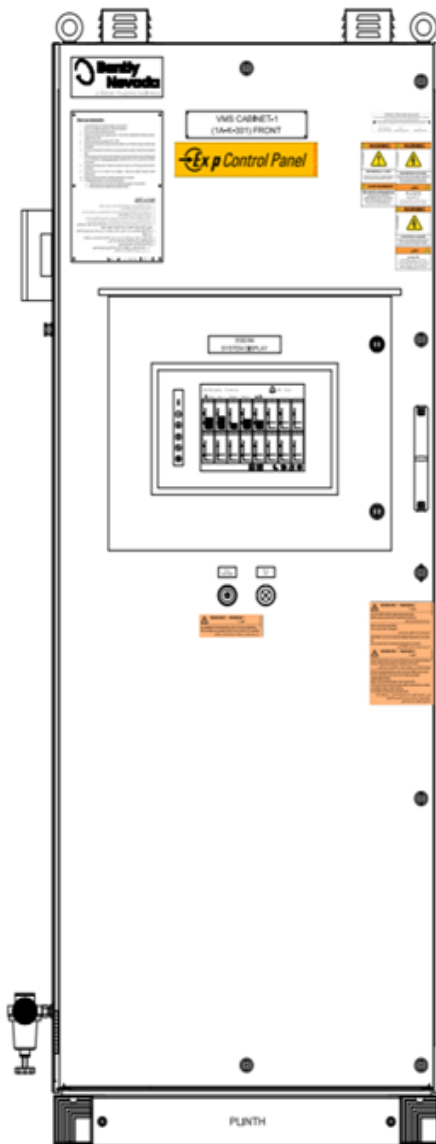


3500 and Orbit 60 Outdoor Packaged Systems

Datasheet

Bently Nevada Machinery Condition Monitoring

177M4920 Rev. A



Description

Packaged Systems provide a fully pre-mounted, pre-wired, site-ready, and factory-tested industrial enclosure solution for Bently Nevada machinery protection and condition monitoring instrumentation. A packaged system is designed to simplify site installation, provide suitable protection for the installed instrumentation from the surrounding environment, and facilitate ongoing ease of use and maintenance.

The Bently Nevada Outdoor Cabinet Package protects the 3500 and Orbit 60 System against adverse environmental conditions, such as excessive moisture, dirt, grime, and unclean air.

For Hazardous applications, Bently Nevada can provide solutions for a non-purged cabinet certified for a Zone 2 environment and an Ex "p" purging. The cabinet is specially designed for system installations that require environmental protection, or where safety standards mandate hazardous approval agency requirements.

The outdoor cabinets are available in either 304 stainless steel and 316 stainless steel and are compatible with a full-range of 3500 or Orbit 60 rack-mount and bulkhead-mount option.



Supported Monitoring Types	Supported Applications/Environments
<ul style="list-style-type: none"> Orbit 60 Series Monitoring System 3500 Series Monitoring Systems Any external data acquisition hardware (e.g., communications processors) required by the monitoring systems 	<p>Standard Enclosure Options:</p> <ul style="list-style-type: none"> NEMA 12/IP54 free-standing enclosures suitable for outdoor safe area NEMA 4/IP65 free-standing enclosure with protection against windblown dust and rain, splashing water, and hose directed water NEMA 4X/IP65 Ex non-purged cabinet certified for Zone 2 Wall-mounted enclosure for outdoor for safe zone / Zone 2 <p>Purge Panel Options available for Zone 1 & Zone 2:</p> <ul style="list-style-type: none"> Purged type cabinet with vortex cooler Purged type cabinet with air-conditioner

Specifications

Enclosures

Enclosures	
Material	<ul style="list-style-type: none">• 304s Stainless Steel• 316s Stainless Steel
Ingress Protection	<ul style="list-style-type: none">• NEMA 4 /IP55 with FAN• NEMA4X / IP65
Protection Type	<ul style="list-style-type: none">• Safe non-hazardous area• Non-purged certified for Zone 2• Ex “p” purged type
Physical Dimensions	
Height	Refer to Typical Cabinet Type, Figure 1~ 4
Depth	
Width	
Accessories	
Plinth	100 mm Plinth for Free-standing Enclosure
Roof	Standard
Handle	Key-lockable
Cable Entry	Gland Plates for Bottom entry
Lifting	Eyebolts
Door	Door Stay for Free-standing enclosure
Cooling	<ul style="list-style-type: none">• Vortex Cooler• Air conditioned• Fan
Light	LED Light with motion sensor
Temperature	Thermostat or RTD
Earthing	PE/FE Grounding Bars
Circuit Protection	<ul style="list-style-type: none">• Miniature Circuit Breaker• Fuses
Term Block	Din Rail Mount Terminal Blocks

Enclosure Capacity

Safe Area Installation Cabinet (Figure 1) 800 mmW x 2000 mmH x 800 mmD	
Number of Racks	3500- 2 Rack/ Bulkhead Mount O60 -3 Rack/Bulkhead Mount
Number of Dynamic IOs	Rack Mounted - 120 Bulkhead (front/rear) w/o Isolator - 180, with Isolator-120 Bulkhead (front access) w/o-120, with Isolator - 70
Cabinets certified for Zone 2 (Figure 2 and 3) 800 mmW x 2000 mmH x 800 mmD	
Number of Racks	3500- 2 Rack/ Bulkhead Mount O60 -3 Rack/Bulkhead Mount
Number of Dynamic IOs	3500 with Isolators -70 O60 with Isolators -70
O60 Outdoor Wall-mount Cabinet (Figure 4) 800 mmW x 900 mmH x 400 mmD	
Number of Dynamic IOs	O60-Bulkhead - 60
3500 Outdoor Wall-mount Cabinet(Figure 5) 800 mmW x 1200 mmH x 400 mmD	
Number of Dynamic IOs	3500-Bulkhead w/o isolator -60, with Isolator - 35
Terminal Blocks	
Power	
Type:	Single feedthrough terminals, DIN mount

Terminal Blocks	
Insulation	Polyamide Nylon
Transducer, Relay, and Recorder	
Type:	Single disconnect terminals, DIN mount
Insulation	Polyamide Nylon
Wires and Cables	
Signal Cable	
Type	Single Pair or Triad Cable with shield wire
Conductor	Stranded copper
Size	22 ~ 18 AWG 0.33 ~ 0.82 sqmm
Insulation Rating	300 Volts, 75°C minimum
Insulation material	PVC, Flame Retardant
Relay Wire	
Type	Single core
Conductor	Stranded copper
Size	18 ~ 16 AWG 0.82 ~ 1.32sqmm
Insulation Rating	600 Volts, 75°C minimum
Insulation material	PVC, Flame Retardant
Power Wire	
Type	Single core
Conductor	Stranded copper
Size	16 AWG (1.5sq mm) minimum
Insulation Rating	600 Volts, 75°C minimum

Wires and Cables	
Insulation material	PVC, Flame Retardant
Earth Wire	
Conductor	Stranded copper
Size	16 AWG (1.5 sqmm) minimum
Protective Earth	Green and Yellow
Functional Earth	Green

Circuit Breakers

Circuit Breakers	
Type	Thermo-magnetic, double pole

Bus Bars

Bus Bars	
Individual bus bars are provided for Protective Earth Ground and Functional Earth, and can be connected when an isolated earthing connection is not required. Intrinsically safe applications have an additional bus bar for I.S. ground.	
Material	Copper

Requirement for Safe Area Installation

- Ambient temperature range -20 to 50°C.
- Maximum inside temperature to be 50°C.

Requirement for Class 1 Div 2, Zone 2 Non-Purged

- Enclosure meeting UL698A and IEC 60079-0 for Ex application
- Components to be Ex certified with connections complying to IEC 60079-7 and UL 121201
- Ambient temperature range -20°C to 50°C
- Maximum inside temperature to be 50°C

Requirement for Zone 1 & 2 Ex "p" Installation


Purge Panel solutions are engineered for specific specifications in accordance with the Ex"p" hazardous area concept to NFPA496 and IEC 60079-2. Please reach out to Bently representative for right Purged Cabinet design and provide below information:

- Area Classification
- Ambient Temperature range
- Area Temperature Class


Please fill-out the [Ex Custom Field Enclosure Request on page 6](#).

Equipment Type	
Overvoltage Category	Overvoltage Category II
Pollution Degree	Pollution Degree 4
Electrical Equipment	Fixed Equipment & Permanently Connected Equipment
EMC Compatibility	Industrial location
Ingress Protection	IP54 minimum
Impact Resistance	IK-09
Equipment Class	Equipment Class 1

Equipment Type	
Power Supply System	TN-S System
System Environmental	
Operating Temperature Range	-20°C to +50°C
Storage Temperature Range	-40°C to +85°C
Relative Humidity	0% to 85% rH non-condensing operating and storage



CAUTION



LOCATION TEMPERATURE AND HUMIDITY

If you install the hardware in a location where temperatures may exceed 40°C (104°F) or in excessive humidity, please reach out to Bently representative for right custom cabinet design.

Ex Custom Field Enclosure Request

Item	Description	Details
1	Type of Certification: a. IECEx b. ATEX c. CSA/NEC d. Other	
Zone Application		
2	Area Zone:	
3	Area Gas Group:	
Division Application		
4	Area Class:	
5	Area Division:	
6	Area Gas Group:	
Others		
7	Area Temp Class:	
8	Maximum & Minimum Environmental Temperature:	
9	Maximum & Minimum Environmental Relative Humidity:	
10	Is the environment corrosive?:	
11	Should the enclosure include the following accessories?: a. Zener Barrier b. Galvanic Isolator c. Surge Protector d. Others	
12	Preferred Type of Enclosure Material:	
13	Preferred Type of Protection: a. Ex "e" b. Purging System : Ex "p"	
14	Is TB required in the enclosure?:	

Ordering Information



For the detailed listing of country and product-specific approvals, refer to the [Approvals Quick Reference Guide \(108M1756\)](#).

For additional technical documentation, please log in to bntechsupport.com and access the Bently Nevada Media Library.

Packaged Systems

Packaged Systems are individually manufactured to order. Contact a Bently Nevada Customer Care Representative at Bently.com/support for ordering information.

Documentation

- Cabinet drawings in .pdf format
- Cabinet Certification for Ex cabinets
- QA test report

Storage Requirement

- Cabinet & Spares must be stored in closed roof.
- No rodents, birds, or insects in the storage room.
- Panels are to be stored in a clean, cool, and dry place under controlled ambient temperature, 20°C to 30°C and relative humidity 5% to 85%, non-condensing.
- Do not tip, stack, or expose to electric shock.

[illegible]

Figure 1: Typical cabinet wiring diagrams. The figure consists of three detailed wiring diagrams: "FRONT VIEW (DOOR OPEN)", "SECTION A-A", and "SECTION B-B". Each diagram shows a vertical cabinet with various internal components and their electrical connections. Callouts with numbers 1 through 20 point to specific parts and wires. A note at the top right states: "EYEBOLTS TO BE ORDERED THE SAME MATERIAL AS CABINET SHELL".

The "FRONT VIEW (DOOR OPEN)" diagram shows the following components and connections:

- 1: LIGHT, 12 INCH MOUNTED ON INTERIOR ROOF MOUNTING PANEL
- 2: 2500S GREY WIRE DUCT 120VAC POWER
- 3: V1 (UTILITY) BREAKERS
- 4: V1 (PRIMARY) BREAKERS
- 5: V2 (SECONDARY) BREAKERS
- 6: TR1, INCOMING POWER FEED
- 7: V1, V2, 6 mm² TERMINALS
- 8: TR2, INCOMING POWER FEED
- 9: V3, 6 mm² TERMINALS
- 10: 100 DEGREE DOOR STOP
- 11: 60x80 GREY WIRE DUCT SIGNAL MOUNTED ON BAR
- 12: 60x80 GREY WIRE DUCT SIGNAL MOUNTED ON BAR
- 13: RACK 1 LABEL
- 14: 60x80 GREY WIRE DUCT 24VDC POWER
- 15: 60x80 GREY WIRE DUCT SIGNAL MOUNTED ON BAR
- 16: RACK 2 LABEL
- 17: 60x80 GREY WIRE DUCT 24VDC POWER
- 18: 60x80 GREY WIRE DUCT 24VDC POWER
- 19: 60x80 GREY WIRE DUCT 24VDC POWER
- 20: 60x80 GREY WIRE DUCT 100-240VAC POWER

The "SECTION A-A" diagram shows the following components and connections:

- 1: 2500S GREY WIRE DUCT 120VAC POWER
- 2: 2500S GREY WIRE DUCT 120VAC POWER
- 3: 2500S GREY WIRE DUCT 120VAC POWER
- 4: 2500S GREY WIRE DUCT 120VAC POWER
- 5: 2500S GREY WIRE DUCT 120VAC POWER
- 6: 2500S GREY WIRE DUCT 120VAC POWER
- 7: 2500S GREY WIRE DUCT 120VAC POWER
- 8: 2500S GREY WIRE DUCT 120VAC POWER
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- 14: 2500S GREY WIRE DUCT 120VAC POWER
- 15: 2500S GREY WIRE DUCT 120VAC POWER
- 16: 2500S GREY WIRE DUCT 120VAC POWER
- 17: 2500S GREY WIRE DUCT 120VAC POWER
- 18: 2500S GREY WIRE DUCT 120VAC POWER
- 19: 2500S GREY WIRE DUCT 120VAC POWER
- 20: 2500S GREY WIRE DUCT 120VAC POWER

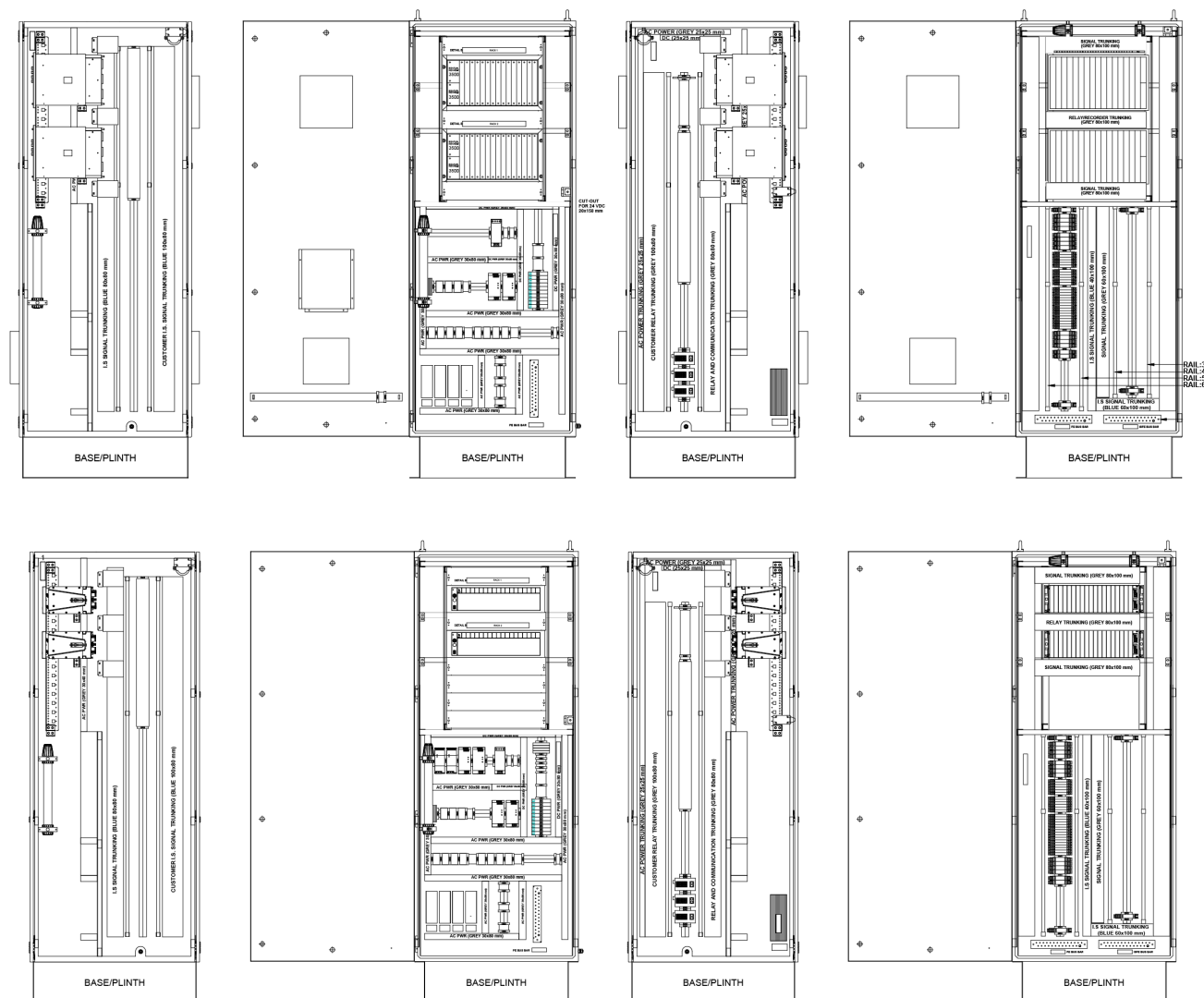
The "SECTION B-B" diagram shows the following components and connections:

- 1: 2500S GREY WIRE DUCT 120VAC POWER
- 2: 2500S GREY WIRE DUCT 120VAC POWER
- 3: 2500S GREY WIRE DUCT 120VAC POWER
- 4: 2500S GREY WIRE DUCT 120VAC POWER
- 5: 2500S GREY WIRE DUCT 120VAC POWER
- 6: 2500S GREY WIRE DUCT 120VAC POWER
- 7: 2500S GREY WIRE DUCT 120VAC POWER
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- 17: 2500S GREY WIRE DUCT 120VAC POWER
- 18: 2500S GREY WIRE DUCT 120VAC POWER
- 19: 2500S GREY WIRE DUCT 120VAC POWER
- 20: 2500S GREY WIRE DUCT 120VAC POWER

Legend:

- FUNCTIONAL EARTH COPPER BUS BAR (ISOLATED FROM FRAME)
- PROTECTIVE EARTH COPPER BUS BAR (CONNECTED TO FRAME)

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**Figure 3: Ex Non-Purged Zone 2 Cabinet
(800 mmW x 2000 mmH x 800 mmD)**

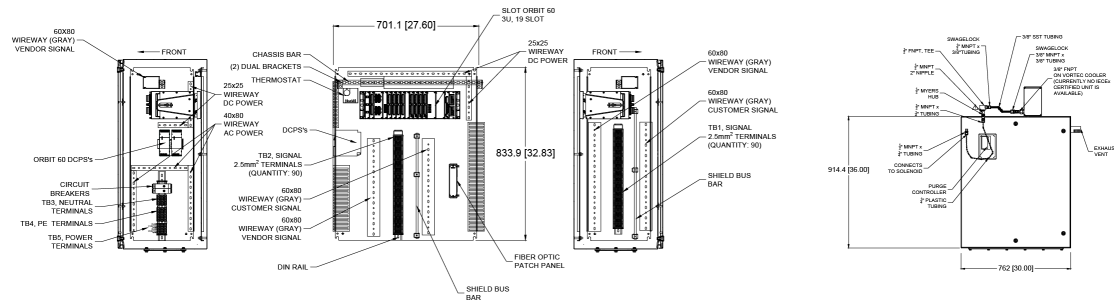


Figure 4: O60 wall-mount with Vortex (Purged Optional) (800 mmW x 900 mmH x 400 mmD)

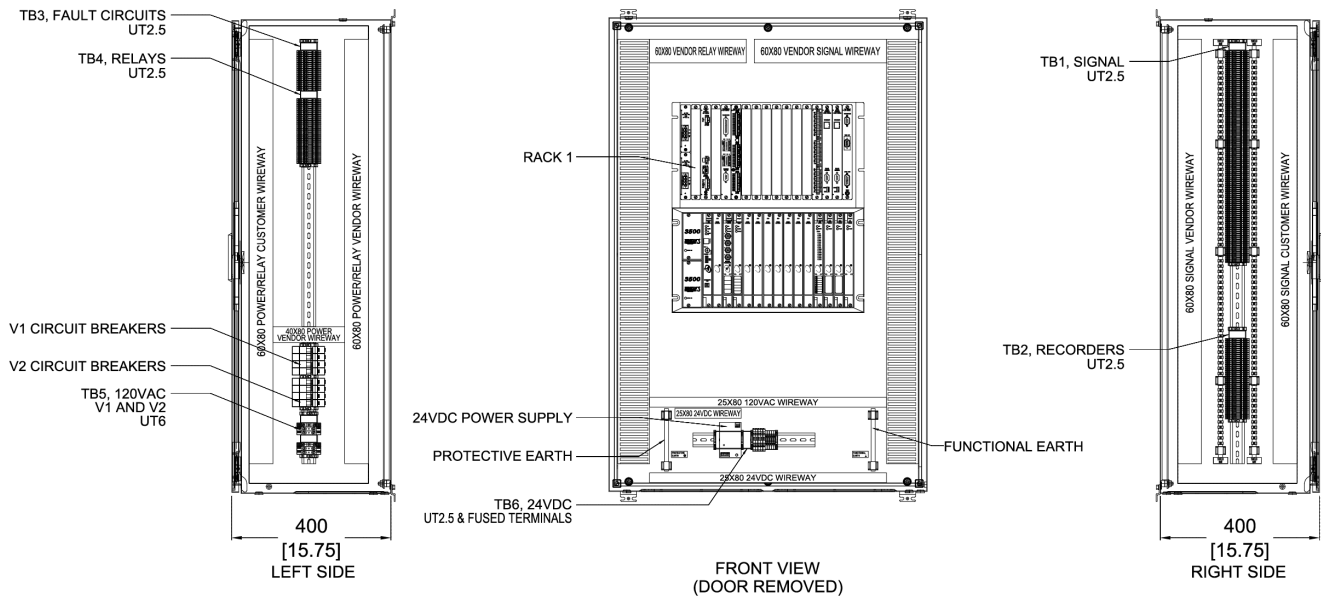


Figure 5: 3500 Outdoor wall-mount cabinet (Purged optional) (800 mmW x 1200 mmH x 400 mmD)

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