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Low Voltage Yokes

Western Instruments manufactures several models of Low Voltage Yokes, to comply with safety regulations in different parts of the World. These models are not used in North America due to the use of lower voltages (nominally 115 Volts), with excellent grounding systems on convenience ("Mains") outlets. To ensure even greater safety, GFCI's (Ground Fault Current Interrupters) are installed on Outdoor and in most Industrial Outlets, to further protect workers and the general public.

If an unusual situation arises, where a standard 115 Volt AC Yoke, or a Permanent Magnet Yoke (WM-Series) can not be used, the senior inspector will choose a 12 Volt DC Yoke, such as a WC-8. However, that same inspector will investigate a portable generator or DC Power Inverter (Simulated Sign Wave), simply due to the effortless and reliable surface inspection that an AC field offers.

In the balance of the World, the common mains voltage is nominally 230, thus when working in confined or hazardous areas, industry has adopted 24, 42, & 48 VAC. To address this need Western Instruments has developed 5 different models of Low Voltage AC Yokes;

- WE-24 Based on the WE-3HD platform, and supplied from our dedicated PD-24 Power Supply. Western offers two models of power supplies; the PD-24 offers an AC output, While the PD-24U provides a selectable AC or DC output. PD-24 Power Supplies have an output of over 20 Amps, with the WE-24 typically used underwater, thus Western recommends the WC-6UW or WC-9UW as a more economic alternative.
- WC-48 Based on the WC-6, and supplied from a standard 48 Volt Power Supply (7.5 Amps Minimum), or Western Instruments PD-48, with an input Voltage of 230/50.
- WC-42 Again, based on the WC-6, and supplied from a standard 42 Volt Power Supply (7.5 Amps Minimum), or Western Instruments PD-42, with an input Voltage of 230/50.
- WE-48 Based on the WE-3HD, and supplied from either of our dedicated 230 VAC x 50Hz power supplies; the PD-48 has an AC output, while the PD 48U provides a selectable AC or DC output.
- WE-42 Again, based on the WE-3HD, and supplied from either of our dedicated 230 VAC x 50Hz power supplies; the PD-42 has AC output, while the PD 42U provide a selectable AC or DC output.

The difference between the WC-42/48 and the WE-42/48 is how the units are switched on and off. Standard Yoke Switches (Licon Series 11), used in the WE-42/48 Yokes, are rated at a maximum load of 10 Amps, and will not provide long term reliable switching near their maximum rating (see write-up on *Yoke Switches*). To increase the switching reliability, extra wiring is manufactured into the WE-42/48, which turns this standard Yoke Switch into a signal for turning On/Off the PD-42/48/U Power Supply, with a Solid State Relay.

Conversely, the Switching System of the WC-42/48 (see write-up on *Yoke Switches*) is designed to handle these higher amperages, with a greater degree of reliability. There are modestly price commercial Power Supplies that can be used on the WC-42/48's, as opposed to our PD-42 or PD-48. The electronic module used in the WC-42/48 is only able to operate from an AC power supply, thus DC is not an option. Here again, due to the nature of the intended environment, a confined space, the AC Field provides an ease of use and maximum particle mobility.

The PD-Series Power Supplies permit a minimum 4.5kg (10 pound) lift when supplying a low voltage AC current to the corresponding WC-42/48 or WE-42/48 Yoke. Furthermore, a WE-42/48 connected to the corresponding PD-U Series Power Supply, permits a 23 kg (50 pound) lift when switched to the DC mode. These lifting parameters comply with ASME, ASTM, NAVSEA, and ISO Yoke method MPI testing specifications.

