exia		3.7V (Battery Powered)		VDC
Operating Voltage 220	85	115/240	265	VAC
Current Consumption Exia		29		mA
Current Consumption 220		150		mA
Battery Voltage	3.6	3.7	4.2	VDC
RS485 baud rate	2400	9600	57600	Bps
Local alarm		93 (Optional)		dB

## Battery Life

	Min	
P511 Exia	326	hours
P511 220 Standard	4	Hours
P511 220 Extended	12	Hours

# 10. Care and Maintenance

## ***Calibration***

To ensure the correct operation and legal compliance, the P511 is to be submitted for calibration on a 6 monthly basis.

The calibration includes a detailed functionality check and all gas sensors are tested and certified to comply with the required operational specifications.

## ***Maintenance***

The P511 includes no user serviceable parts and the warranty will be rendered void if the unit is opened or tampered with in any way.

The IS certification will be rendered void if the unit is opened by anyone other than the manufacturer, or if there is physical damage to the unit.

The only maintenance and care that can be done on the unit is to wipe it down with a damp lint free cotton cloth.

Ensure that the sensing elements on the P511 are free of any obstructions, or foreign material.

# 11. Terms and conditions

## Product Agreement

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The use of the P511 indicates your understanding and acceptance of the following terms and conditions. This agreement shall supersede any verbal or prior verbal or written, statement or agreement to the contrary. If you do not understand or accept these terms, or your local regulations prohibit "after sale" product agreements or limited disclaimers, you must cease and desist using this product immediately.

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