

MX2020/WPH and MX2020/PSH Weatherproof Housings

Overview

Weatherproof housings provide robust protection from the elements for the SETPOINT Machinery Protection System. The housings have been specifically engineered to fit the dimensions of SETPOINT racks and power supplies while providing sufficient clearance for heat dissipation and routing of wiring bundles. Two enclosure models are available:

- MX2020/WPH**
 Designed to accommodate the SETPOINT rack and its power supplies. Available with or without a viewing door and in various widths (see table below). For 4-slot and 8-slot racks, the MX2020/WPH in the appropriate width can be used to house both the rack and its associated power supply(ies).
- MX2020/PSH**
 A separate enclosure designed to accommodate up to two DIN-rail mounted power supplies. Available only with a solid-door and used whenever it is desirable to mount supplies separate from rack, or when WPH enclosure lacks sufficient room.

| Model | Width | Fits |
|------------|-------|--|
| MX2020/WPH | 11" | <ul style="list-style-type: none"> One 4-slot rack |
| | 18" | <ul style="list-style-type: none"> One 8-slot rack OR One 4-slot rack and two power supplies |
| | 24" | <ul style="list-style-type: none"> One 16-slot rack OR One 8-slot rack and two power supplies |
| MX2020/PSH | 12" | <ul style="list-style-type: none"> Two power supplies |

Enclosures may be ordered with several options:

- NEMA 4-12 / IP66 rating**
 Powder-coated mild steel construction for water- and dust-tight protection.
- NEMA 4X / IP66 rating**
 Type 304 stainless steel construction for corrosion



resistance in addition to water-tight and dust-tight protection.

- With or without viewing window**
 Enclosure door can be ordered as solid metal or with a polycarbonate viewing window.
- With or without conduit hubs**
- Door-only versions**
 When mounting the rack in a panel cutout, a door kit with polycarbonate viewing window is available to seal and protect the front of the rack and its optional touchscreen display.

Features and Benefits

- Removable door** simplifies access to internals when installing the system or performing maintenance. No tools required – simply remove the hinge pins. Hinge pins are concealed inside door to prevent tampering while providing an attractive fit and finish to the exterior.
- Curled lip around all sides** adds rigidity and prevents dripping water or other liquids from entering the enclosure when the door is open.

- **Robotically poured-in-place seamless gasket** ensures a complete and durable water-tight seal.
- **Highly-quality construction** utilizes premium materials and continuously welded corner seams that are ground smooth.
- **Quarter-turn “T” handle with key lock** ensures positive closing and restricts access to authorized personnel only. NEMA 4X versions use stainless steel materials for handle and lock.
- **Self-extinguishing polycarbonate window¹** provides easy viewing of rack and optional touchscreen while enhancing enclosure durability and personnel safety.
- **Pre-drilled hole patterns** on inner panel simplify bulkhead mounting of rack and DIN-rail mounting of power supplies.
- **Double-bent² 12 GA inner panel** assures extra rigidity when installing or removing DIN-rail components, sliding rack modules in or out, or performing other tasks. Inner panel mounted on M8 studs.
- **Heat-fused polyester powder** applied electrostatically on a pretreated base to all enclosure surfaces³. Helps assure maximum coating adhesion to protect base materials.
- **Heavy-duty die-cast hinges** allow door to swing a full 180 degrees for ease of access. Door can also be fully removed without use of tools.
- **Ground strap with anti-vibration hardware** is included between door and housing body to ensure all parts of the enclosure remain tied to earth ground for safety.
- **Anti-vibration flange nuts** assure inner mounting plate will not vibrate loose, even when enclosure is mounted on a machine deck or other surface subject to vibration.

- **CSA certified and UL listed** to assure an enclosure that is constructed to globally recognized safety standards.

NOTES:

1. MX2020/WPH doors may be ordered with or without a viewing window. MX2020/PSH doors available only without viewing window.
2. MX2020/WPH 24” W enclosures only. Smaller enclosures provide adequate stiffness without double-bent edges.
3. NEMA 4 enclosures are coated on outside (ANSI/ASA 61 gray) and inside (white). NEMA 4X enclosures are coated (white) on inside only. Outside is bare stainless steel, brushed finish.

Specifications

All specifications are at +25C (+77° F) unless otherwise noted.

| Physical | |
|-----------------|---|
| Weight | MX2020/WPH (Enclosure & Door) |
| | • 11” Width: 19 kg (42 lbs) |
| | • 18” Width: 27.7 kg (61 lbs) |
| | • 24” Width: 31.8 kg (70 lbs) |
| | MX2020/WPH (Door Kit Only) |
| | • 11” Width: 3.6 kg (8 lbs) |
| Material | • 18” Width: 5.5 kg (12 lbs) |
| | • 24” Width: 6.4 kg (14 lbs) |
| | MX2020/PSH |
| | 8.6 kg (19 lbs) |
| | Conduit Hub Option |
| | Each hub is 0.27 kg (0.6 lbs) |
| | NEMA 4 Housings |
| | Body/Door: 16GA carbon steel |
| | Hinges: Diecast carbon steel |
| | Inner Mtg Plate: 12GA carbon steel (powder coated) |
| | Mtg Plate Studs: Carbon steel |
| | Mtg Plate Nuts: Carbon steel |
| | Mtg Plate Standoffs: Plastic |
| | Keylock: Carbon steel |
| | Window*: Polycarbonate |
| | NEMA 4X Housings |
| | Body/Door: 16GA Type 304 SS |
| | Hinges: Diecast stainless steel |
| | Inner Mtg Plate: 12GA carbon steel (powder coated) |
| | Mtg Plate Studs: Stainless steel |
| | Mtg Plate Nuts: Stainless steel |
| | Mtg Plate Standoffs: Plastic |
| | Keylock: Stainless steel |

| | |
|---|---|
| | Window* : Polycarbonate * Window optional on MX2020/WPH. Not available on MX2020/PSH |
| | Conduit Hub Option |
| | Body : Zinc Nut : Zinc O-ring : Viton® (75) Liner : Polycarbonate |
| Coating | NEMA 4 Housings Heat-fused polyester powder, electrostatically applied on a pretreated base. Color: <ul style="list-style-type: none"> • Inside: White • Outside: ANSI/ASA 61 Gray NEMA 4X Housings Outside : None (bare stainless steel, brushed finish) Inside : Heat-fused polyester powder, electrostatically applied on a pretreated base. Color: white. |
| Dimensions | See Figures 1-3 |
| Approvals | |
| Environmental Electrical Hazardous Area Certifications | NEMA 4-12 / IP66 (painted models) NEMA 4X / IP66 (stainless models) CSA certified – Canada and USA <ul style="list-style-type: none"> • UL Listed – Canada and USA Not Available |

Ordering Information

System Enclosures / Door Kits

Enclosures hold SETPOINT rack and (optional) power supplies on included DIN rail. Rack(s) and power supply(ies) ordered separately. Door kits fit over face of racks mounted in panel cutouts, providing environmental seal against dust and moisture.



NOTES:

1. Stock standard item. Other sizes/ratings may incur longer lead times. Consult factory.
2. Purge fitting option not yet available.

MX2020/WPH-AA-BB-CC

SETPOINT Rack Weatherproof Housing

| | | | |
|-----------|--------------------------|--------------------------|---|
| AA | <input type="checkbox"/> | <input type="checkbox"/> | Type / Environmental Rating |
| | 0 | 1 | 11" Enclosure, Solid Door / NEMA 4 |
| | 0 | 2 | 18" Enclosure, Solid Door / NEMA 4 |
| | 0 | 3 | 24" Enclosure, Solid Door / NEMA 4 |
| | 1 | 2 | 18" Enclosure, Window Door / NEMA 4 |
| | 1 | 3 | 24" Enclosure, Window Door / NEMA 4 |
| | 2 | 1 | 11" Enclosure, Solid Door / NEMA 4X ¹ |
| | 2 | 2 | 18" Enclosure, Solid Door / NEMA 4X |
| | 2 | 3 | 24" Enclosure, Solid Door / NEMA 4X |
| | 3 | 2 | 18" Enclosure, Window Door / NEMA 4X ¹ |
| | 3 | 3 | 24" Enclosure, Window Door / NEMA 4X ¹ |
| | 5 | 2 | 18" Door Kit, Window / NEMA 4 |
| | 5 | 3 | 24" Door Kit, Window / NEMA 4 |
| | 7 | 2 | 18" Door Kit, Window / NEMA 4X |
| | 7 | 3 | 24" Door Kit, Window / NEMA 4X |
| BB | <input type="checkbox"/> | <input type="checkbox"/> | Conduit Fittings |
| | 0 | 0 | No conduit hubs included |
| | 0 | 1 | Four 1-¼" NPT weatherproof conduit hubs |
| CC | <input type="checkbox"/> | <input type="checkbox"/> | Purge Fittings² |
| | 0 | 0 | No purge fittings included |
| DD | <input type="checkbox"/> | <input type="checkbox"/> | Agency Approvals |
| | 0 | 0 | None |

Power Supply Enclosure

Holds up to two (2) 360W power supplies on included DIN rail. Power supply(ies) ordered separately.



MX2020/PSH-AA-BB-CC

SETPOINT Power Supply Housing

| | | | |
|-----------|--------------------------|--------------------------|---|
| AA | <input type="checkbox"/> | <input type="checkbox"/> | Type / Environmental Rating |
| | 0 | 1 | 12" x 12" x 6" Enclosure, Solid Door / NEMA 4 |
| | 2 | 1 | 12" x 12" x 6" Enclosure, Solid Door / NEMA 4X ¹ |
| BB | <input type="checkbox"/> | <input type="checkbox"/> | Conduit Fittings |
| | 0 | 0 | No conduit hubs included |
| | 0 | 1 | Four 1-¼" NPT weatherproof conduit hubs |
| CC | <input type="checkbox"/> | <input type="checkbox"/> | Purge Fittings² |
| | 0 | 0 | No purge fittings included |
| DD | <input type="checkbox"/> | <input type="checkbox"/> | Agency Approvals |
| | 0 | 0 | None |

Manuals

A complete set of SETPOINT manuals and configuration software on USB memory stick* is supplied at no extra charge with each order, but must be specified at time of ordering. As languages in addition to English become available, they will be included on the memory stick. The most recent version of manuals and software can also be downloaded directly from our website.



* NOTE: Manuals are published electronically in Adobe® PDF* format and may be printed and freely distributed. Adobe Reader is required and can be downloaded free-of-charge from www.adobe.com. Hardcopy versions of manuals are also available from the factory for an additional charge.

Temperature De-rating

Electronic components mounted in a weatherproof enclosure will elevate the temperature inside the enclosure relative to the temperature outside the enclosure. This rise must be accounted for to ensure the electronics do not exceed their maximum rated operating temperature. Use the information in this section to determine the maximum allowable ambient temperature external to the enclosure for a given enclosure* size, rack size, and module population. First, use Table 1 on this page to compute the total power dissipation in Watts for the components that will be placed in the enclosure. Then, select graph A, B, C, or D on pages 6 and 7, corresponding to the enclosure type/size size used. Finally, use the graph to determine the maximum allowable ambient temperature.

Example: Determine the maximum allowable temperature external to an MX2020/WPH 24" enclosure housing an 8-slot rack with the following components:

- 1 Rack Connection Module
- 1 eSAM with Touchscreen Display
- 4 Universal Monitoring Modules (UMMs)
- 1 Temperature Monitoring Module (TMM)
- 1 power supply, 180W 110/220 VAC

From Table 1 for the modules above, the total power dissipation inside the enclosure is 58.2 W. Using Graph A (MX2020/WPH 24" enclosure) this power dissipation corresponds a maximum ambient temperature of 54° C (129° F). Thus, the enclosure should not be mounted in an area where the ambient temperature will exceed 54° C (129° F).

* NOTE: Door Kits do not require temperature de-rating.

| Component | Power Dissipation |
|-------------------------------------|-------------------|
| Rack Connection Module (RCM) | 1.2 W |
| Basic SAM (bSAM) | 13 W |
| Enhanced SAM (eSAM), no Touchscreen | 13.9 W |
| eSAM with 8.4" Touchscreen Display | 19 W |
| Universal Monitoring Module (UMM) | 5.5 W |
| Temperature Monitoring Module (TMM) | 5 W |
| 480W 400/500 VAC Power Supply | 12 W |
| 360W 110/220 VAC Power Supply | 21 W |
| 240W 90-250 VDC Power Supply | 21 W |
| 180W 110/220 VAC Power Supply | 11 W |
| 120W 90-250 VDC Power Supply | 11 W |
| 90W 110/220 VAC Power Supply | 6.2 W |

TABLE 1 – POWER DISSIPATION FOR SETPOINT COMPONENTS



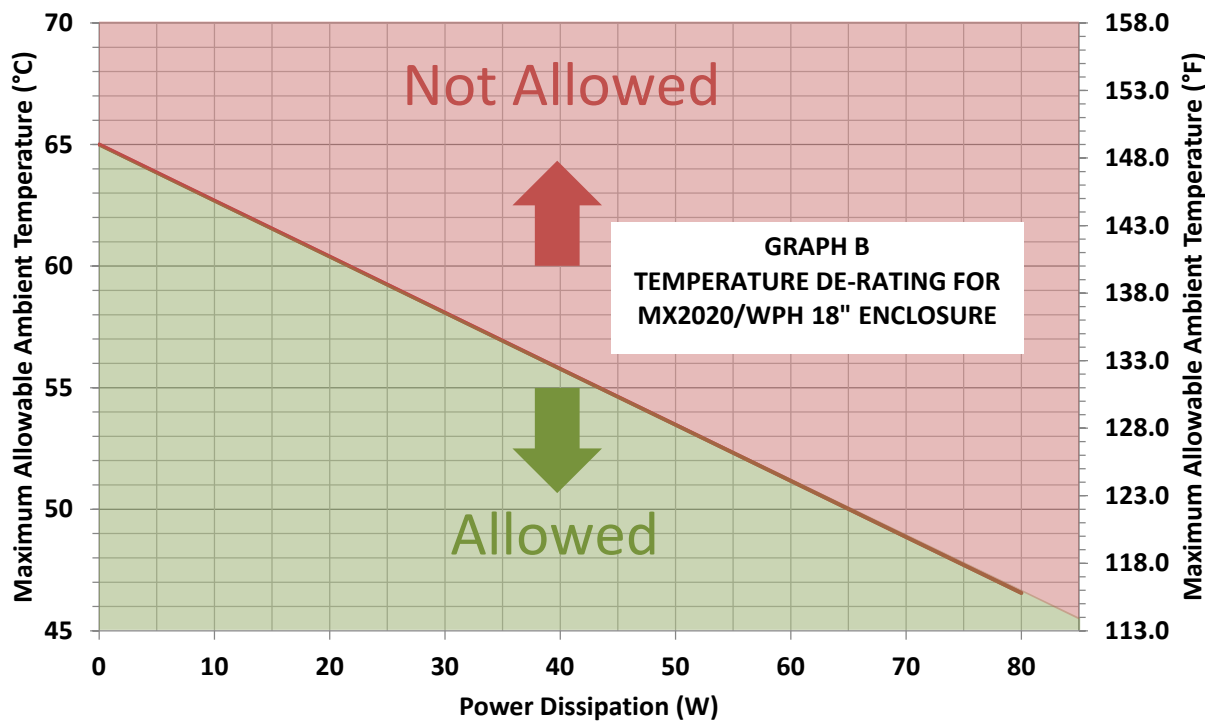
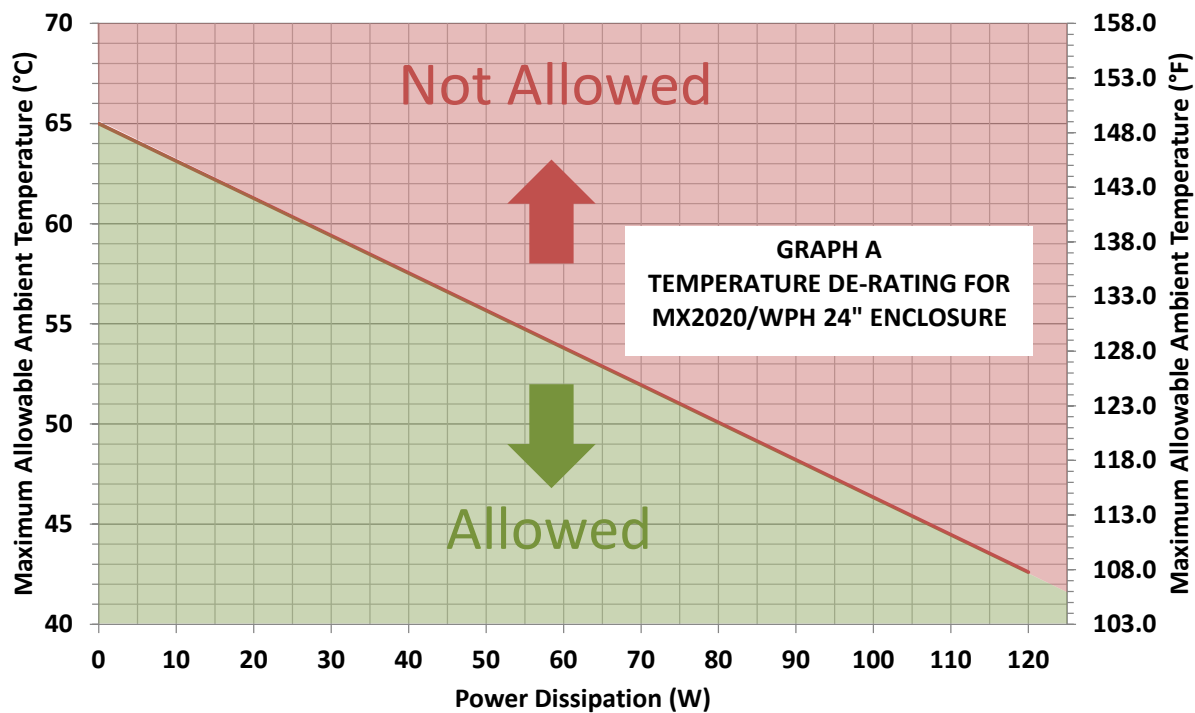
Caution

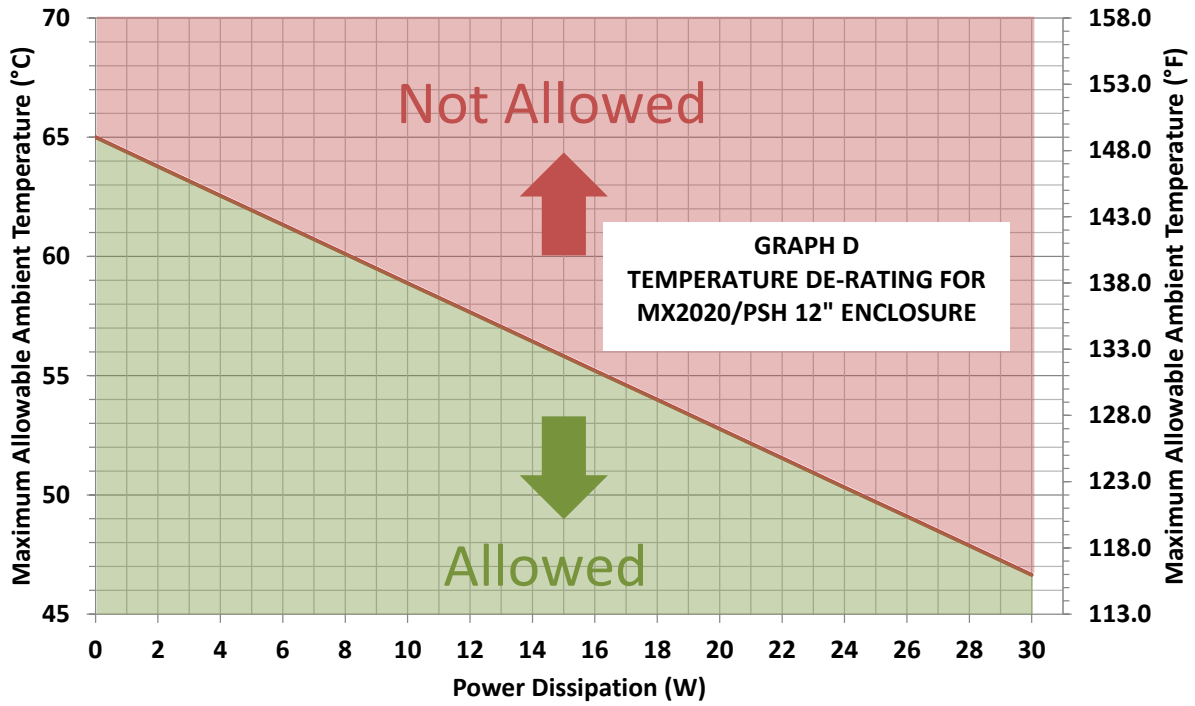
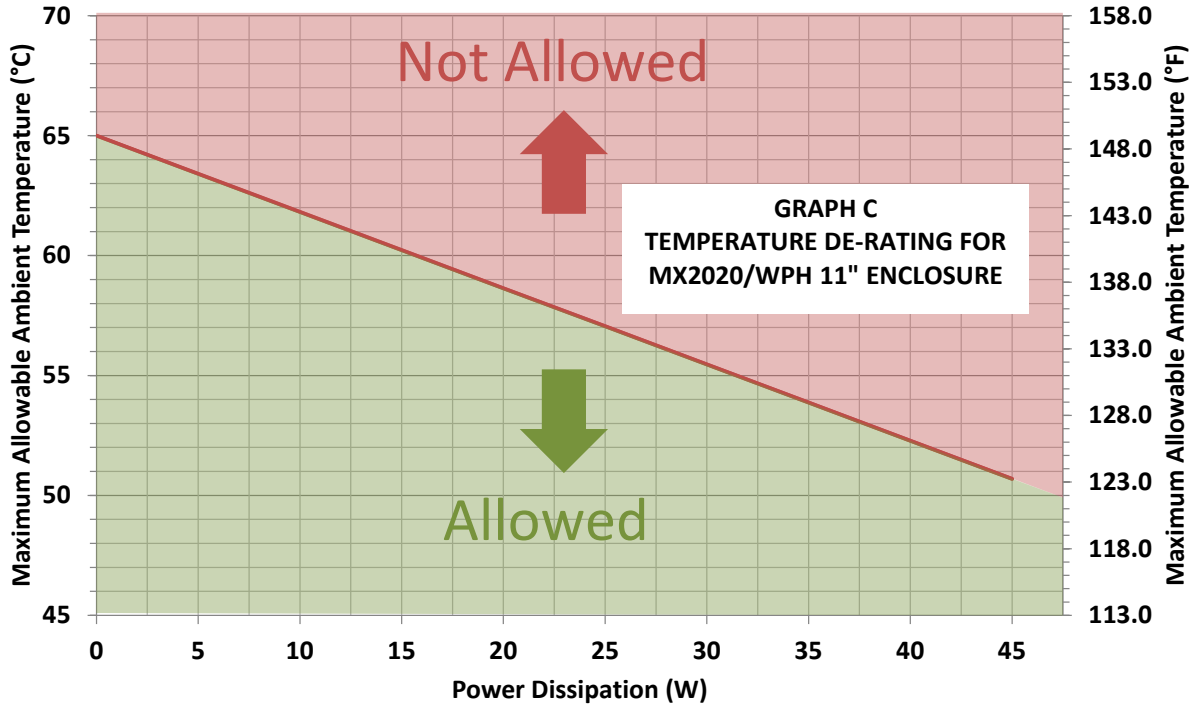
Do not operate the SETPOINT system in conditions that exceed its maximum rated operating temperature of 65°C. Operation above 65°C can compromise system reliability by shortening component life and /or by preventing the power supply from delivering sufficient current. Metrix can assist with custom enclosures that provide additional thermal management (such as cooling or heating) when required.



Caution

Do not locate the enclosure where it will be exposed to direct sunlight. Radiant solar energy will produce higher surface temperatures on the enclosure than imparted by external ambient temperature alone. This may result in conditions inside the enclosure that exceed the SETPOINT system's maximum rated operating temperature, compromising its reliability.





Outline Diagrams

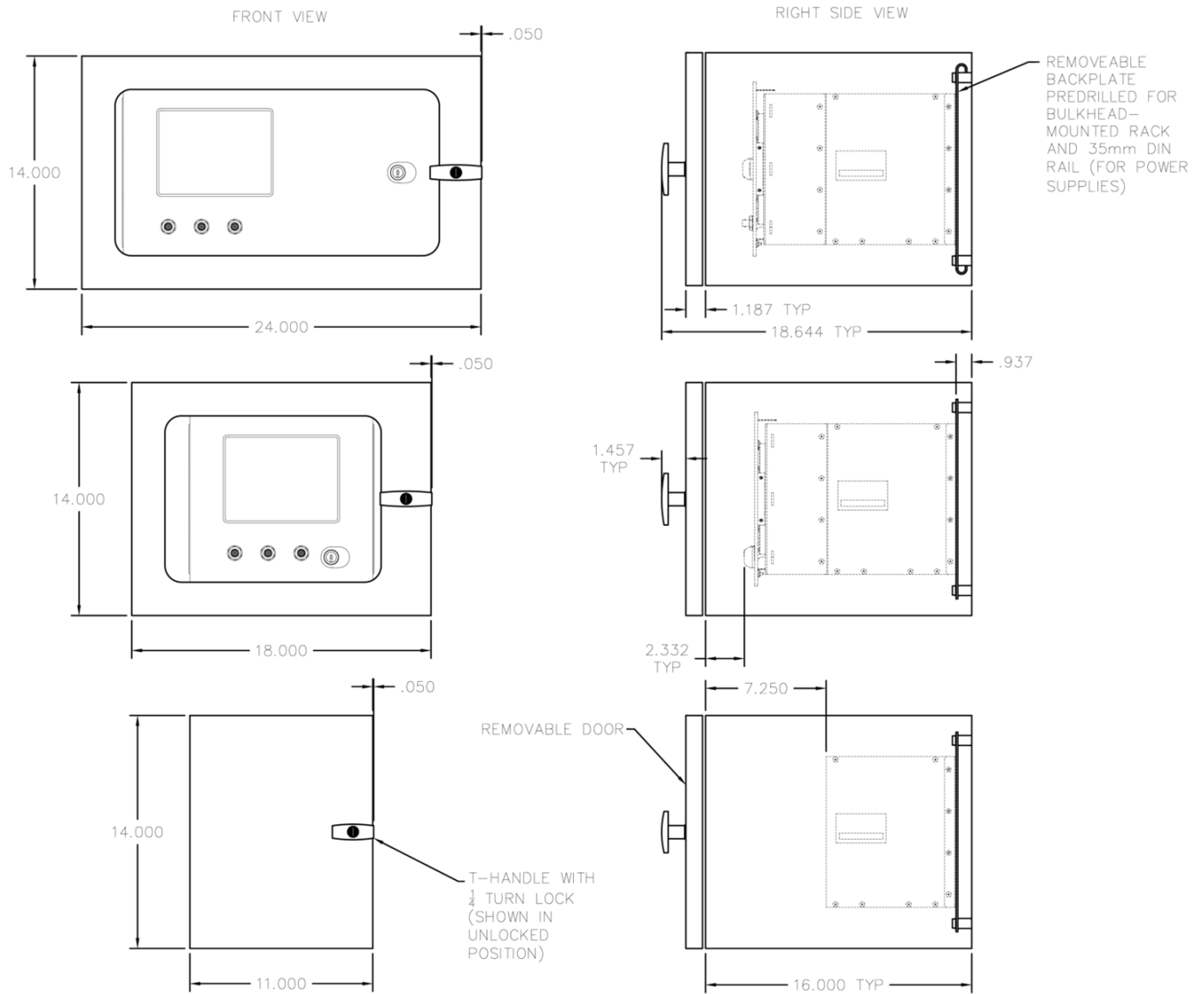
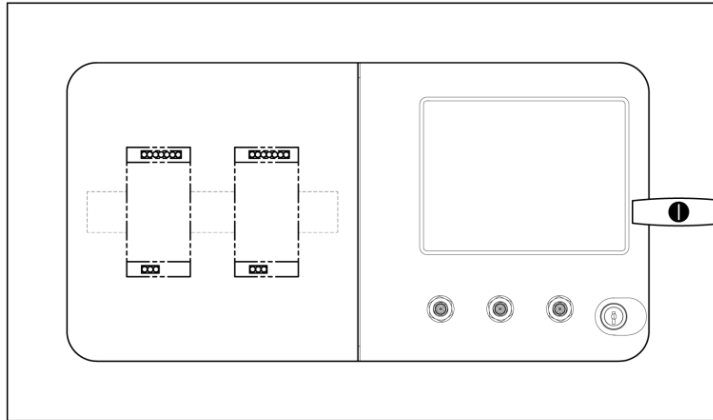


FIGURE 1 - MX2020/WPH ENCLOSURE (FRONT AND SIDE VIEWS)

24" HOUSING W/HALF RACK & TWO 180W PWR SUPPLIES



18" HOUSING W/QUARTER RACK & TWO 90W PWR SUPPLIES

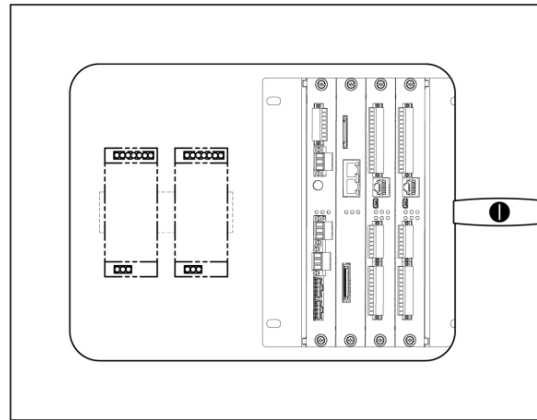


FIGURE 2 - MX2020/WPH ENCLOSURE (HALF AND QUARTER RACK MOUNTING W / POWER SUPPLIES)

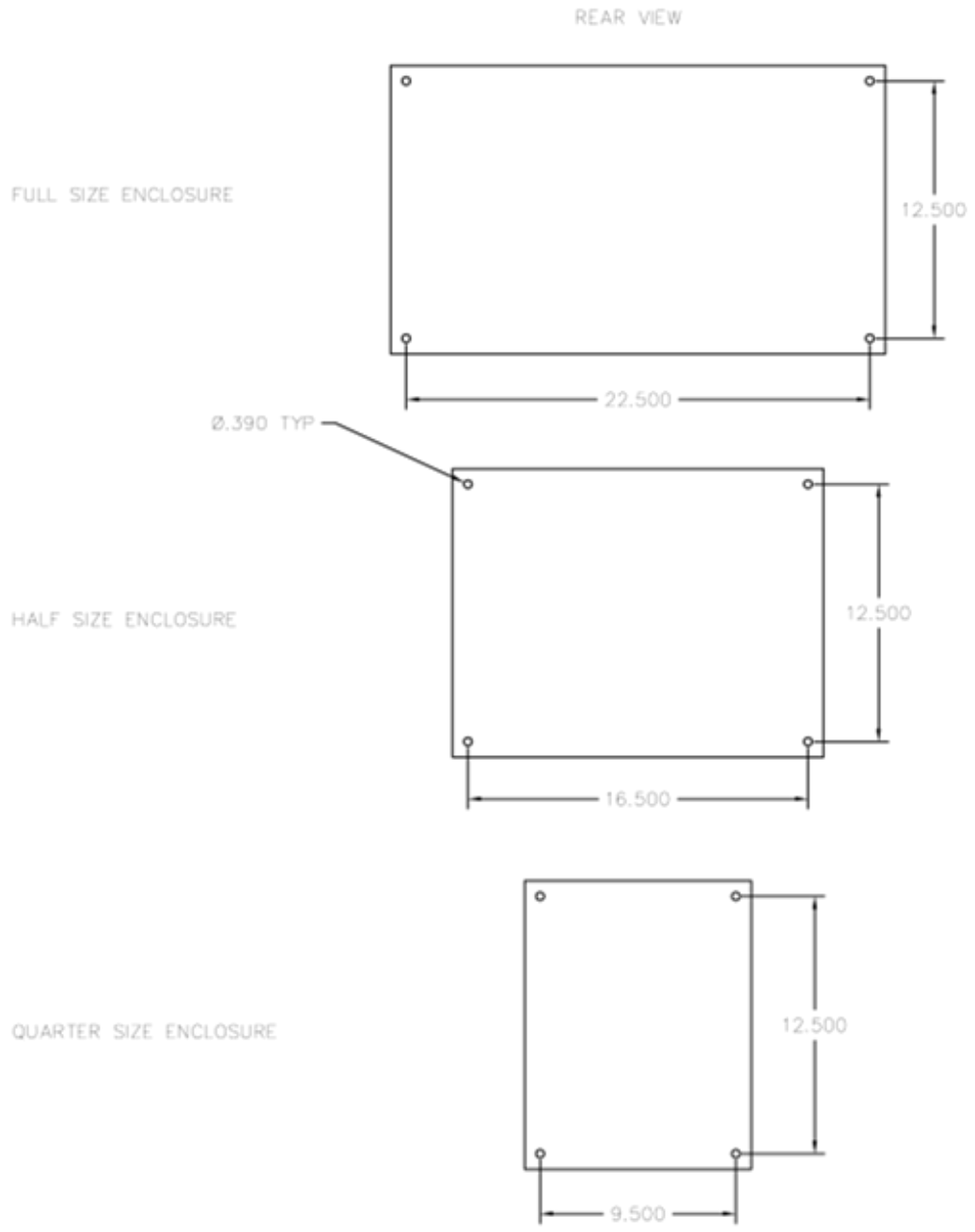


FIGURE 3 – MX2020/WPH ENCLOSURE (REAR VIEW WITH MOUNTING HOLE DIMENSIONS)

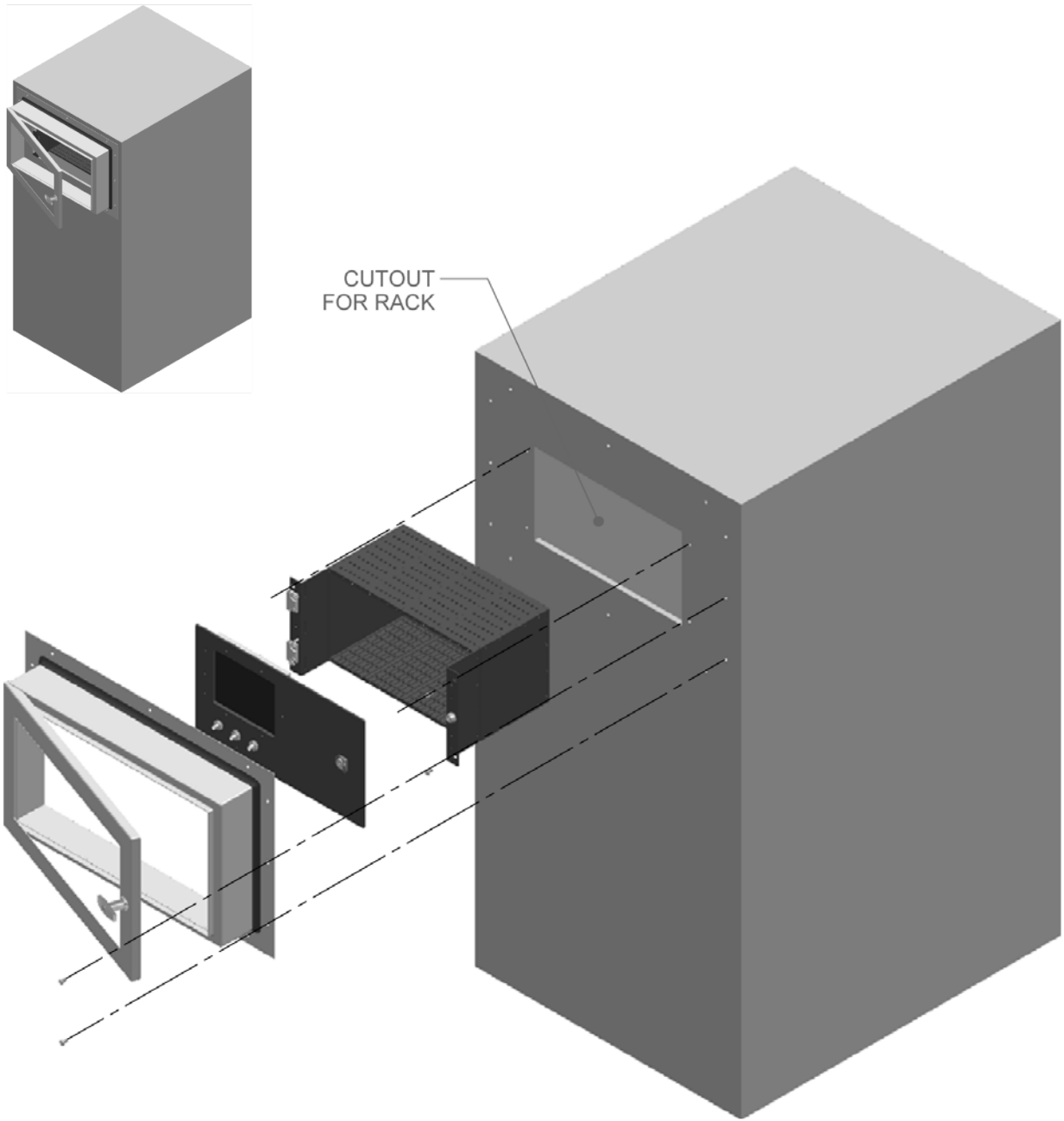


FIGURE 4 – MX2020/WPH DOOR KIT (TYPICAL)

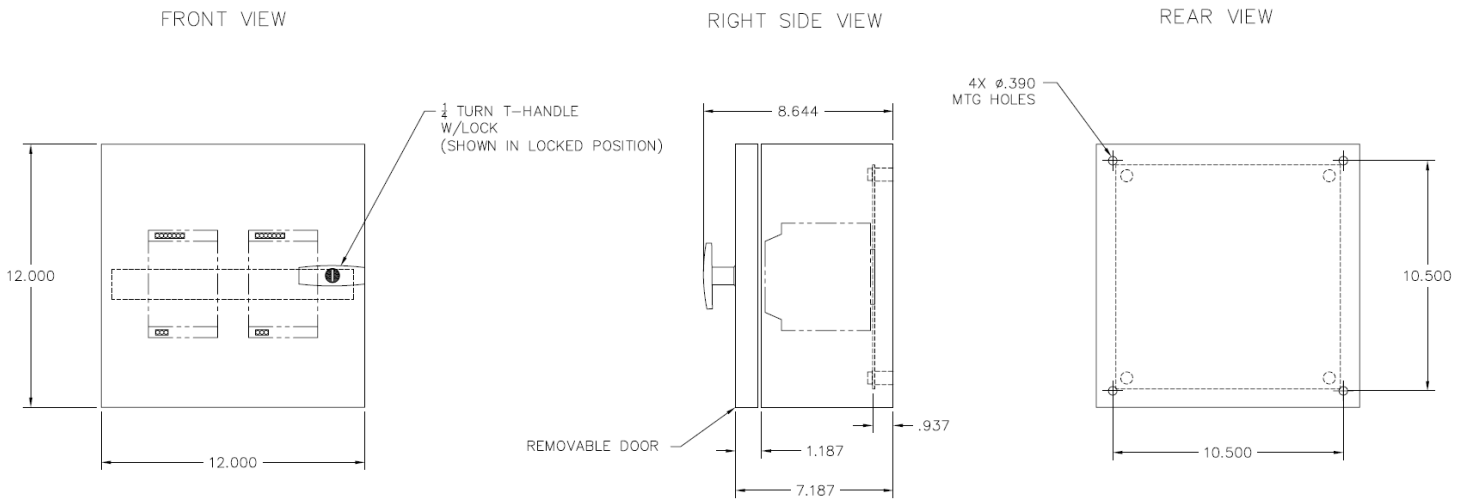


FIGURE 5 - MX2020/PSH POWER SUPPLY HOUSING OUTLINES AND DIMENSIONS



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