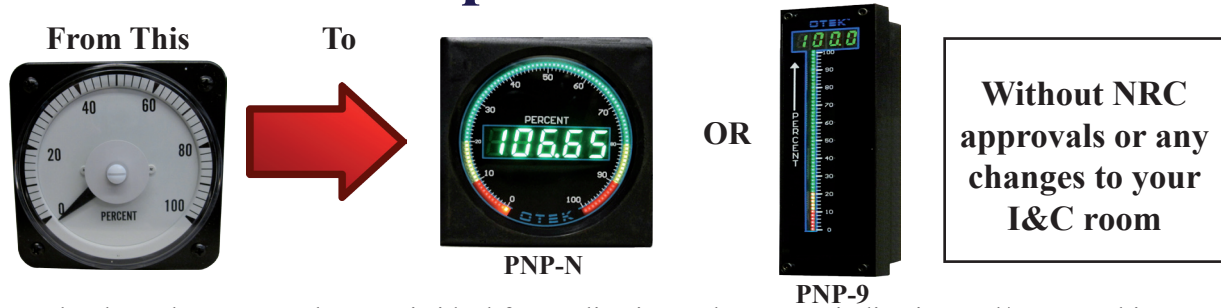


Missed the ANS HMIT/NPIC Conference? Here's a Recap of Our Presentation:



The technology that powers the PNP is ideal for applications where HMI indication and/or control is necessary to combat the unreliability, inaccuracy, and inefficiency commonly found in obsolete analog and digital instrumentation. What separates PNP technology from other drop-in replacement instrumentation of its era is the ability to replace obsolete meters without any changes to the wiring and panel mounting, while also requiring no additional operator training. Unlike popular metering technology designed solely to take advantage of digitization or to conform to NRC mandates such as NEI 08-09, the PNP specifically addresses the economic side of maintaining a nuclear I&C room. Yet above all else, this new technology represents unprecedented versatility—not only can PNP instrumentation replace any obsolete analog or digital meter form, fit and function regardless of size or shape, it also eliminates the need for multiple spare units to back up a single meter. PNP technology can also be customized onsite via One Size Fits All adaptability, which allows for externally mounted “Stick-On” scale plates to feature any color or language the user wants, simply by applying a self-adhesive scale plate that sticks to the front of the meter without having to open the PNP.



With versatility at the core of its invention, the PNP meter revolves around a universal I/O module that is inserted into the back of any PNP—no matter, the size, shape, signal, or panel cut out—and without any changes to the surrounding panel, the wiring, or display. This universal I/O module can be manipulated into performing the various functions of instruments present in a typical I&C room simply by plugging signal conditioners into the module itself. These signal conditioners (up to four per I/O module) can accept over 50 input signals and either 100% signal power like analog meters (such as current loops [4-20 & 10-50 mA], VAC to 260V, VDC to 300V, AC Amps to 5Amps (AC & DC, Watts & Hertz). For units requiring external power (such as RTD, TD, S-G, pH, ORP, etc.) or even 4-20mA retransmission and alarm outputs, PNP technology uses universal power modules that are plugged, inside the hub, into the instrument, requiring no solder or otherwise alteration to the surrounding wiring and panel displays that might void certification. The module is then housed in a 3-inch-long tube (1.5” in diameter), known as the “HUB” that attaches to the back of any and all meters offered. In instances where the back panel needs to be modified, an adapter plate may be used to ensure cohesion between the modular tube and the back panel of the instrument. Once all PNP processes are understood by the technician or operator, this installation should take no longer than the average time required to replace a standard meter. Furthermore, PNP technology should require no soldering or other labor-intensive measures. From this one simple piece of hardware, the PNP can assume the full range of its versatility and perform the functions of nearly any meter in the I&C room—and most importantly, eliminates the need for multiple spares (in other words, “One Size Fits All). This means that if your panel has the space, you can replace any and all meters with the same PNP meter; all you need is the display that will fit the space available. All else is the same. This reduces spare units in inventory for emergency replacement down to only one per display size.

PNP technology represents the natural evolution of modernization in the nuclear I&C room. Improvements in accuracy, reliability, and efficiency have allowed digitization to overtake analog instrumentation in the twenty-first century control room, and it is now time to add cost effectiveness to that list. It is the belief of this author that PNP technology can not only improve the performance of I&C room instruments, but it can also efficiently, effectively, and exponentially address economic concerns over spare inventory by reducing the number of spares necessary, from multitudes down to a single spare instrument. Though there are numerous issues facing the nuclear industry twenty-one years in the new millennium, instrumentation obsolescence and the uneconomical overabundance of spare inventory are within technology’s ability to solve. The conclusion of this article asserts that Plug & Play instrumentation is that very solution.

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