

LIQUIP SALES PTY. LIMITED.

TECH TALK No. 0054.

THE PXD100 SERIES
PROBE DOCTOR.

“Overfill Protection and Earthing Assurance.”

Written by Geoff Dupille.

Product Description:

Overfill and Earth Assurance Monitor for use with Electronic probes in both Road Tankers and Storage Tanks. This monitor differs from our standard PD series in that it has an additional circuit which offers guaranteed Earth Assurance whilst loading, even when in an “Emergency By-Pass Situation”.

Also separate outputs for Overfill and Grounding are provided. These may be wired in “Series” if only one simple output is required and outputs are “Voltage Free”.

Features:

- PXD series monitors, like the PD series offer automatic switching between 2 and 5 wire systems. This happens the instant you connect the PXD to the truck, it will recognise which system you are running and switch itself accordingly.
- The instant you are connected to the PXD, it automatically starts a full “Diagnostic” check on all probes and of course your Earthing Assurance”.
- It has a clearly visible and easy to read “Diagnostic Box” on the front which gives all relevant information at a glance, such as a row of L.E.D.’s which represent each probe as well as Red and Green lamps to indicate your state of Earth Assurance and overall Overfill status.
- A “Pad-Lockable By-pass” switch allows for over-riding the system in an Emergency type situation, this is standard on all models, however in the PXD Series, even when in “Over-ride” mode, it only over-rides the Overfill Protection, “NOT” the Earth Assurance circuit.
- For those of you who like to see what’s happening, with the PXD model you have the flexibility to use one of our “EAC201 Earth Assurance Clamps” direct from the junction box and affix it to the chassis yourself for greater peace of mind in knowing that you have made a good “Bond” with the vehicle.

- Like the standard PD series monitor, these units contain “Solid State Electronics” so they will never need any sort of adjustment, and it has an “Emergency Response Shutdown Time” of < 0.5 seconds.
- PXD series monitors are compatible with all standard industry type probes, Electronic, Optic, or Thermistor in 2 or 5 wire format.

Materials:

All Liquip “Probe Doctors” are assembled in “Explosion proof” aluminium housings with polycarbonate windows, electronics are powered by either 110 Vac or 240 Vac, which is designated by model number and all output signals to probes are “Intrinsically Safe”.

Housing is approved for use in “Class 1-Zone 1” areas and probes in “Zone 0”, however it is not “Waterproof” and therefore if being mounted in an outdoor situation, we recommend the covering of your monitor to offer protection from the rain.

Variants:

PXD116-110	Probe Doctor 6 Channel 110 Vac Assembly.
PXD116-240	Probe Doctor 6 Channel 240 Vac Assembly.
PXD118-110	Probe Doctor 8 Channel 110 Vac Assembly.
PXD118-240	Probe Doctor 8 Channel 240 Vac Assembly.
PD200 Series	Probe Doctor, 6 or 8 channel, 110 or 240 Vac, dual outputs for external alarms and Flashing Strobe light for “In –Office” display warning, but not “Explosion Proof” so not approved for “Class 1-Zone 1” areas, but fine for those “Shed” type installations and “Storage Tanks.”

Optional Extras:

JB100	Junction Box.
GP103	3 Pin Bayonet Style Gantry Plug complete with Cable.
GP104	4 Pin Bayonet Style Gantry Plug complete with Cable.
EAC201	Earth Assurance Clamp.

“So, whats our Competition like ?”

Liquip has two main rivals for the Market in Overfill Monitors, they are “**Civacon** and **Scully**”, however there are other less common known international brands such as “Q.E.D. and LAFON”.

The Civacon Model 8580 is the closest to our PD Series as far as equivalent features but it fails to offer a separate output for “Earth Assurance” like our PXD Series does, where as the Model 8460 has no diagnostics, triple gang relays or display of what format the Tanker is in, (i.e. 2 or 5 wire), but does offer additional outputs for separate Grounding via an independent monitor.

Scully also offer a range of Overfill Monitors in their “Biclops Series”, these monitors offer the same fundamental features as the Liquip PD Series but as with Civacon, the Biclops offers no additional Earthing Assurance. However the “Intellitrol Monitor” does, but this is high-tech, expensive and relatively rare.

“How do we achieve Earth Assurance ?”

Earth Assurance is achieved by the direct wiring of the Truck Plug to the chassis of the vehicle and one of it’s mounting bolts to give good solid contact and back through pins 9 & 10 via the GP103/4 to the Monitor.

Secondary assurance can be achieved by also wiring an EAC201 direct to pins 9 & 10 in the Terminal strip inside the monitor and affixing to the chassis by hand for “Visible” confirmation of Grounding. It is achieved for “By-pass” by the simple linking of Terminals 1 & 2 on the by-pass switch itself, by doing this you will allow constant power to your electronic boards.

“Strengths and Weaknesses”.

Liquip.

Our strengths lie in our ability to offer competitive pricing, presence and “After Sales” support to our local and Overseas customers and single “Easy to read” individual displays on our monitors. However with us now entering into so many new and unknown markets we don’t always have the depth of local knowledge in areas like “Power supplies, and Mains Earth arrangements”.

Scully.

Manufacturing to all Industry Standards helps them win business on many levels but their arrogance towards “Pricing and Delivery availability” is renown throughout the Global Market.

Civacon.

“Competitive pricing and Market presence” assist Civacon to retain sales and continued growth, however their units offer no great discernable differences or outstanding features to make them leap out and above the rest.

“Problems and Issues over the Years.”

- Installers of these units traditionally receive no training.
- Generally when asked if our Installation Manual has been read, the answer will be “No” or “what manual ?”
- Trucks not being set up correctly for the equipment they are attempting to use. i.e. Incompatibility of component and fittings.
- People attempting to save money by not installing the recommended JB100 junction box, and then realising after a “Drive Off” that tearing the wiring out of the JB100 is cheaper and easier to repair than it is to have to do it to the main Monitor, or possibly replace it if torn from its mounting point.
- Inconsistent Power Supplies and systems not being standardised can cause issues such as the blowing of globes, lamps, fuses, and assorted input varistors, having said this, these issues are currently being addressed and fixed.
- We have removed the “Mains Earth Checking Feature” from these monitors as we found that so many countries offer no mains earth circuits so the monitor was constantly looking for something that wasn’t there.

“Replacing those blown fuses and lamps.”

If you do have occasion to need to replace a blown fuse or lamp, you will find a thorough and easy to follow guide in our “Technical Manual P7282.”

It explains what simple tools and steps are necessary to do your basic repair and get your monitor back up and running again with as minimal an interruption to your operations as possible, and we now use “Slow Blow” fuses for greater reliability and longer life.

You will also find instructions there which will explain the de-insallation and replacement of “Main P.C.B.’s”, however we always recommend if your’e not confident in doing this procedure yourself, take it to one of our Liquip Distributors and they will be more than happy to return it to us for repairs here in our Electronics Laboratory.

“Where can I get additional Technical Information.”

All Technical publications are available through our Website or by calling us at Liquip Sales and we can furnish you with Manuals and Data Sheets on whatever you require.

“What am I compatible with ?”

The following components are compatible with the PXD series Monitors when all equipment is set up correctly:

- Competitors brands “On Board Monitors” are compatible with Liquip’s PXD, however please note that where any “On Board Monitor” is present, the diagnostic display of the gantry monitor will not be communicating directly with the Tanker Probes. It will therefore show only what the O.B.M. tells it, and dependant on the wiring method and the type of O.B.M., the diagnostic lights will not reflect the actual probe status. This will “NOT” affect the operation of the main “Red and Green” pilot lights or the permission for product transfer to continue.
- Liquip’s MPP102 “On Board Mini-Monitor.”
- Liquip’s Probes, LC99, LC95, AGP102A and AGP105A.
- Liquip and other “Probe Hand Testers.”
- Scully “Intellicheck Types 1 & 2 On Board Monitors” and their 2 & 5 wire probes also.
- Civacon “ROM 2 On Board Monitor” and their 2 & 5 wire probes.