European Business Review
Issue 8 New Products
3 New Products from Parker Filtration
Reservoir Accessories.
The Triceptor Breather

Breathers
Desiccant Type

Specifications:
Materials:
Casing: Clarified copolymer polypropylene.
Cap: Copolymer polypropylene.
Stand pipe: PVC.
Filtration Element: Polyester, silica gel.
Operating Temperatures: -20°F (-29°C) to 250°F (121°C)
Seals: None.
Maximum Allowable Operating Pressure (MAOP): 5 psi (.34 bar).
Particle Removal Efficiency:
98.7% (beta 75) @ 3 micron
99.5% (beta 200) @ 4 micron
99.9% (beta 1000) @ 5.3 micron
Weight:
934330T  1.25 lbs. (.57 kg) each.
934331T  1.75 lbs. (.79 kg) each.
934332T  2.25 lbs. (1.02 kg) each.

Features

Foam Pads
Isolates the removal materials from contact with heavy reservoir mist and securely holds materials in place.

Filter Pads
Specially designed filter pads remove solid particulate on upstream side and then regenerate by releasing those particles when air flow reverses direction. Lower pad removes airborne contamination and second pad protects against any migration of desiccant.

Air Intakes
A total of eight air intakes may be exposed to allow air to freely flow in and out of the Triceptor.

Silica Gel Desiccant
Has the highest removal capability by volume of any adsorption method. Indicates condition by changing color.

Foam pad
Insures filter pad is properly positioned and protects it from external damage.

Molded Housing
Durable shock absorbing casing provides reliable service and simple press in mounting.
Reservoir Accessories.
The Triceptor Breather

Installation
TriCeptor breathers are designed for simple installation on most equipment, regardless of mounting connection. Since TriCeptor breathers are disposable, the threaded connection allows for quick and easy maintenance. Several mounting adapters (shown below) are available to provide the desired mounting. The installation/replacement process consists of four easy steps:

1. Remove from protective plastic wrap.
2. Remove 1” blue cap from standpipe.
3. Remove foil label to expose the necessary amount of air intake holes.
4. Twist TriCeptor into mounting adapter.

Servicing the TriCeptor breather is also very easy. When the silica gel changes color from blue to a pink, the breather is no longer active and needs to be replaced. Simply remove the unit and discard properly.

Air Flow Performance
The curves below show the air flow performance of the three TriCeptor breathers. To insure the longest life possible, the initial clean pressure drop should not exceed 1.5 psid (.103 bar).

<table>
<thead>
<tr>
<th>Model</th>
<th>Part Number</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>5” Breather</td>
<td>934330T</td>
<td>6 pcs.</td>
</tr>
<tr>
<td>7” Breather</td>
<td>934331T</td>
<td>6 pcs.</td>
</tr>
<tr>
<td>9” Breather</td>
<td>934332T</td>
<td>6 pcs.</td>
</tr>
<tr>
<td>Field Adapter</td>
<td>937546</td>
<td>1 pc.</td>
</tr>
<tr>
<td>Flange Adapter</td>
<td>937463</td>
<td>1 pc.</td>
</tr>
</tbody>
</table>
Racor Division of Parker Hannifin Corporation is pleased to release the new AF M701212, heavy duty air filter/silencer.

The Racor marine air filter/silencer removes contaminants introduced into the air from outside and inside the vessel. Sand, salt, carpet fibers and other contaminants are trapped in the oil-impregnated filter media. Turbo noise is reduced by the unique design of the air filter/silencer housing. An integral hose connection on the housing routes the clean blow-by from the CCV back into the engine.

The AF M701212 is equipped with two restriction indicator positions and is available with either a 1.0” or 1.25” CCV port. The unique feature of the AF M701212 that separates it from the rest of the Racor air filter/silencer product line is that it is designed with a 7” outlet. The larger outlet reduces air flow restriction by 20% compared to the AF M601212.

Benefits include a quieter engine room, integrated CCV port, two positions available for a restriction indicator, decreased air flow restriction, and ability to handle higher intake air flow rates for today's high horsepower engines.

Parker Filtration Divisions (globally) provide a comprehensive range of filtration solutions for your application. These include; hydraulic filtration, condition monitoring systems, engine fuel, oil, air and coolant filtration.

Please contact your local Parker Sales Office if you require additional and specific information relating to this bulletin or any of the Parker Filtration Products.

Contact Information:
Parker Hannifin (UK) Ltd
Racor Filter Division Europe
Tel: +44 (0) 1924 487000
Fax: + 44 (0) 1924 487001
Email: filtrationinfo@parker.com
Features & Benefits

- Continuous, online moisture indication, for hydraulic and lubricating systems.
- Reporting of % relative humidity of water content, giving the user information on how close to the fluids real saturation point.
- Reliable data on the rate of water absorption.
- Sensing cell technology using a laser trimmed thermoset polymer, for capacitive sensing that is capable of absorbing water molecules due to its micro porous structure.
- Uses a thermistor for temperature compensation correction. Offering total confidence in reporting the %RH relative humidity over the sensors temperature range.
- A purpose designed tee adaptor allows for easy installation into an existing fluid system.
- The MS200 can also be specified with a bench top wand offering the end user greater flexibility.
- Not available on M5150
Typical Applications

- Ground support vehicles
- Pulp and paper plants
- Marine hydraulics
- Power transmission & distribution
- Forestry
- Industrial hydraulics
- Earth moving applications
- Agricultural
- Hazardous Areas (Zone 2)
- Theme parks (Ride Hydraulics)

In-Line Moisture Measurement of Hydraulic & Lubricating Oils.

Parkers Moisture Sensor Range offers fast, reliable and accurate in-line detection of moisture in fluids. The MS transducer type technology has been especially designed with the preventative maintenance programme environment in mind.

The industry accepted sensing cell device will monitor and report Relative Humidity (RH), moisture content in oils. The water content measurement technique offers the end user benefits over the current standard form of water content reporting (PPM).

This allows for real time preventative maintenance to be undertaken and corrective actions to be made. By knowing that the water contamination is still within the oils absorbing range, less than 100%, reclaiming fluid properties before additive damage occurs can initiate calculable cost savings.
MS150 Moisture Sensor

Specification

Pressure:
Maximum allowable operating pressure, (MAOP): 10 bar (145 PSI).

Operating temperature:
Minimum: -20°C (-4°F).
Maximum: +85°C (+185°F).

Flow through sensor cell:
Installed in active flowstream.

Fluid compatibility:
Mineral oils, petroleum-based and Phosphate ester.

Viscosity range:
Unlimited.

Port connections:
1/4” BSPT or 1/4” NPT.

Supply voltage:
+8 to +30 Vdc.

Sensor size/weight/material:
80mm x 43mm/0.1kg/Aluminium

IP ratings:
IP68

%RH Outputs:
(1+ to +5 Vdc) or (+4 to 20mA)

Temperature Outputs:
0 to +5 Vdc

Sensor Outputs

<table>
<thead>
<tr>
<th>MS150 moisture sensor pin designations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
</tbody>
</table>

Interpreting the data

Oil type: Texaco Rando 46.
Saturation point: 400ppm @ 65°C (150°F).
At the above operating condition, the meter displays 100% saturation. As the meters scale indicates a reduction in the saturation percentage, there is also a corresponding reduction in PPM at a constant temperature. In the example above, a meter reading of 50% saturation could be interpreted as 200ppm at 65°C (150°F).
MS200 ‘Programmable’

Specification

% Saturation Calibration Accuracy: +3% RH
Temperature Calibration Accuracy: ±1°C
Thermal Stability: ±1% RH (over compensated temperature range +10 to +80°C)
Stability: ±0.2% RH typical at 50% RH in 1 year
Linearity: ±0.5% RH typical
Analogue Output Hysteresis: ±0.5% RH Full Scale
Switched Output Hysteresis: 2% RH
Operating Temperature Range: -40°C to +85°C (-40 to +185°F)
Operating Humidity Range: 5 to 100% RH (non condensing)
Response Time: 60 sec in slow moving air at 25°C
Maximum rated pressure: 420 Bar (6000 PSI)
Maximum torque on spanner flats: 30 Nm (ONLY USE SPANNER FLATS TO INSTALL AND REMOVE THE MOISTURE SENSOR)
Seal Material (depending on MS): Fluorocarbon, EPDM, Perfluoroelastomer
Material: Stainless Steel 303
Connector Details: M12×1, 8 Way, IP67 Connector (IP68 when mated)
Maximum Cable Length: 10 Metres with Voltage Output
100 Metres with Current Output
Output: SEE ORDERING INFORMATION

Installation Details

Moisture Sensor Wiring and Pin Designations

<table>
<thead>
<tr>
<th>Pin</th>
<th>Wire Colour</th>
<th>Designation</th>
<th>I/O</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown</td>
<td>Analogue</td>
<td>Output</td>
<td>Temperature - Degi Celsius. User Select Output (0-3Vdc, 0-5Vdc, 1-6Vdc and 4-20mA).</td>
</tr>
<tr>
<td>2</td>
<td>Green</td>
<td>Alarm Limit</td>
<td>Output</td>
<td>Alarm Limit. Output that directly corresponds to the alarm set point.</td>
</tr>
<tr>
<td>3</td>
<td>Yellow</td>
<td>Analogue</td>
<td>Output</td>
<td>% Saturation. User Select Output (0-3Vdc, 0-5Vdc, 1-6Vdc and 4-20mA).</td>
</tr>
<tr>
<td>4</td>
<td>Grey</td>
<td>Receive</td>
<td>Input</td>
<td>RS232 Communication.</td>
</tr>
<tr>
<td>5</td>
<td>Pink</td>
<td>Send</td>
<td>Output</td>
<td>RS232 Communication.</td>
</tr>
<tr>
<td>6</td>
<td>Blue</td>
<td>Common</td>
<td>Input</td>
<td>Common (0Vdc). Ground from power supply.</td>
</tr>
<tr>
<td>7</td>
<td>White</td>
<td>Alarm Switch</td>
<td>Output</td>
<td>Alarm Switch. Constant 5Vdc when in normal operation. Switch to 0Vdc when in alarm condition. Red LED illuminates when Sensor is in an alarm condition.</td>
</tr>
<tr>
<td>8</td>
<td>Red</td>
<td>Supply</td>
<td>Input</td>
<td>Supply Voltage (+8 to +30Vdc). Green LED illuminates when power is properly applied.</td>
</tr>
</tbody>
</table>
**MS300 Intrinsically Safe**

**Specification**

**Pressure:**
Maximum allowable operating pressure.
(MAOP): 420 bar (6000 PSI).

**Operating temperature:**
Minimum: -40°C (-40°F) - dependent on seal material.
Maximum: +85°C (+185°F).

**Flow through sensor cell:**
Installed in active flowstream.

**Fluid compatibility:**
Mineral oils, petroleum-based and Phosphate ester-Skydrol option available.

**Thread form connections:**
See ordering information.

**Seal option:**
P

**Notes:**
1. Part numbers featured with bold highlighted codes will ensure a “standard” product selection.
2. Alternate displayed part number selection will require you to contact Parker Filtration for availability.

**Outputs:**
4-20mA (current loop).

**Calibration accuracy:**
+/- 5% RH

**Compensated thermal stability:**
+/- 1% RH (+ 10°C to +80°C)

**Materials:**
Stainless steel 303.

**Sensor size/weight:**
107mm x ø50mm/0.9Kg.

**IP ratings:**
IP68 (with specified moulded cable)

Developed in association with TriEtek Ltd.

**Installation Details - See MS200**

The MS300 has been certified as Intrinsically Safe Electrical Apparatus and offers fast, reliable and accurate in-line detection of moisture in fluids for use in hazardous areas.

ATEX Certification allows the MS300 into areas of a potentially explosive atmosphere, that have previously not been allowed without permits, it is intended for use in Zone 0 hazardous areas requiring the use of category 1G equipment and has been designed for use with galvanic isolators to the specified values stated below:

The electrical parameters: U: 28V  I: 93mA  Pr: 0.65W  Ci: 380nF  Li: 0

The following instructions apply to MS300 - 4-20mA Current Loop Moisture Sensor covered by certificate number Sira 07ATEX2255:

1. The equipment may be located where flammable gases of Group I may be present. The equipment is only certified for use in ambient temperatures in the range -20°C to +40°C and should not be used outside this range.
2. The equipment has not been assessed as a safety-related device (as referred to by Directive 94/9/EC Annex II, clause 1.5).
3. Installation of this equipment shall be carried out by suitably trained personnel in accordance with the applicable code of practice.
4. Repair of this equipment shall be carried out by the manufacturer or in accordance with the applicable code of practice (IEC 60079-19).

**Ordering Information**

<table>
<thead>
<tr>
<th>Product number</th>
<th>Supersedes</th>
<th>Model</th>
<th>Thread form connections</th>
<th>Seal option</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS1001P</td>
<td>MS100-1P</td>
<td>MS100</td>
<td>1/4&quot; BSP with bonded seal</td>
<td>P</td>
</tr>
<tr>
<td>MS1002P</td>
<td>MS100-2P</td>
<td>MS100</td>
<td>1/4&quot; BSP with integral seal</td>
<td>P</td>
</tr>
<tr>
<td>MS1003P</td>
<td>MS100-3P</td>
<td>MS100</td>
<td>R1/4&quot; BSPT</td>
<td>P</td>
</tr>
<tr>
<td>MS1004P</td>
<td>MS100-4P</td>
<td>MS100</td>
<td>R1/4&quot; NPS</td>
<td>P</td>
</tr>
<tr>
<td>MS1006P</td>
<td>MS100-6P</td>
<td>MS100</td>
<td>Handheld version</td>
<td>P</td>
</tr>
<tr>
<td>MS1007P</td>
<td>MS100-7P</td>
<td>MS100</td>
<td>Inline tee version</td>
<td>P</td>
</tr>
</tbody>
</table>

**Notes:**
1. Part numbers featured with bold highlighted codes will ensure a “standard” product selection.
2. Alternate displayed part number selection will require you to contact Parker Filtration for availability.

**Standard products table - moisture sensors**

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**Moisture Sensor Connection Diagram**

1. Supply (4+20 mA - IN) - Brown
2. Signal (4-20 mA - OUT) - Grey
3. Not Used - Blue
4. Not Used - Black
5. Not Used - White

Developed in association with TriEtek Ltd.
Visual Indicators Specifications

Bar Graph Indicator (PBG8341A)

- **Construction:** Housing – nylon 6/6, window – acrylic, bezel/board supports – ABS, pins – phosphor bronze.
- **Power supply:** 11 – 30 Vdc.
- **Signal input:** (By dipswitch configuration)
  - Off – differential up to 5V.
  - A – single signal (Ref. 0V) up to 5V.
  - B – single signal (Ref. 1V) up to 6V.
- **Cut out size:** 45.6mm x 45.6mm.
- **Fixing:** Push fit panel thickness 0.9mm to 3.2mm.
- **Sealing:** Designed to IP50 standard.
  (Front face may be silicon sealed after LED configuration).
- **Scale:** Supplied 0 to 100% in horizontal.
  Other scales, in volume, consult Parker Hannifin.
- **Scaling factors:** 10% to 100% range. Fully adjustable.
- **Lamp intensity:** 4mcd each.
- **Front viewing:** Polarised.
- **Weight:** 29gms.

Alternative Indicator

<table>
<thead>
<tr>
<th>Description</th>
<th>DDU1001</th>
<th>DDU1002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>22 - 55 Vdc</td>
<td>110 - 240 Vdc</td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 0.01% typical</td>
<td>± 0.1% typical</td>
</tr>
<tr>
<td>Sample rate</td>
<td>10 per second</td>
<td>2.5 per second</td>
</tr>
<tr>
<td>Operating temp (°C)</td>
<td>0 - 55</td>
<td>0 - 55</td>
</tr>
<tr>
<td>Storage temp (°C)</td>
<td>-10 to +70</td>
<td>-10 to +70</td>
</tr>
<tr>
<td>Display</td>
<td>5 digit LED</td>
<td>3½ digit LED</td>
</tr>
<tr>
<td>Power output (Vdc)</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>0.41</td>
<td>0.42</td>
</tr>
<tr>
<td>Panel cutout (mm)</td>
<td>92x48 ± 0.5</td>
<td>98x45 ± 0.5</td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>48x96x100</td>
<td>48x96x80</td>
</tr>
</tbody>
</table>

Product accessories part numbers

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Supersedes</th>
<th>Description</th>
<th>MS150</th>
<th>MS200</th>
<th>MS300</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS732PVC10</td>
<td>P9372PVC-10</td>
<td>10 meter M12 IP68 PVC coated cable</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>PS732PVC05</td>
<td>P9372PVC-05</td>
<td>5 meter M12 IP68 PVC coated cable</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>PS732PVC02</td>
<td>P9372PVC-02</td>
<td>3 meter M12 IP68 PVC coated cable</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>PS732PUR10</td>
<td>P9372PUR-10</td>
<td>10 meter M12 IP68 PUR coated cable</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>PS732PUR05</td>
<td>P9372PUR-05</td>
<td>5 meter M12 IP68 PUR coated cable</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>PS732PUR02</td>
<td>P9372PUR-02</td>
<td>3 meter M12 IP68 PUR coated cable</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>DDU1001</td>
<td>DDU-1001</td>
<td>+22 to +55 Vdc process indicator</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>DDU1002</td>
<td>DDU-1002</td>
<td>+110 to +240 Vac process indicator</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>B97200</td>
<td>N/A</td>
<td>6 meter M12 x 1, 8 way moulded cable (IP68)</td>
<td>N</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>B97200A</td>
<td>N/A</td>
<td>Swag Re-wireable M12 connector (IP65)</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>S970400</td>
<td>N/A</td>
<td>12 Vdc power supply</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>S970410</td>
<td>N/A</td>
<td>10 meter extension box</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>PAM8342</td>
<td>PAM8342</td>
<td>Alarm module</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

* Only for use in a safe zone (ie laboratory)
At Parker, we’re guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion or control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker.

For further information call 00800 27 27 5374

**AEROSPACE**

**Key Markets**
- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

**PNEUMATICS**

**Key Markets**
- Aerospace
- Aircraft engines
- Defense
- Marine
- Medical & dental
- Process control
- Transportation

**Key Products**
- Pneumatic actuators & grippers
- Pneumatic accessories
- Pneumatic systems & components
- Plastic & elastomeric tubing & connections
- Structural enclosures
- Thermoplastic tubing & fittings
- Vacuum generators, cups & sensors

**FLUID & GAS HANDLING**

**Key Markets**
- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

**HYDRAULICS**

**Key Markets**
- Aerospace
- Avionics
- Defense
- Marine
- Medical & dental
- Process control
- Transportation

**Key Products**
- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & FEP hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects

**CLIMATE CONTROL**

**Key Markets**
- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

**Key Products**
- CO₂ controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Regulator
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves

**ELECTROMECHANICAL**

**Key Markets**
- Aerospace
- Factory automation
- Life sciences & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

**Key Products**
- AC/DC drives & systems
- Electric actuators, gantry robots & slides
- Electrohydraulic actuation systems
- Electromechanical actuation systems
- Human machine interface
- Linear motors
- Sliding motion, servo motors, drives & controls
- Structural extrusions

**FILTRATION**

**Key Markets**
- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

**Key Products**
- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & cooling filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators

**PROCESS CONTROL**

**Key Markets**
- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

**Key Products**
- Air preparation
- Brass fittings & valves
- Manifolds
- Pneumatic actuators & grippers
- Pneumatic valves & controllers
- Quick disconnects
- Rotary actuators
- Rubber & thermoplastic hose & couplings
- Structural enclosures
- Thermoplastic tubing & fittings
- Vacuum generators, cups & sensors

**SEALING & SHIELDING**

**Key Markets**
- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

**Key Products**
- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic-retained composite seals
- Thermal management