



Solution: SR2N03020NAA1

| | |
|--|-----------|
| 1. Change Log..... | 3 |
| 2. Site Planning Datasheet..... | 4 |
| 3. Interconnection Guide (ICG)..... | 5 |
| 4. Field Supplied Cable & Part List | 19 |
| 5. Vertiv MSR2 600mm IT Rack | 20 |
| 6. Vertiv MSR2 Power Management Cabinet (PMC) | 21 |
| 7. Vertiv Liebert CR019 with Plenums | 22 |
| 8. Power Management Unit - 20kW (PMU20)..... | 23 |
| 9. PMU20 Terminal Blocks Size..... | 24 |
| 10. Vertiv MSR2 - CT600 Cable Tray 600mm | 25 |
| 11. Scope of Work | 26 |

1. Change Log

| Rev | Date | Author | Description | Number of Change |
|-----|-----------|--------|---|------------------|
| A | 1/29/2024 | MG | Initial Release | CO-1083702 |
| B | 4/4/2024 | TK | Updated site planning datasheet, minor changes to interconnection guide, removal of SOW checklist | CO-1087618 |
| C | 6/10/2024 | TK | Updated connection guide, added updated SOW checklist, updated design | CO-1091967 |
| D | 9/3/2024 | TK | Updated interconnection guide (cable sets, row views), updated SOW, updated design | CO-1097623 |

2. Site Planning Datasheet

Smart Row 2 Site Planning Datasheet (208V, 3 phase, 4 wire + PE)

| Configuration Number | Part Number | Max Row Capacity (kW) | IT Racks per Row | Capacity per Rack (kW) | Cooling Units per Row | pdu count | Main Input Breaker Size ⁶ | Per Condenser Breaker Size | Per Condenser Dry Weight kg (lbs) | Row Dimensions (L x H x D) mm (in) ⁷ | Row Weight kg (lbs) | Min. Staging Area m ² (ft ²) |
|----------------------|---------------|-----------------------|------------------|------------------------|-----------------------|-----------|--------------------------------------|----------------------------|-----------------------------------|---|---------------------|---|
| 1 | SR2N02010NAA1 | 10 | 2 | 5 | 1 | 2 | 100A | N/A ⁵ | 60 (132.3) | 2100 (82.7) x 2271 (107) x 1400 (55.2) | 1463 (3227) | 14.41 (155.2) |
| 2 | SR2N02010PAA1 | 10 | 2 | 5 | 1 | 4 | 100A | N/A ⁵ | 60 (132.3) | 2100 (82.7) x 2271 (107) x 1400 (55.2) | 1491 (3288) | 14.99 (161.4) |
| 3 | SR2N02010FAA1 | 10 | 2 | 5 | 2 | 4 | 100A | N/A ⁵ | 60 (132.3) | 2400 (94.5) x 2271 (107) x 1400 (55.2) | 2112 (4656) | 17.67 (190.2) |
| 4 | SR2N03010NAA1 | 10 | 3 | 3 | 1 | 3 | 100A | N/A ⁵ | 60 (132.3) | 2700 (106.3) x 2271 (107) x 1400 (55.2) | 1633 (3601) | 15.76 (169.7) |
| 5 | SR2N03010PAA1 | 10 | 3 | 3 | 1 | 6 | 100A | N/A ⁵ | 60 (132.3) | 2700 (106.3) x 2271 (107) x 1400 (55.2) | 1675 (3694) | 16.34 (175.9) |
| 6 | SR2N03010FAA1 | 10 | 3 | 3 | 2 | 6 | 100A | N/A ⁵ | 60 (132.3) | 3000 (118.2) x 2271 (107) x 1400 (55.2) | 2296 (5061) | 19.02 (204.8) |
| 7 | SR2N03020NAA1 | 20 | 3 | 6 | 1 | 3 | 175A | 15A | 118 (260.2) | 2700 (106.3) x 2271 (107) x 1400 (55.2) | 1863 (4108) | 18.46 (198.8) |
| 8 | SR2N03020PAA1 | 20 | 3 | 6 | 1 | 6 | 175A | 15A | 118 (260.2) | 2700 (106.3) x 2271 (107) x 1400 (55.2) | 1905 (4201) | 20.51 (220.8) |
| 9 | SR2N03020FAA1 | 20 | 3 | 6 | 2 | 6 | 175A | 15A | 118 (260.2) | 3000 (118.2) x 2271 (107) x 1400 (55.2) | 2526 (5568) | 24.42 (262.9) |
| 10 | SR2N04020NAA1 | 20 | 4 | 5 | 1 | 4 | 175A | 15A | 118 (260.2) | 3300 (130) x 2271 (107) x 1400 (55.2) | 2033 (4483) | 19.81 (213.3) |
| 11 | SR2N04020PAA1 | 20 | 4 | 5 | 1 | 8 | 175A | 15A | 118 (260.2) | 3300 (130) x 2271 (107) x 1400 (55.2) | 2089 (4607) | 21.86 (235.3) |
| 12 | SR2N04020FAA1 | 20 | 4 | 5 | 2 | 8 | 175A | 15A | 118 (260.2) | 3600 (141.8) x 2271 (107) x 1400 (55.2) | 2710 (5974) | 25.77 (277.4) |
| 13 | SR2N05020NAA1 | 20 | 5 | 4 | 1 | 5 | 175A | 15A | 118 (260.2) | 3900 (153.6) x 2271 (107) x 1400 (55.2) | 2203 (4858) | 21.16 (227.8) |
| 14 | SR2N05020PAA1 | 20 | 5 | 4 | 1 | 10 | 175A | 15A | 118 (260.2) | 3900 (153.6) x 2271 (107) x 1400 (55.2) | 2273 (5012) | 23.21 (249.9) |
| 15 | SR2N05020FAA1 | 20 | 5 | 4 | 2 | 10 | 175A | 15A | 118 (260.2) | 4200 (165.4) x 2271 (107) x 1400 (55.2) | 2894 (6380) | 27.12 (292) |

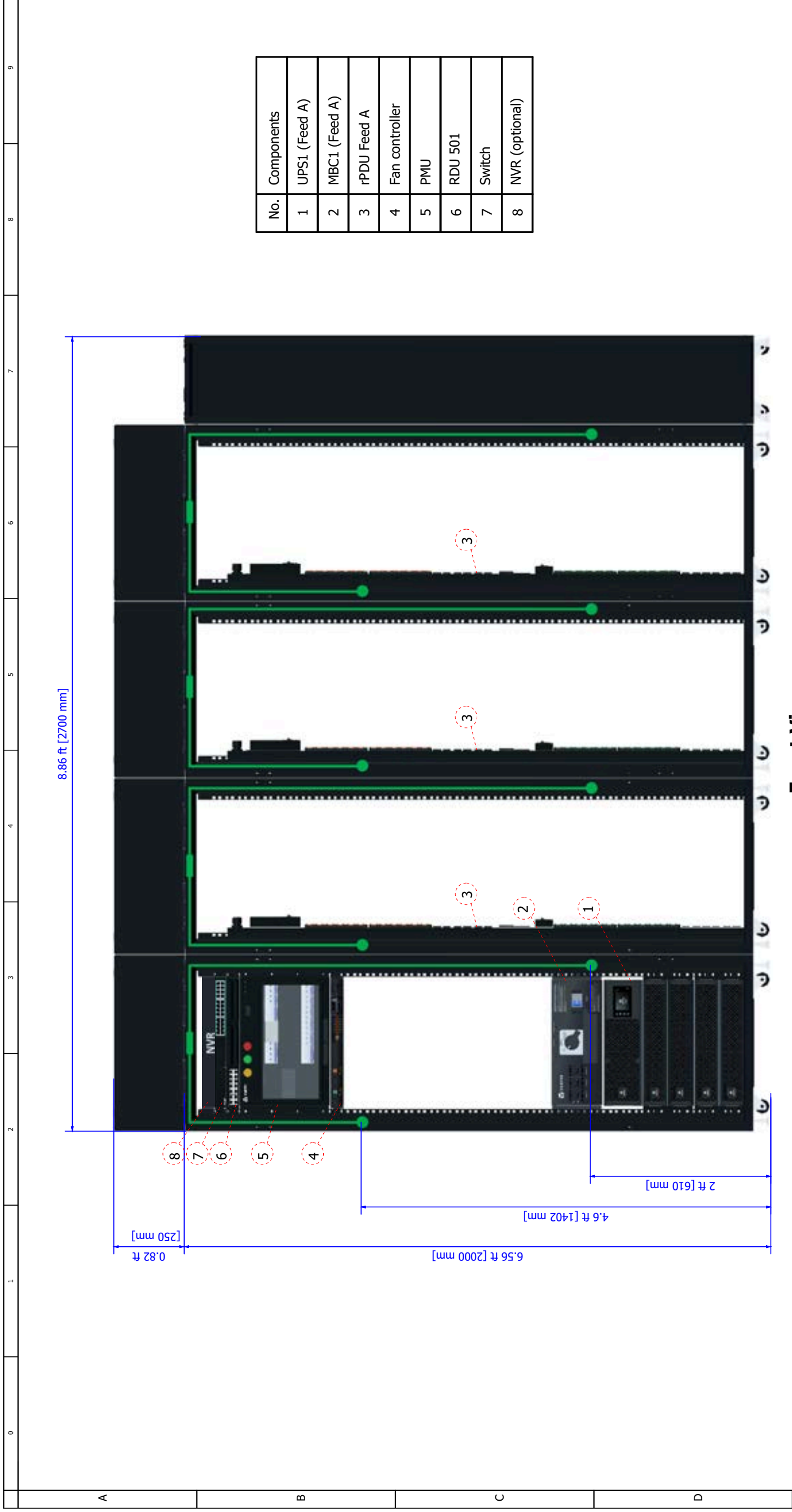
Notes:

- System Environmental Conditions: Indoors, 41 °F to 104 °F (5 °C to 40 °C), RH to 80% with Max dew point of 82.4 °F (28 °C)
- Floor surface must be level and continuous (expansion joints sealed, raised floor tile gaps sealed, no floor drains, etc).
- No building sprinkler head should be within 19.7 in (0.5 m).
- Install in accordance with national and local electrical codes
- 10kW condenser power is sourced from the indoor unit
- Cable Sizing: 100A = 3 AWG ; 175A = 2/0 AWG
- Row Dimensions do not include necessary space needed for access including per ADA or local codes.

| | | | | |
|-----------|--|--|-----------------------------------|--|
| SHEET NO. | DRAWN BY: | © 2024 VERTIV GROUP CORPORATION. CONFIDENTIAL AND PROPRIETARY. ALL RIGHTS RESERVED. VERTIV AND THE VERTIV LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTIV GROUP CORPORATION. THIS DOCUMENT AND THE INFORMATION IT CONTAINS ARE THE PROPERTY OF VERTIV GROUP CORPORATION. BY ACCEPTING IT INTO YOUR POSSESSION, YOU AGREE THAT YOU WILL KEEP THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN IN STRICTEST CONFIDENCE AND WILL NOT COPY, REPRODUCE, RETRANSMIT, USE (EXCEPT SOLELY FOR THE BENEFIT OF VERTIV GROUP CORPORATION), SELL, LEND, OR OTHERWISE DISPOSE OF SAME, DIRECTLY OR INDIRECTLY, WITHOUT THE EXPRESS WRITTEN PERMISSION OF VERTIV GROUP CORPORATION. AND THIS DOCUMENT SHALL BE RETURNED TO VERTIV GROUP CORPORATION IMMEDIATELY UPON REQUEST. | DWG. NO. DATE (LATEST REV) | |
| | DESIGNED BY: | | | |
| CO. NO. | TITLE | | | |
| REF. DWG. | Smart Row 2 Site Planning Datasheet (208V, 3 phase, 4 wire + PE) | | | |

3. Interconnection Guide (ICG)

| | | | | | | | | | |
|---|---|---|---|--|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| A |  | | | | | | | | |
| B | <p>Vertiv™ SmartRow™ 2: 3x IT Rack 20kW</p> | | | | | | | | |
| C |  | | | | | | | | |
| D | <p>Row IT Load Capacity: 20 kW Power Redundancy UPS: No Power Redundancy rPDU: No Cooling Redundancy: No Dimensions: Length: 8.86 ft [2700 mm] Depth: 4.6 ft [1400 mm] Height: 7.38 ft [2250 mm]</p> | | | | | | | | |
| E |  | | | | | | | | |
| SHEET NO. 1 / 14 CHANGE NO. PAGE DESCRIPTION: 1- Title page / cover sheet | DRAWN BY: Nilesch Patil APPROVED BY: Jakub Fencel | © 2020 VERTIV GROUP CORPORATION. CONFIDENTIAL AND PROPRIETARY. ALL RIGHTS RESERVED. VERTIV AND THE VERTIV LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTIV GROUP CORPORATION. THIS DOCUMENT (AND THE INFORMATION IT CONTAINS) ARE THE PROPERTY OF VERTIV GROUP CORPORATION BY ACCEPTING IT INTO YOUR POSSESSION, YOU AGREE THAT YOU WILL KEEP THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN IN STRICTEST CONFIDENCE AND WILL NOT COPY, REPRODUCE, USE (EXCEPT SOLELY FOR THE BENEFIT OF VERTIV GROUP CORPORATION), SELL, LEND, OR OTHERWISE DISPOSE OF SAME, DIRECTLY OR INDIRECTLY, WITHOUT THE EXPRESS WRITTEN PERMISSION OF VERTIV GROUP CORPORATION, AND THIS DOCUMENT SHALL BE RETURNED TO VERTIV GROUP CORPORATION IMMEDIATELY UPON REQUEST. | DWG NO. SR2N03020NAA1 DATE (LATEST REV.) 21.08.2024 REVISION: 505 N. CLEVELAND AVE WESTERVILLE OH 43081 |  VERTIV™ | | | | | |



| No. | Components |
|-----|----------------|
| 1 | UPS1 (Feed A) |
| 2 | MBC1 (Feed A) |
| 3 | rPDU Feed A |
| 4 | Fan controller |
| 5 | PMU |
| 6 | RDU 501 |
| 7 | Switch |
| 8 | NVR (optional) |

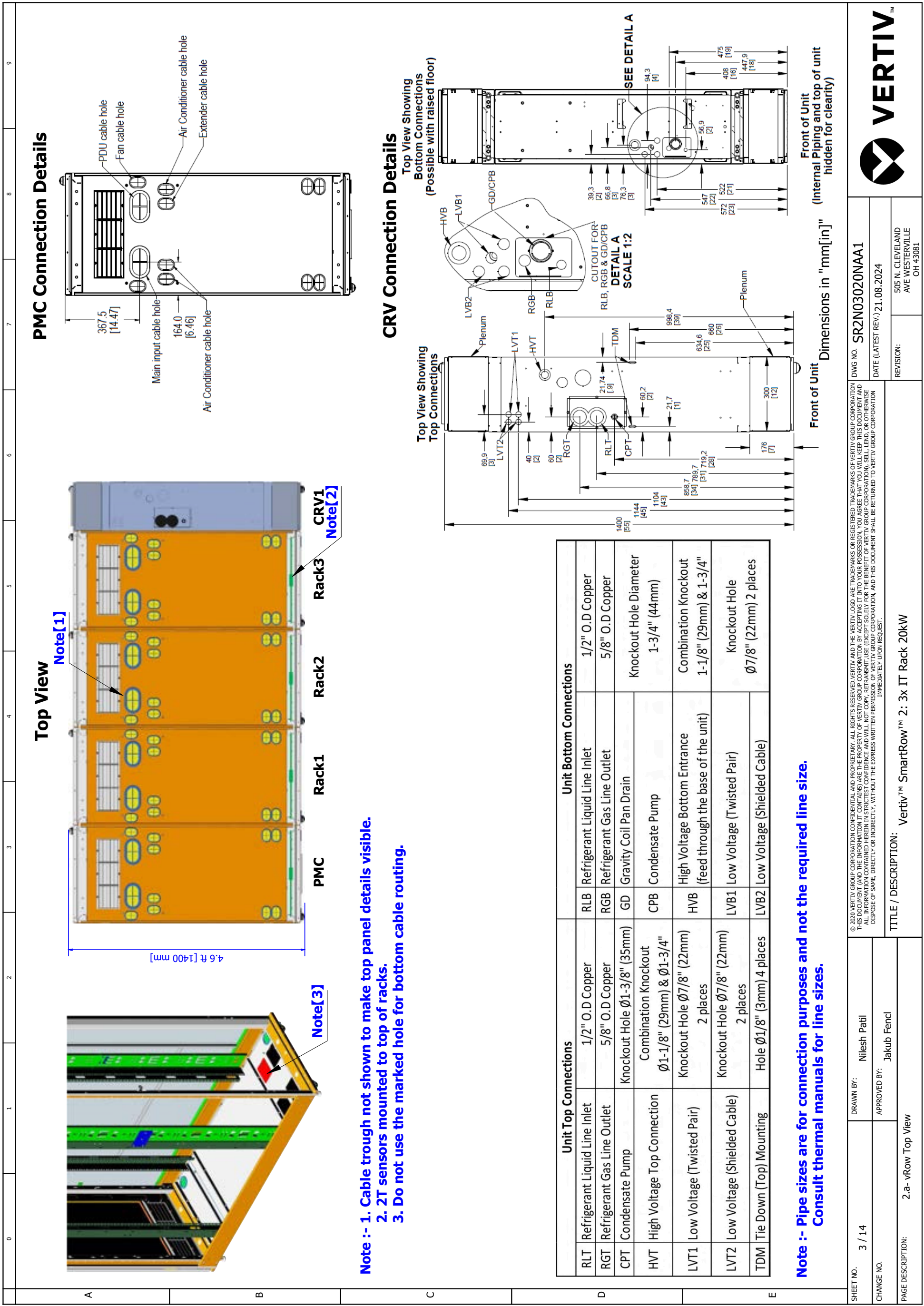
Front View

Notes:

1. Row IT Load Capacity is driven by number of IT-Racks (IT-Rack x 6.66 kW per rack).
2. System Environmental Conditions: Indoors, 41 F to 104 F (5 C to 40 C), RH to 80% with Max dew point of 82.4 F (28 C).
3. Floor surface must be level and continuous (expansion joints sealed, raised floor tile gaps sealed, no floor drains, etc).
4. No building sprinkler head should be within 19.7 in (0.5 m).

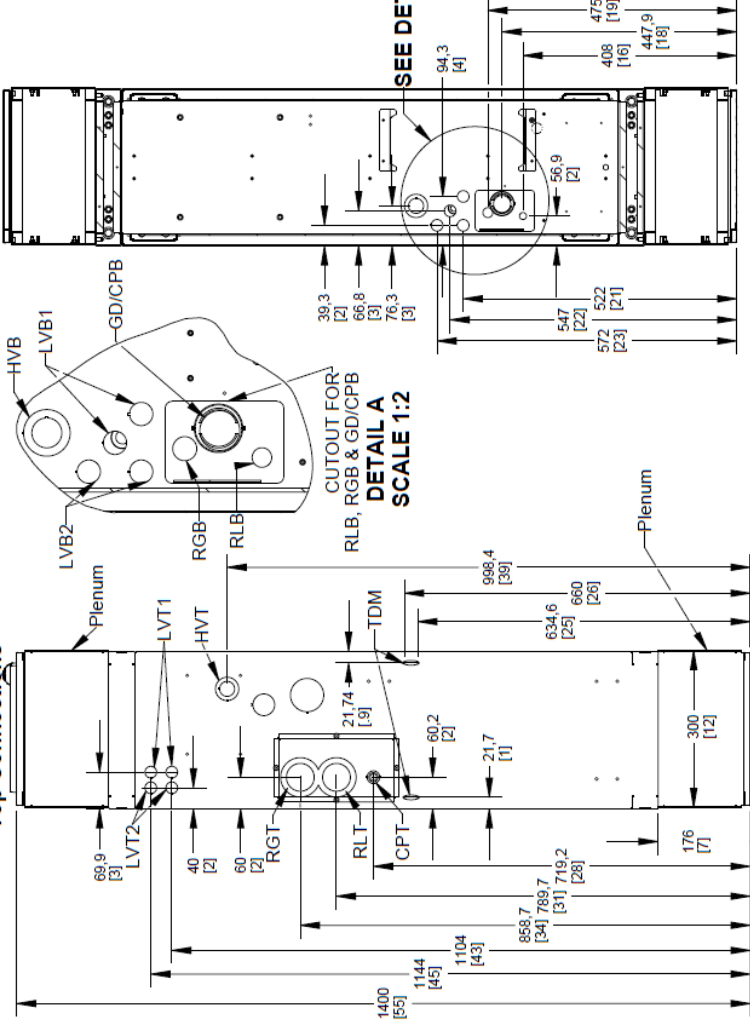
■ 2T Sensor mounted on rack roof
 ● 2T Sensor probe

| | | | |
|---|--|--------------------------|---|
| SHEET NO. 2 / 14 | DRAWN BY: Nilesh Patil | DWG NO. SR2N03020NAA1 | VERTIV™ |
| | APPROVED BY: Jakub Fencel | | |
| CHANGE NO. | | REVISION: | 505 N. CLEVELAND AVE WESTERVILLE OH 43081 |
| PAGE DESCRIPTION: 2- vRow Front View | TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2: 3x IT Rack 20kW | | |



CRV Connection Details

Top View Showing Bottom Connections (Possible with raised floor)



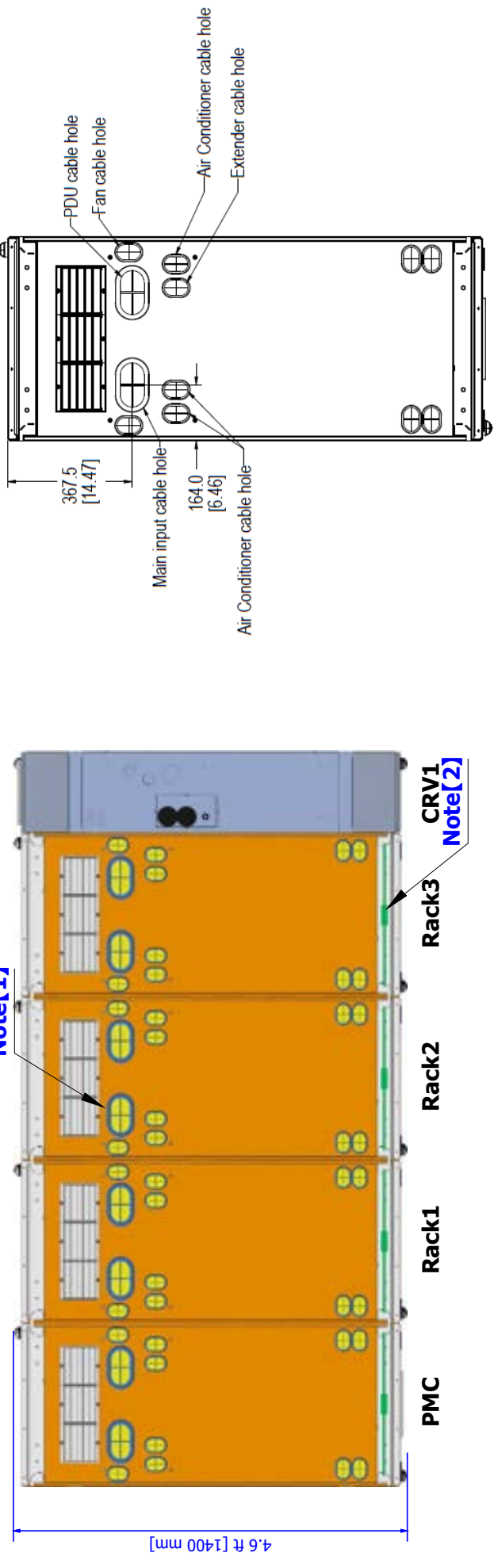
Front of Unit
 Dimensions in "mm[in]"
 (Internal Piping and top of unit hidden for clarity)

| Unit Top Connections | | Unit Bottom Connections | |
|----------------------|-------------------------------|-------------------------|--|
| RLT | Refrigerant Liquid Line Inlet | RLB | Refrigerant Liquid Line Inlet |
| RGT | Refrigerant Gas Line Outlet | RGB | Refrigerant Gas Line Outlet |
| CPT | Condensate Pump | GD | Gravity Coil Pan Drain |
| HVT | High Voltage Top Connection | CPB | Condensate Pump |
| LVT1 | Low Voltage (Twisted Pair) | HVB | High Voltage Bottom Entrance (feed through the base of the unit) |
| LVT2 | Low Voltage (Shielded Cable) | LVB1 | Low Voltage (Twisted Pair) |
| TDM | Tie Down (Top) Mounting | LVB2 | Low Voltage (Shielded Cable) |

Note :- Pipe sizes are for connection purposes and not the required line size. Consult thermal manuals for line sizes.

PMC Connection Details

Top View




Note :- 1. Cable trough not shown to make top panel details visible.
 2. 2T sensors mounted to top of racks.
 3. Do not use the marked hole for bottom cable routing.

| | | | | | |
|-------------------|--------------------|----------------------|--------------|--------------------|---|
| SHEET NO. | 3 / 14 | DRAWN BY: | Nilesh Patil | DWG NO. | SR2N03020NAA1 |
| CHANGE NO. | | APPROVED BY: | Jakub Fencel | DATE (LATEST REV.) | 21.08.2024 |
| PAGE DESCRIPTION: | 2.a- vRow Top View | TITLE / DESCRIPTION: | | REVISION: | 505 N. CLEVELAND AVE WESTERVILLE OH 43081 |

Cable overview

| Packaging No. | Cable Category | Cable No. | Tag1 | Tag2 | Length (inch/mm) | Description |
|---------------------------|---|------------------------------|------------------------------|--------------------------|--|---|
| 0411A817 | Rear door microswitch cascade | W218 | PMC_R-SW | RACK_R-SW | 25.6/650 | PMC to RACK1 cascade cables for rear door microswitches |
| | Rear door light cascade cable | W220 | PMC_RLIGHT | RACK_RLIGHT | 25.6/650 | PMC to RACK1 rear door LED light cascade cable |
| | Water immersion to RDU501 | W121 | Water Leak2 | RDU501_DI2 | 216.5/5500 | Water immersion 1 to RDU501 communication cable |
| | Smart door lock cascade cable | W209 | RACK-FLOCK | AC-FLOCK | 13.8/350 | RACK3 to CRV1 F-Door communication cascade cable |
| | Smart door lock cascade cable | W201 | PMC-LOCK | RACK-LOCK | 25.6/650 | PMC to RACK1 power cascade cable |
| | Smart door lock cascade cable | W221 | PMC-RLOCK | RACK-RLOCK | 25.6/650 | PMC to RACK1 R-Door communication cascade cable. |
| | Smart door lock cascade cable | W206/W207 | I-LOCK | F-R/BK W206, R-R/BK W207 | 82.7/2100 | Smart door lock cable from rear door to front door in CRD2 |
| | CRV's microswitch and Smart door lock cascade | W401-L | RDU:Smoke2 | W401-L-385 | 177.17/4500 | Microswitch communication cable from PMC to CRV1 |
| | Emergency fan to FC | W229 | FC Port1 | PMC-FAN | 59.1/1500 | PMC Emergency fan to FC controller cable |
| | Emergency fan to FC | W213 | FC Port2/3 | RACK1/2-FAN | 122/3100 | Rack1 Emergency fan to FC controller cable (shorter) |
| | Emergency fan to FC | W213 | FC Port2/3 | RACK1/2-FAN | 122/3100 | Rack2 Emergency fan to FC controller cable (shorter) |
| | Emergency fan to FC | W214 | FC Port4/5/6 | RACK3/4/5-FAN | 177.2/4500 | Rack3 Emergency fan to FC controller cable (longer) |
| | Communication cable | W114 | FC | Switcher(From FC) | 70.9/1800 | FC to Switch communication cable |
| | Communication cable | W115 | PDU | Switcher(From PDU) | 137.8/3500 | PDU to Switch communication cable |
| | Communication cable | W119 | RDU501 | Switcher(From RDU501) | 47.2/1200 | RDU501 to Switch Communication Cable |
| | Communication cable | W116 | PDU | PDU | 157.5/4000 | PDU1A to PDU2A communication cable |
| | Communication cable | W116 | PDU | PDU | 157.5/4000 | PDU2A to PDU3A communication cable |
| Power cable | W12 | PMU TO CRV2 L1 L2 N G | - | 144.1/3660 | PMU to CRV1 power cable | |
| Communication cable | W111 | CRV2 | Switcher(From CRV2) | 196.9/5000 | CRV1 to Switch communication cable | |
| Power cable | W01 | PMU_TO MBC1 INPUT L1 L2 N G | MBC1 MAIN INPUT L1 L2 N G | 51.2/1300 | PMU to MBC1 power cable (MBC1 input) | |
| Power cable | W03 | PMU_TO MBC1 OUTPUT L1 L2 N | MBC1 MAIN OUTPUT L1 L2 N | 76.8/1950 | MBC1 to PMU power cable (MBC1 output) | |
| Power cable | W05 | MBC1_TO UPS1 INPUT L1 L2 N G | UPS1 .INPUT L1 L2 N G | 39.4/1000 | MBC1 to UPS1 power cable (UPS1 input) | |
| Power cable | W07 | UPS1 OUTPUT L1 L2 N G | MBC1_FROM UPS1 O/P L1 L2 N G | 39.4/1000 | UPS1 to MBC1 power cable (UPS1 output) | |
| Communication cable | W112 | UPS1 | Switcher(From UPS1) | 177.2/4500 | UPS 1 to Switch communication cable | |
| Communication cable | W118 | NVR | Switcher(From NVR) | 47.2/1200 | NVR to Switch Communication Cable | |
| IT Rack-Factory Assembled | Smart door lock cascade (Factory assembled) | W206/W207 | I-LOCK | F-R/BK W206, R-R/BK W207 | 82.7/2100 | Smart door lock cable from rear door to front door in RACK1 |
| | Smart door lock cascade (Factory assembled) | W206/W207 | I-LOCK | F-R/BK W206, R-R/BK W207 | 82.7/2100 | Smart door lock cable from rear door to front door in RACK2 |

| | | | |
|---|------------------------------------|---|---|
| SHEET NO. 4 / 14 | DRAWN BY: Nilesh Patil | DWG NO.: SR2N03020NAA1 |  VERTIV™ |
| CHANGE NO. | APPROVED BY: Jakub Fendl | DATE (LATEST REV.): 21.08.2024 | REVISION: 505 N. CLEVELAND AVE WESTERVILLE OH 43081 |
| PAGE DESCRIPTION: 3- Cable overview : =vRow+RACK1-W218 - =vRow+10RACK2-W206/W207 | | TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2x 3x IT Rack 20kW | |
| © 2024 VERTIV GROUP CORPORATION. CONFIDENTIAL AND PROPRIETARY. ALL RIGHTS RESERVED. VERTIV AND THE VERTIV LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTIV GROUP CORPORATION. THIS DOCUMENT (AND THE INFORMATION IT CONTAINS) ARE THE PROPERTY OF VERTIV GROUP CORPORATION BY ACCEPTING IT INTO YOUR POSSESSION, YOU AGREE THAT YOU WILL KEEP THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN IN STRICTEST CONFIDENCE AND WILL NOT COPY, REPRODUCE, TRANSMIT, USE (EXCEPT SOLELY FOR THE BENEFIT OF VERTIV GROUP CORPORATION), SELL, LEND, OR OTHERWISE DISPOSE OF SAME, DIRECTLY OR INDIRECTLY, WITHOUT THE EXPRESS WRITTEN PERMISSION OF VERTIV GROUP CORPORATION, AND THIS DOCUMENT SHALL BE RETURNED TO VERTIV GROUP CORPORATION IMMEDIATELY UPON REQUEST. | | | |


Cable overview

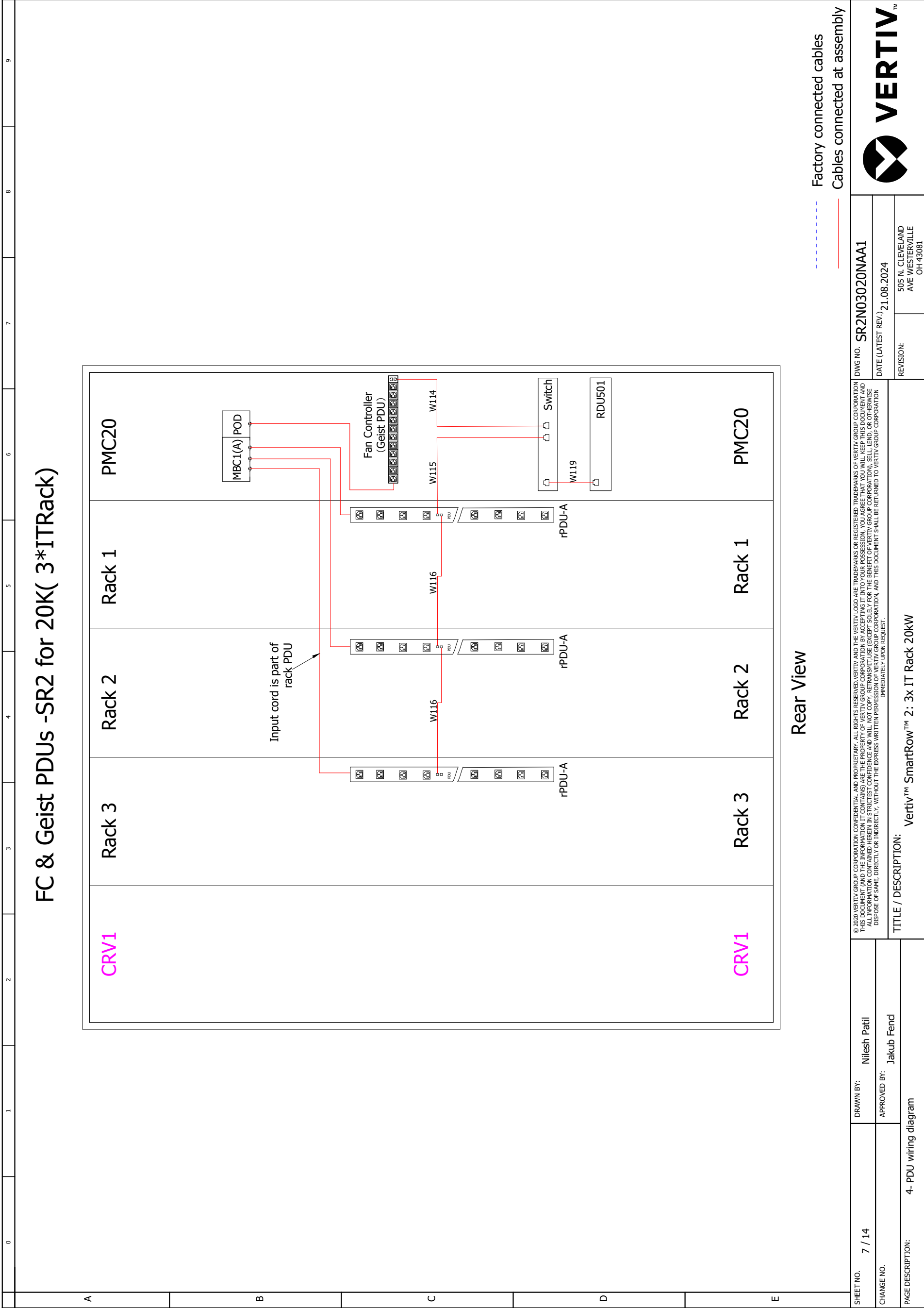
| Packaging No. | Cable Category | Cable No. | Tag1 | Tag2 | Length (inch/mm) | Description | |
|------------------------------------|---|---------------------------------|------------------|----------------------------|--------------------|---|---|
| IT Rack-Factory Assembled | Smart door lock cascade (Factory assembled) | W206/W207 | I-LOCK | F-R/BK W206, R-R/BK W207 | 82.7/2100 | Smart door lock cable from rear door to front door in RACK3 | |
| | THD cascading pre-installed on the front door | W208 | PMC/RACK-THD-RJ2 | RACK-THD-RJ1 | 25.59/650 | PMC to RACK1 Cascade Cable | |
| | THD cascading pre-installed on the front door | W208 | PMC/RACK-THD-RJ2 | RACK-THD-RJ1 | 25.59/650 | RACK1 to RACK2 Cascade Cable | |
| | THD cascading pre-installed on the front door | W208 | PMC/RACK-THD-RJ2 | RACK-THD-RJ1 | 25.59/650 | RACK2 to RACK3 Cascade Cable | |
| | RACK1 Integrated front doors cable | W300 | RACK_F-SW | RACK_F-SW | 25.6/650 | RACK1 front door LED light cascade cable | |
| | RACK1 Integrated front doors cable | W300 | RACK_F-SW | RACK_F-SW | 25.6/650 | RACK1 cascade cables for front door microswitches | |
| | RACK1 Integrated front doors cable | W300 | RACK_LOCK | RACK_LOCK | 25.6/650 | RACK1 F-Door communication cascade cable | |
| | RACK1 Integrated rear doors cable | W301 | I-LOCK | I-LOCK | 25.6/650 | RACK1 R-Door power cascade cable | |
| | RACK1 Integrated rear doors cable | W301 | RACK_LOCK | RACK_LOCK | 25.6/650 | RACK1 R-Door communication cascade cable | |
| | RACK1 Integrated rear doors cable | W301 | Rack_RLIGHT | Rack_RLIGHT | 25.6/650 | RACK1 rear door LED light cascade cable | |
| | RACK1 Integrated rear doors cable | W301 | RACK_R-SW | RACK_R-SW | 25.6/650 | RACK1 Cascade cables for rear door microswitches | |
| | RACK2 Integrated front doors cable | W300 | RACK_FLIGHT | RACK_FLIGHT | 25.6/650 | RACK2 front door LED light cascade cable | |
| | RACK2 Integrated front doors cable | W300 | RACK_F-SW | RACK_F-SW | 25.6/650 | RACK2 cascade cables for front door microswitches | |
| | RACK2 Integrated front doors cable | W300 | RACK_LOCK | RACK_LOCK | 25.6/650 | RACK2 F-Door communication cascade cable | |
| | RACK2 Integrated rear doors cable | W301 | I-LOCK | I-LOCK | 25.6/650 | RACK2 R-Door power cascade cable | |
| | RACK2 Integrated rear doors cable | W301 | RACK_LOCK | RACK_LOCK | 25.6/650 | RACK2 R-Door communication cascade cable | |
| | RACK2 Integrated rear doors cable | W301 | Rack_RLIGHT | Rack_RLIGHT | 25.6/650 | RACK2 rear door LED light cascade cable | |
| | RACK2 Integrated rear doors cable | W301 | RACK_R-SW | RACK_R-SW | 25.6/650 | RACK2 Cascade cables for rear door microswitches | |
| | PMC-Factory Assembled | Power cable (Factory assembled) | W14 | PMU-RLIGHT DC+ DC- | PMC-RLIGHT DC+ DC- | 47.2/1200 | PMU to PMC rear door LED light power cable |
| | | Power cable (Factory assembled) | W16 | PMU-FLIGHT FWH FRE FBK FBL | PMC-FLIGHT | 68.9/1750 | PMU to PMC front door LED light power cable |
| RACK3 Integrated front doors cable | | W300 | RACK_FLIGHT | RACK_FLIGHT | 25.6/650 | RACK3 front door LED light cascade cable | |
| RACK3 Integrated front doors cable | | W300 | RACK_F-SW | RACK_F-SW | 25.6/650 | RACK3 cascade cables for front door microswitches | |
| RACK3 Integrated front doors cable | | W300 | RACK_LOCK | RACK_LOCK | 25.6/650 | RACK3 F-Door communication cascade cable | |
| RACK3 Integrated rear doors cable | | W301 | I-LOCK | I-LOCK | 25.6/650 | RACK3 R-Door power cascade cable | |
| RACK3 Integrated rear doors cable | | W301 | RACK_LOCK | RACK_LOCK | 25.6/650 | RACK3 R-Door communication cascade cable | |
| RACK3 Integrated rear doors cable | | W301 | Rack_RLIGHT | Rack_RLIGHT | 25.6/650 | RACK3 rear door LED light cascade cable | |
| RACK3 Integrated rear doors cable | | W301 | RACK_R-SW | RACK_R-SW | 25.6/650 | RACK3 cascade cables for rear door microswitches | |

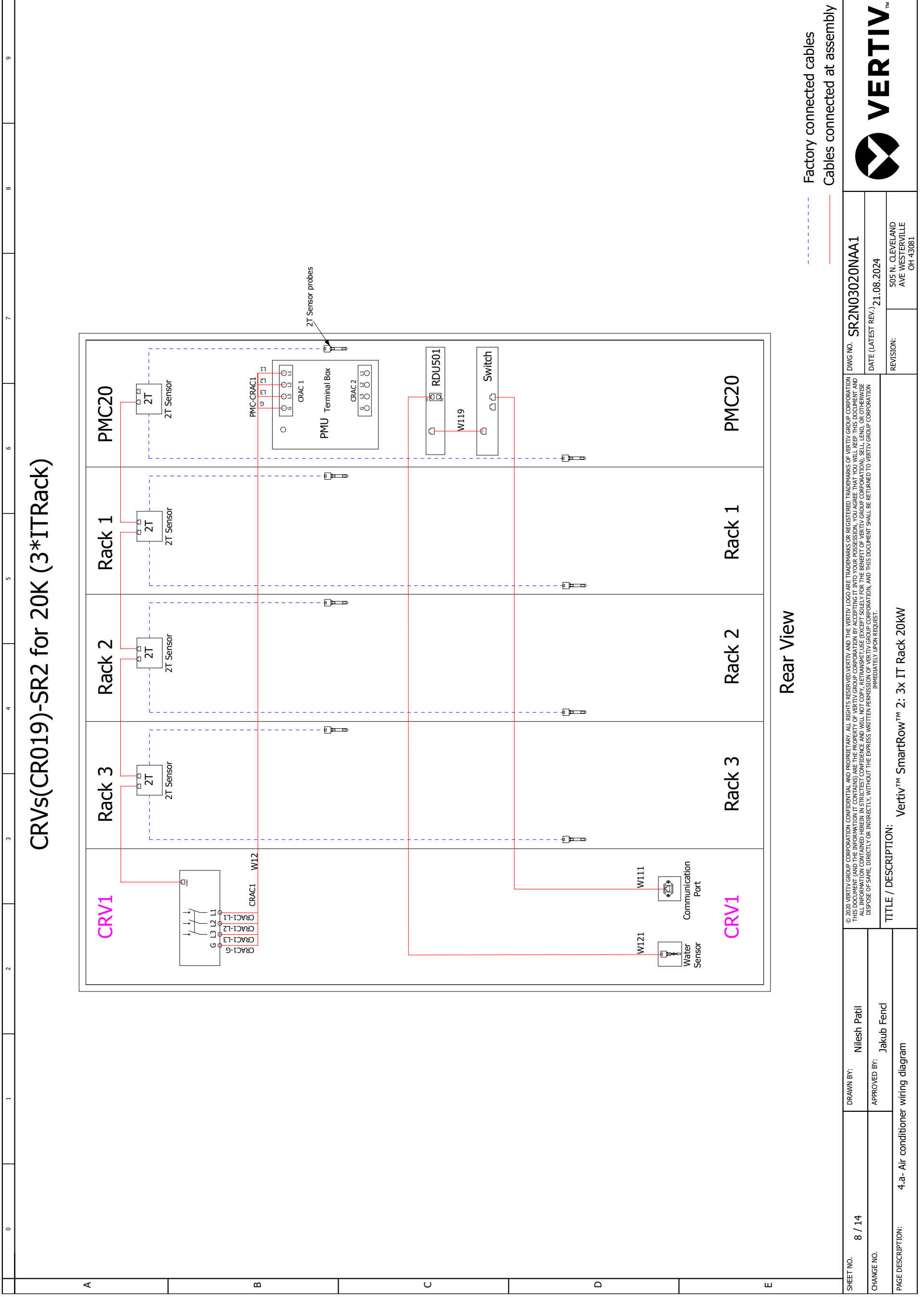
| | | | | | | | |
|--|---|---------------------|--------------|--------------------------------------|---------------|---|---|
| SHEET NO. | 5 / 14 | DRAWN BY: | Nilesh Patil | DWG NO.: | SR2N03020NAA1 |  |  |
| CHANGE NO. | | APPROVED BY: | Jakub Fendl | DATE (LATEST REV.): | 21.08.2024 | REVISION: | 505 N. CLEVELAND AVE WESTERVILLE OH 43081 |
| PAGE DESCRIPTION: | 3.a- Cable overview : =vRow+10RACK3-W206/W207 - =vRow+System.blocks.drawing-W16 | | | | | | |
| TITLE / DESCRIPTION: | | | | Vertiv™ SmartRow™ 2: 3x IT Rack 20kW | | | |
| © 2024 VERTIV GROUP CORPORATION CONFIDENTIAL AND PROPRIETARY. ALL RIGHTS RESERVED. VERTIV AND THE VERTIV LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTIV GROUP CORPORATION. THIS DOCUMENT (AND THE INFORMATION IT CONTAINS) ARE THE PROPERTY OF VERTIV GROUP CORPORATION BY ACCEPTING IT INTO YOUR POSSESSION, YOU AGREE THAT YOU WILL KEEP THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN IN STRICTEST CONFIDENCE AND WILL NOT COPY, REPRODUCE, TRANSMIT, USE (EXCEPT SOLELY FOR THE BENEFIT OF VERTIV GROUP CORPORATION), SELL, LEND, OR OTHERWISE DISPOSE OF SAME, DIRECTLY OR INDIRECTLY, WITHOUT THE EXPRESS WRITTEN PERMISSION OF VERTIV GROUP CORPORATION, AND THIS DOCUMENT SHALL BE RETURNED TO VERTIV GROUP CORPORATION IMMEDIATELY UPON REQUEST. | | | | | | | |

Cable overview

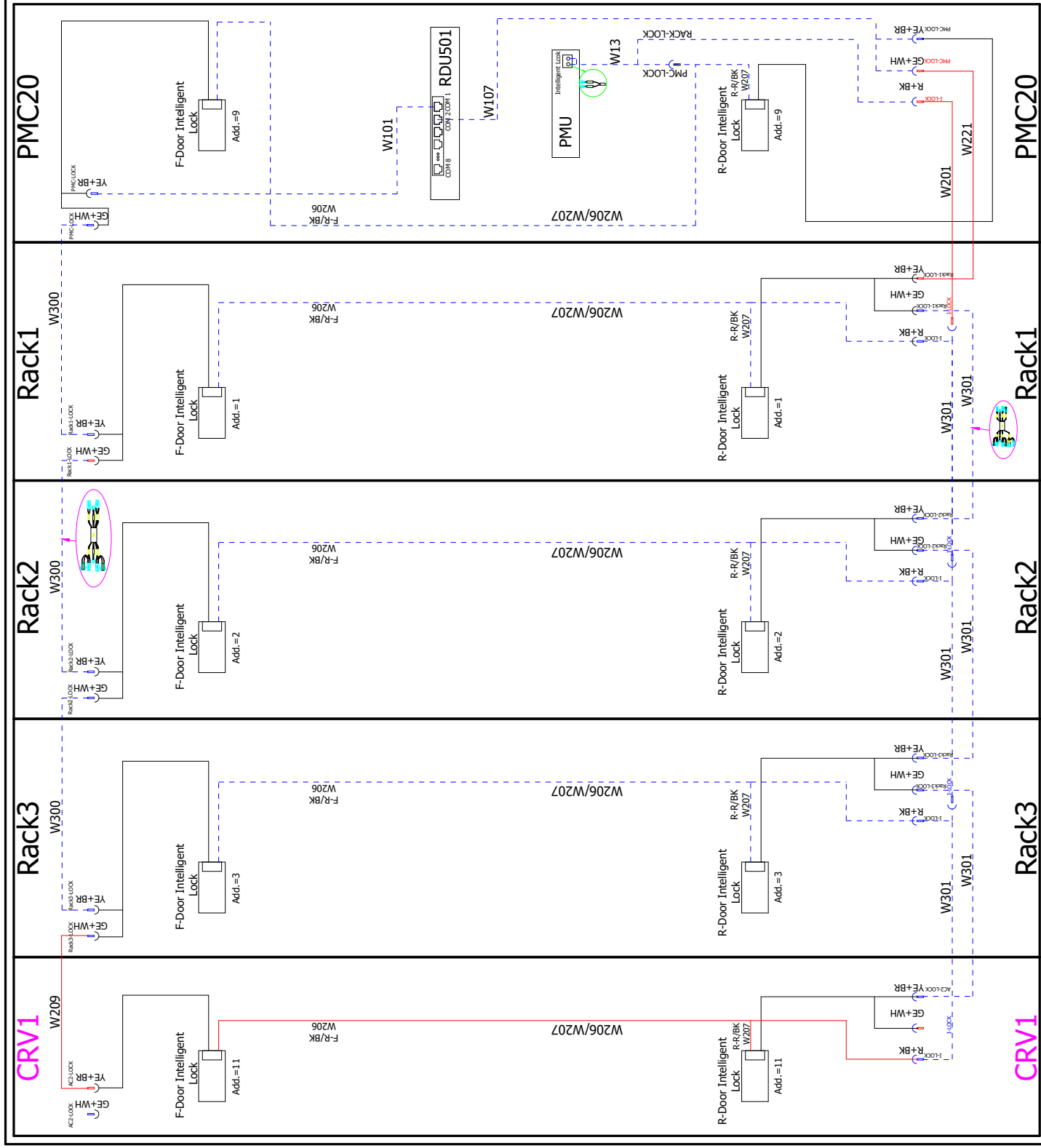
| Packaging No. | Cable Category | Cable No. | Tag1 | Tag2 | Length (inch/mm) | Description |
|-----------------------|---|-----------|-------------------|--------------------------|------------------|---|
| PMC-Factory Assembled | Power cable (Factory assembled) | W18 | PMU-F-SW FCOM FNC | PMC-F-SW | 49.2/1250 | PMU to PMC front door microswitch power cable |
| | Power cable (Factory assembled) | W19 | PMU-R-SW RCOM RNC | PMC-R-SW | 49.2/1250 | PMU to PMC rear door microswitch power cable |
| | Power cable (Factory assembled) | W13 | PMU-LOCK DC+ DC- | PMC-LOCK | 53.1/1350 | PMU to PMC/CRV1/RACK1 intelligent door lock power cable |
| | Communication cable (factory assembled) | W101 | PMC-FLOCK | 8COM-COM1 | 35.4/900 | PMC to RDU501_COM1 intelligent door lock front door communication cable |
| | Communication cable (factory assembled) | W107 | PMU-RLOCK | 8COM-COM2 | 70.9/1800 | PMC to RDU501_COM2 intelligent door lock rear door communication cable |
| | Smart door lock cascade (Factory assembled) | W206/W207 | I-LOCK | F-R/BK W206, R-R/BK W207 | 82.7/2100 | Smart door lock cable from rear door to front door in PMC |
| | Communication cable (factory assembled) | W109 | RDU501-Sensor1 | THD-RJ1 | 27.6/700 | RDU501 to PMC cabinet THD communication cable |
| | Power cable (Factory assembled) | W15 | HMI-P | PMU-HMI DC+ DC- | 59.1/1500 | PMU to HMI power cable |
| | Communication cable (factory assembled) | W102 | PMU-DO2 | RDU501-DO2 | 70.9/1800 | PMU to RDU501 D02 Control Red Light Cable |
| | Communication cable (factory assembled) | W104 | PMU-DI | 4DI-RJ451 | 66.9/1700 | PMU to 4DI SPD communication network cable |
| | Communication cable (factory assembled) | W105 | PMU-RS485 | RDU501-COM3 | 70.9/1800 | PMU to RDU501 COM3 meter communication network cable |
| | Communication cable (factory assembled) | W106 | 4DI-DI1 | RDU501-Sensor2 | 11.8/300 | 4DI to RDU501 Smoke 2 SPD Communication Network Cable |
| | Communication cable (factory assembled) | W108 | RDU501-COM2 | HMI-C | 29.5/750 | RDU501 COM2 to HMI communication cable |

| | | | |
|--|-----------------------------|--|--|
| SHEET NO. 6 / 14 | DRAWN BY: Nilesh Patil | DWG NO.: SR2N03020NAA1 |  VERTIV™ |
| | APPROVED BY: Jakub Fendl | | |
| PAGE DESCRIPTION: 3.b- Cable overview : =vRow+System blocks drawing-W18 - =vRow+16PMU-W108 | | REVISION: 505 N. CLEVELAND AVE WESTERVILLE OH 43081 | |
| <small>© 2024 VERTIV GROUP CORPORATION. CONFIDENTIAL AND PROPRIETARY. ALL RIGHTS RESERVED. VERTIV AND THE VERTIV LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTIV GROUP CORPORATION. THIS DOCUMENT (AND THE INFORMATION IT CONTAINS) ARE THE PROPERTY OF VERTIV GROUP CORPORATION BY ACCEPTING IT INTO YOUR POSSESSION, YOU AGREE THAT YOU WILL KEEP THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN IN STRICTEST CONFIDENCE AND WILL NOT COPY, REPRODUCE, TRANSMIT, USE (EXCEPT SOLELY FOR THE BENEFIT OF VERTIV GROUP CORPORATION), SELL, LEND, OR OTHERWISE DISPOSE OF SAME, DIRECTLY OR INDIRECTLY, WITHOUT THE EXPRESS WRITTEN PERMISSION OF VERTIV GROUP CORPORATION, AND THIS DOCUMENT SHALL BE RETURNED TO VERTIV GROUP CORPORATION IMMEDIATELY UPON REQUEST.</small> | | | |
| TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2: 3x IT Rack 20kW | | | |





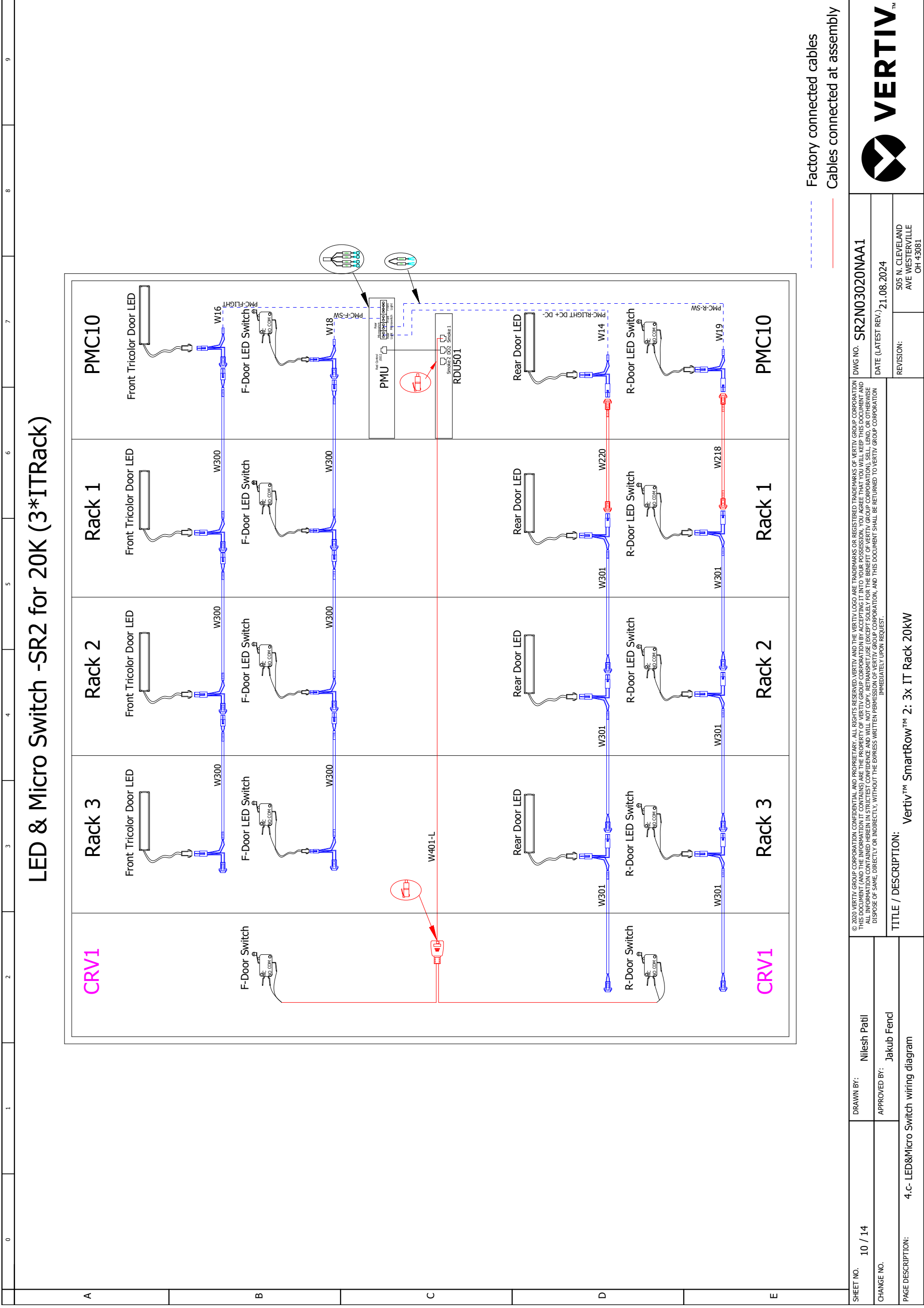
Intelligent Locks -SR2 for 20K(Max 3*ITRack)



Rear View

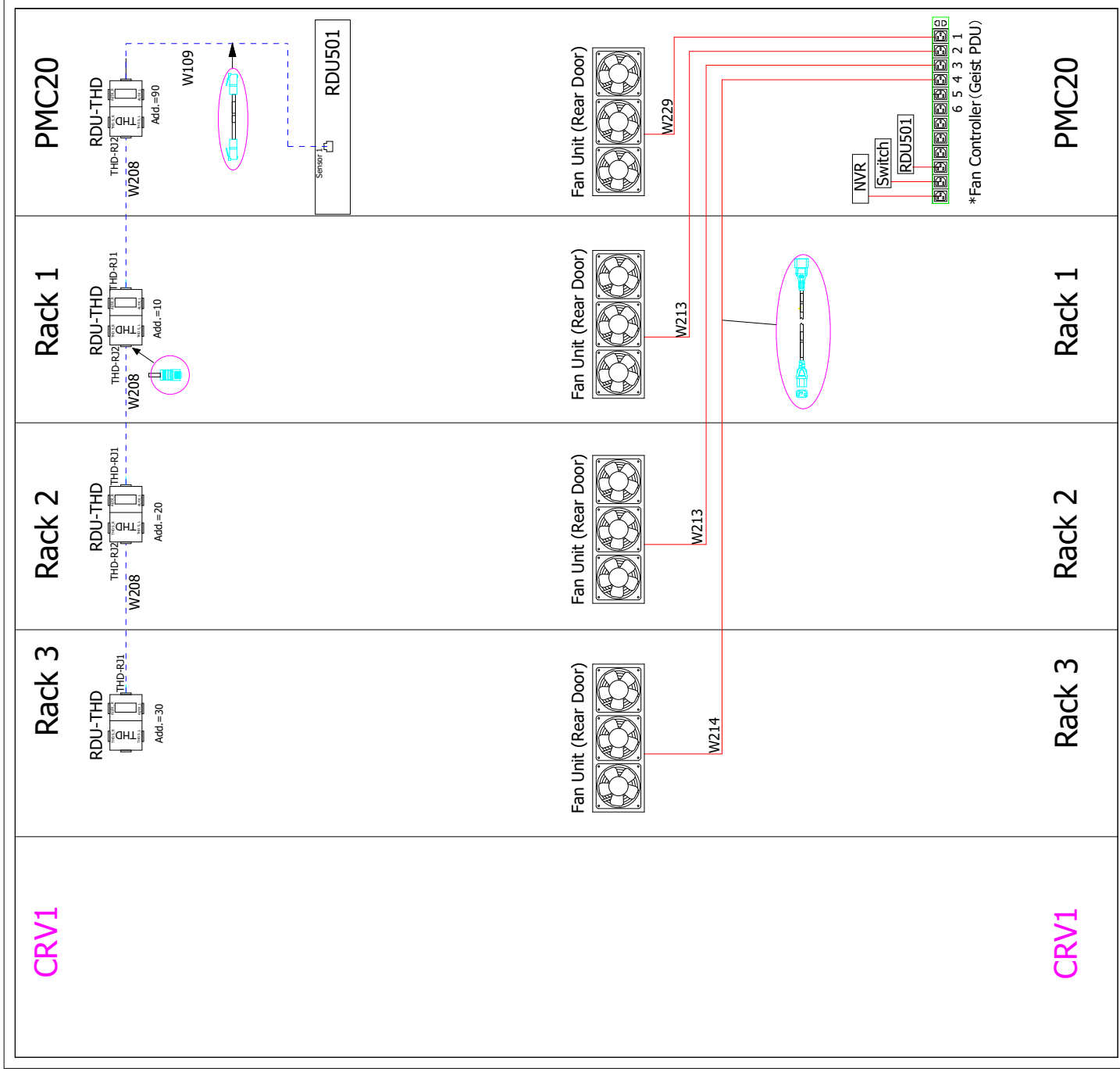
--- Factory connected cables
 --- Cables connected at assembly

| | | | | | |
|-------------------|--------------------------------------|--------------|---|--------------------|---------------|
| SHEET NO. | 9 / 14 | DRAWN BY: | Nilesh Patil | DWG NO. | SR2N03020NAA1 |
| CHANGE NO. | | APPROVED BY: | Jakub Fend | DATE (LATEST REV.) | 21.08.2024 |
| PAGE DESCRIPTION: | 4.b- Intelligent lock wiring diagram | | REVISION: | | |
| | | | 505 N. CLEVELAND AVE WESTERVILLE OH 43081 | | |
| | | | | | |



| | | | | | |
|-------------------|--------------------------------------|--------------|---|--------------------|---------------|
| SHEET NO. | 10 / 14 | DRAWN BY: | Nilesh Patil | DWG NO. | SR2N03020NAA1 |
| CHANGE NO. | | APPROVED BY: | Jakub Fendl | DATE (LATEST REV.) | 21.08.2024 |
| PAGE DESCRIPTION: | 4.c- LED&Micro Switch wiring diagram | | REVISION: | | |
| | | | 505 N. CLEVELAND AVE WESTERVILLE OH 43081 | | |
| | | | | | |

Fans & THDs -SR2 for 20K (3*ITRack)

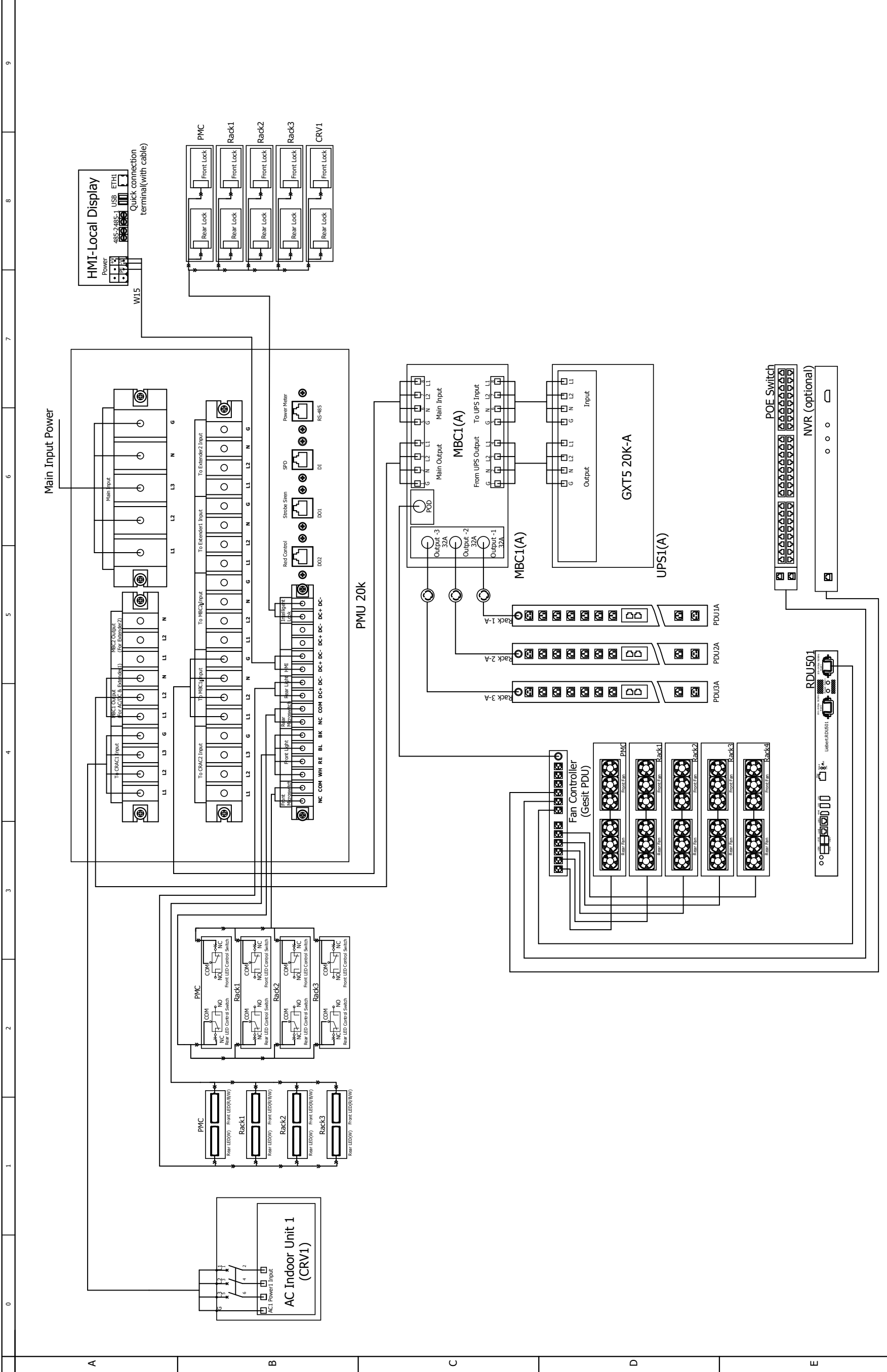


Rear View

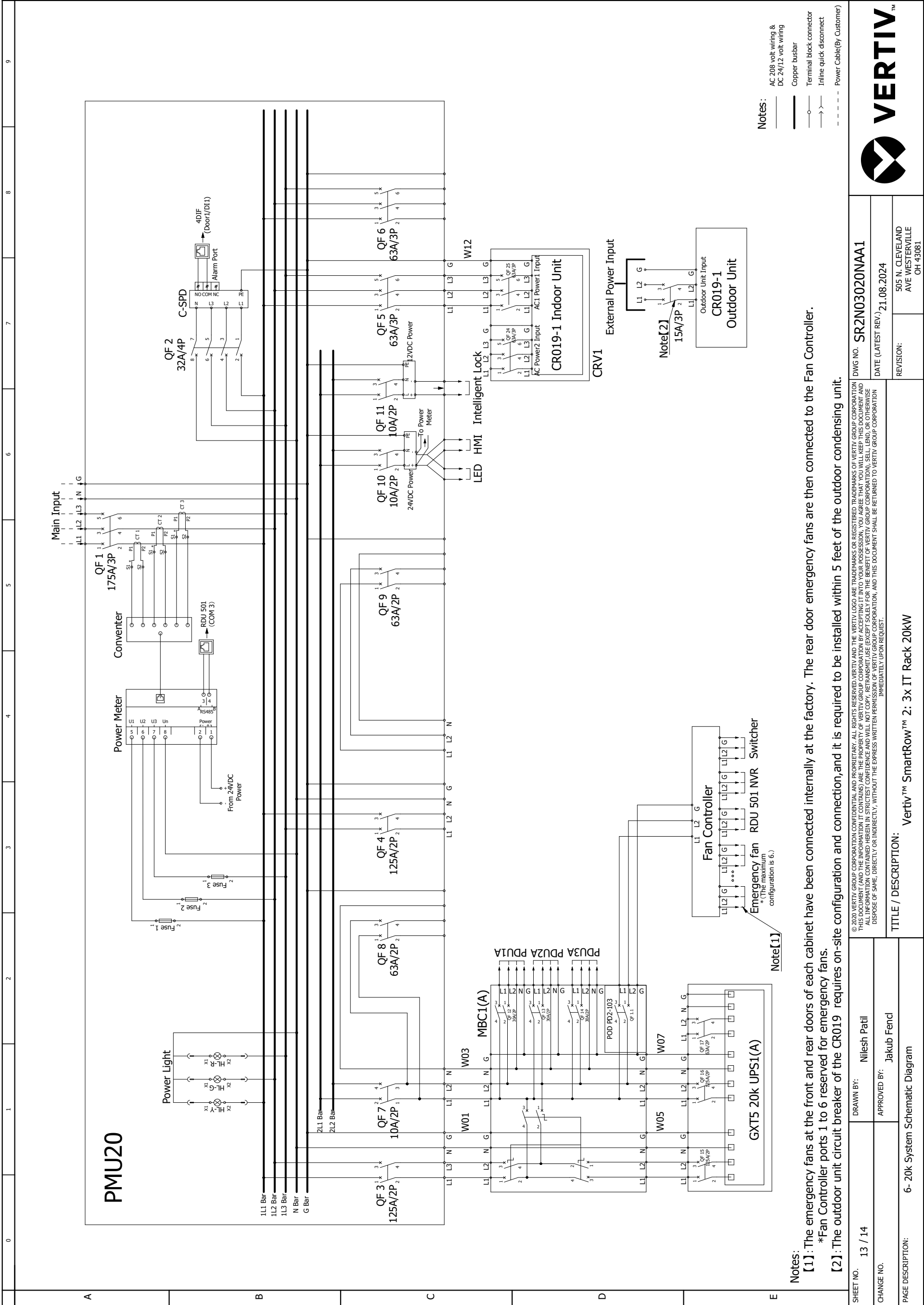
--- Factory connected cables
 --- Cables connected at assembly

Note :- *Fan controller positions 1 to 6 reserved for emergency fans.

| | | | | | |
|-------------------|--|----------------------|--------------|--------------------|---|
| SHEET NO. | 11 / 14 | DRAWN BY: | Nilesh Patil | DWG NO. | SR2N03020NAA1 |
| CHANGE NO. | | APPROVED BY: | Jakub Fencel | DATE (LATEST REV.) | 21.08.2024 |
| PAGE DESCRIPTION: | 4.d- THD& Emergency Fan wiring diagram | TITLE / DESCRIPTION: | | REVISION: | 505 N. CLEVELAND AVE WESTERVILLE OH 43081 |
| | | | | | |



| | | |
|---|--|--|
| SHEET NO. 12 / 14 | DRAWN BY: Nilesh Patil | VERTIV™ SR2N03020NAA1 |
| CHANGE NO. | APPROVED BY: Jakub Fencel | DATE (LATEST REV.): 21.08.2024 |
| PAGE DESCRIPTION: 5- 20k Power single line diagram | TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2: 3x IT Rack 20kW | REVISION: 505 N. CLEVELAND AVE WESTERVILLE OH 43081 |



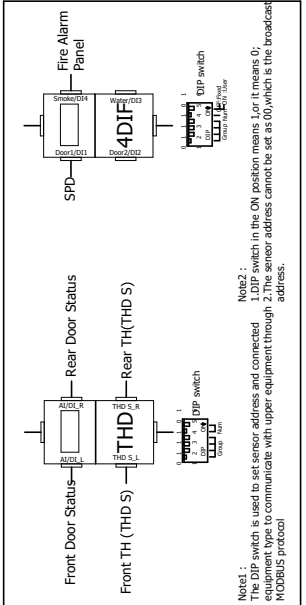
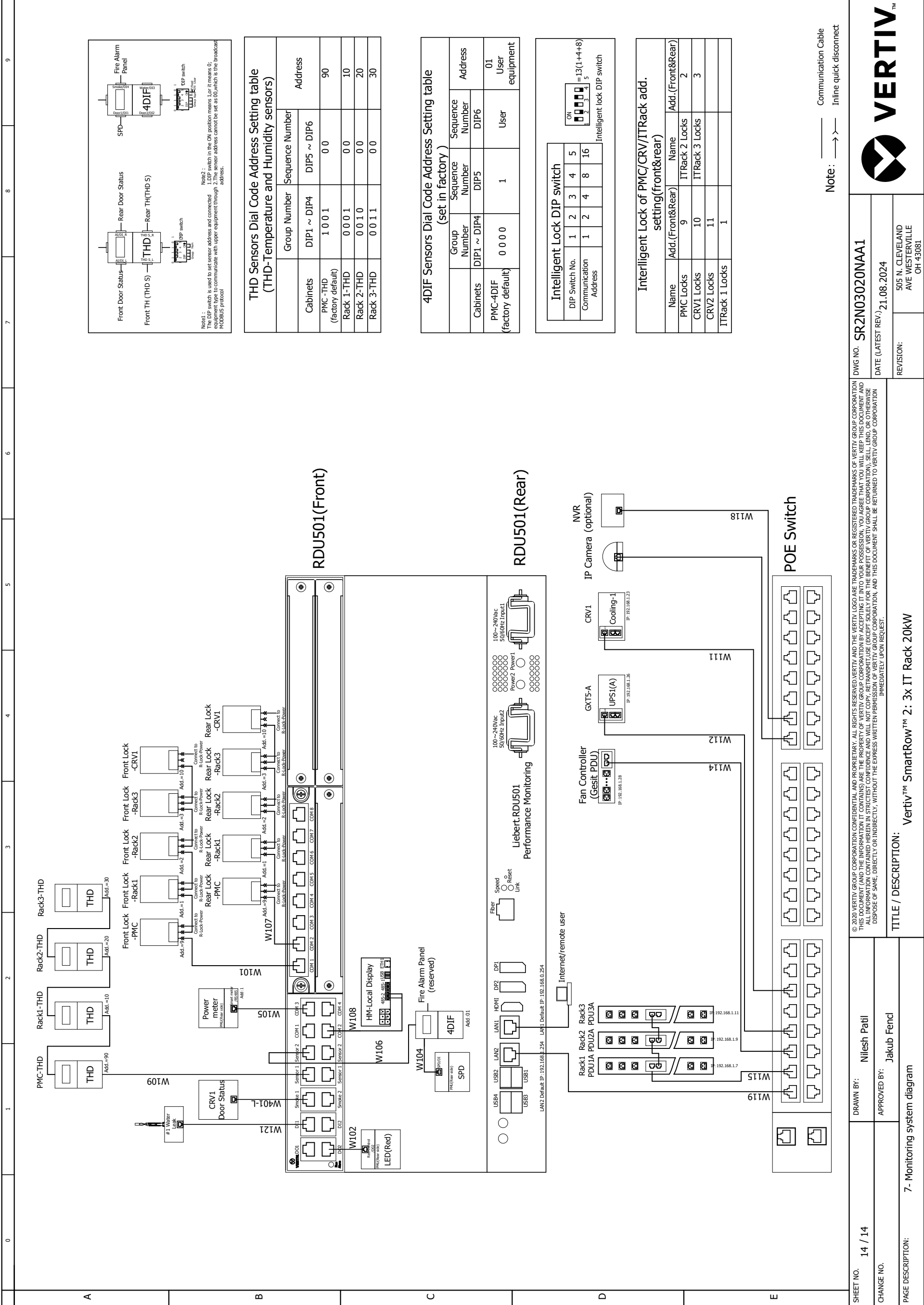
- Notes:**
- AC 208 volt wiring &
 - DC 24/12 volt wiring
 - Copper busbar
 - Terminal block connector
 - Inline quick disconnect
 - - - Power Cable(By Customer)

Notes:

[1]: The emergency fans at the front and rear doors of each cabinet have been connected internally at the factory. The rear door emergency fans are then connected to the Fan Controller.
 *Fan Controller ports 1 to 6 reserved for emergency fans.

[2]: The outdoor unit circuit breaker of the CR019 requires on-site configuration and connection, and it is required to be installed within 5 feet of the outdoor condensing unit.

| | | | |
|--|--------------------------------------|-----------------------|---|
| SHEET NO. 13 / 14 | DRAWN BY: Nilesch Patil | DWG NO. SR2N03020NAA1 | REVISION: 21.08.2024 |
| CHANGE NO. | APPROVED BY: Jakub Fencel | DATE (LATEST REV.) | 505 N. CLEVELAND AVE WESTERVILLE OH 43081 |
| PAGE DESCRIPTION: 6- 20k System Schematic Diagram | VERTIV™ SmartRow™ 2: 3x IT Rack 20kW | | |
| © 2020 VERTIV GROUP CORPORATION. CONFIDENTIAL AND PROPRIETARY. ALL RIGHTS RESERVED. VERTIV AND THE VERTIV LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTIV GROUP CORPORATION. THIS DOCUMENT (AND THE INFORMATION IT CONTAINS) ARE THE PROPERTY OF VERTIV GROUP CORPORATION BY ACCEPTING IT INTO YOUR POSSESSION, YOU AGREE THAT YOU WILL KEEP THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN IN STRICT CONFIDENCE AND WILL NOT COPY, REPRODUCE, TRANSMIT, USE (EXCEPT SOLELY FOR THE BENEFIT OF VERTIV GROUP CORPORATION), SELL, LEND, OR OTHERWISE DISPOSE OF SAME, DIRECTLY OR INDIRECTLY, WITHOUT THE EXPRESS WRITTEN PERMISSION OF VERTIV GROUP CORPORATION, AND THIS DOCUMENT SHALL BE RETURNED TO VERTIV GROUP CORPORATION IMMEDIATELY UPON REQUEST. | | | |



THD Sensors Dial Code Address Setting table (THD-Temperature and Humidity sensors)

| Cabinets | Group Number | Sequence Number | Address |
|---------------------------|--------------|-----------------|---------|
| PMC-THD (factory default) | DIP1 ~ DIP4 | DIP5 ~ DIP6 | 90 |
| Rack 1-THD | 0 0 0 1 | 0 0 | 10 |
| Rack 2-THD | 0 0 1 0 | 0 0 | 20 |
| Rack 3-THD | 0 0 1 1 | 0 0 | 30 |

4DIF Sensors Dial Code Address Setting table (set in factory)

| Group Number | Sequence Number | Address |
|--|---------------------|----------------|
| DIP1 ~ DIP4 <td>DIP5 <td>DIP6 </td></td> | DIP5 <td>DIP6 </td> | DIP6 |
| PMC-4DIF (factory default) | 0 0 0 0 | 1 |
| | 1 | User equipment |
| | | 01 |

Intelligent Lock DIP switch

| DIP Switch No. | 1 | 2 | 3 | 4 | 5 |
|-----------------------|---|---|---|---|----|
| Communication Address | 1 | 2 | 4 | 8 | 16 |

Intelligent lock DIP switch = 13(1+4+8)

Interelligent Lock of PMC/CRV/ITRack add. setting(front&rear)

| Name | Addr.(Front&Rear) | Name | Addr.(Front&Rear) |
|----------------|-------------------|----------------|-------------------|
| PMC Locks | 9 | ITRack 2 Locks | 2 |
| CRV1 Locks | 10 | ITRack 3 Locks | 3 |
| ITRack 1 Locks | 11 | | |

Note: ———> Communication Cable
 ———>> Inline quick disconnect

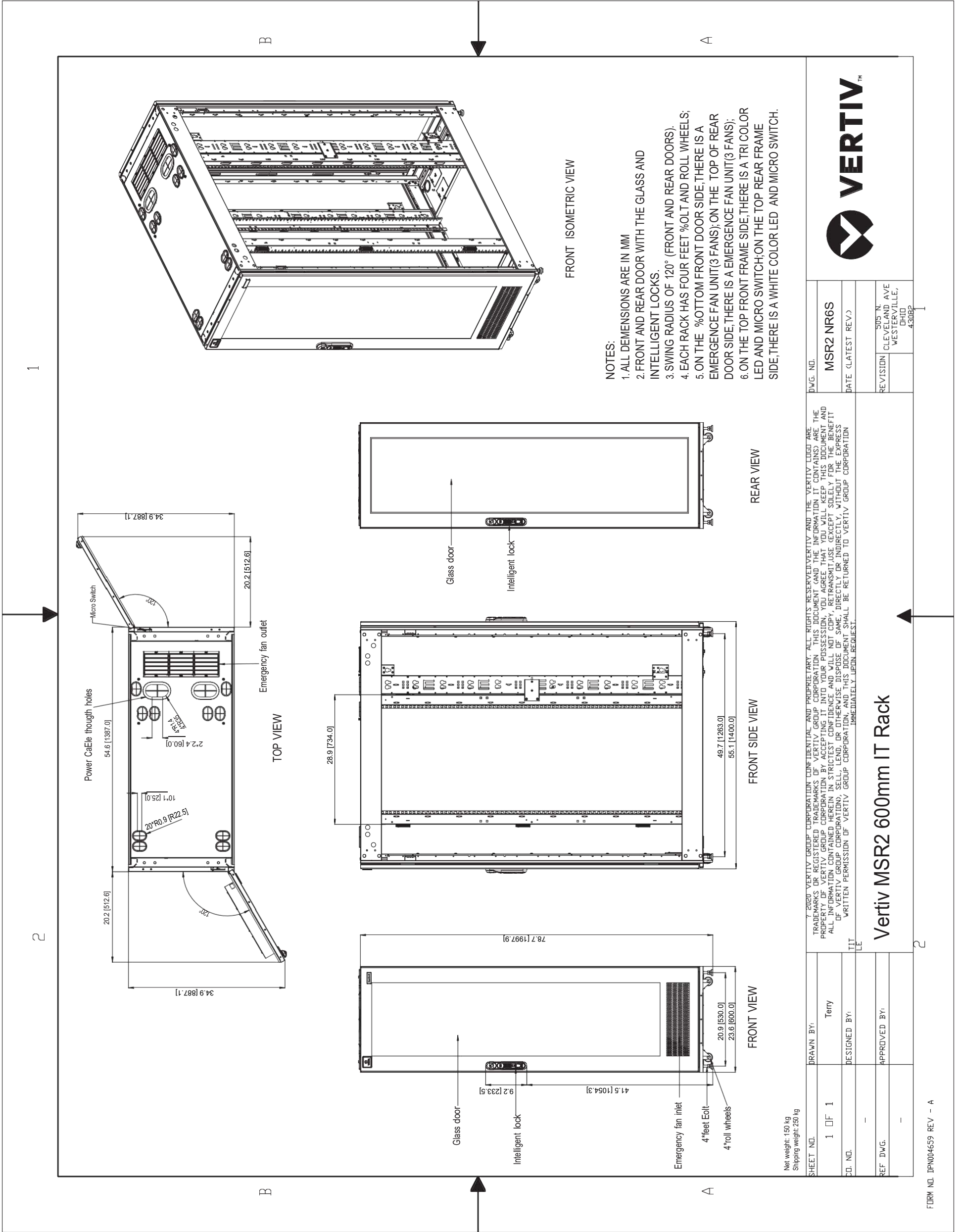
| | | | | | |
|----------------------|------------------------------|--------------|---|--------------------|---------------|
| SHEET NO. | 14 / 14 | DRAWN BY: | Nilesh Patil | DWG NO. | SR2N03020NAA1 |
| CHANGE NO. | | APPROVED BY: | Jakub Fendl | DATE (LATEST REV.) | 21.08.2024 |
| PAGE DESCRIPTION: | 7- Monitoring system diagram | | | | |
| TITLE / DESCRIPTION: | | | Vertiv™ SmartRow™ 2: 3x IT Rack 20kW | | |
| REVISION: | | | 505 N. CLEVELAND AVE WESTERVILLE OH 43081 | | |

© 2024 VERTIV GROUP CORPORATION CONFIDENTIAL AND PROPRIETARY. ALL RIGHTS RESERVED. VERTIV AND THE VERTIV LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTIV GROUP CORPORATION. THIS DOCUMENT (AND THE INFORMATION IT CONTAINS) ARE THE PROPERTY OF VERTIV GROUP CORPORATION BY ACCEPTING IT INTO YOUR POSSESSION, YOU AGREE THAT YOU WILL KEEP THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN IN STRICTEST CONFIDENCE AND WILL NOT COPY, REPRODUCE, TRANSMIT, USE (EXCEPT SOLELY FOR THE BENEFIT OF VERTIV GROUP CORPORATION), SELL, LEND, OR OTHERWISE DISPOSE OF SAME, DIRECTLY OR INDIRECTLY, WITHOUT THE EXPRESS WRITTEN PERMISSION OF VERTIV GROUP CORPORATION, AND THIS DOCUMENT SHALL BE RETURNED TO VERTIV GROUP CORPORATION IMMEDIATELY UPON REQUEST.

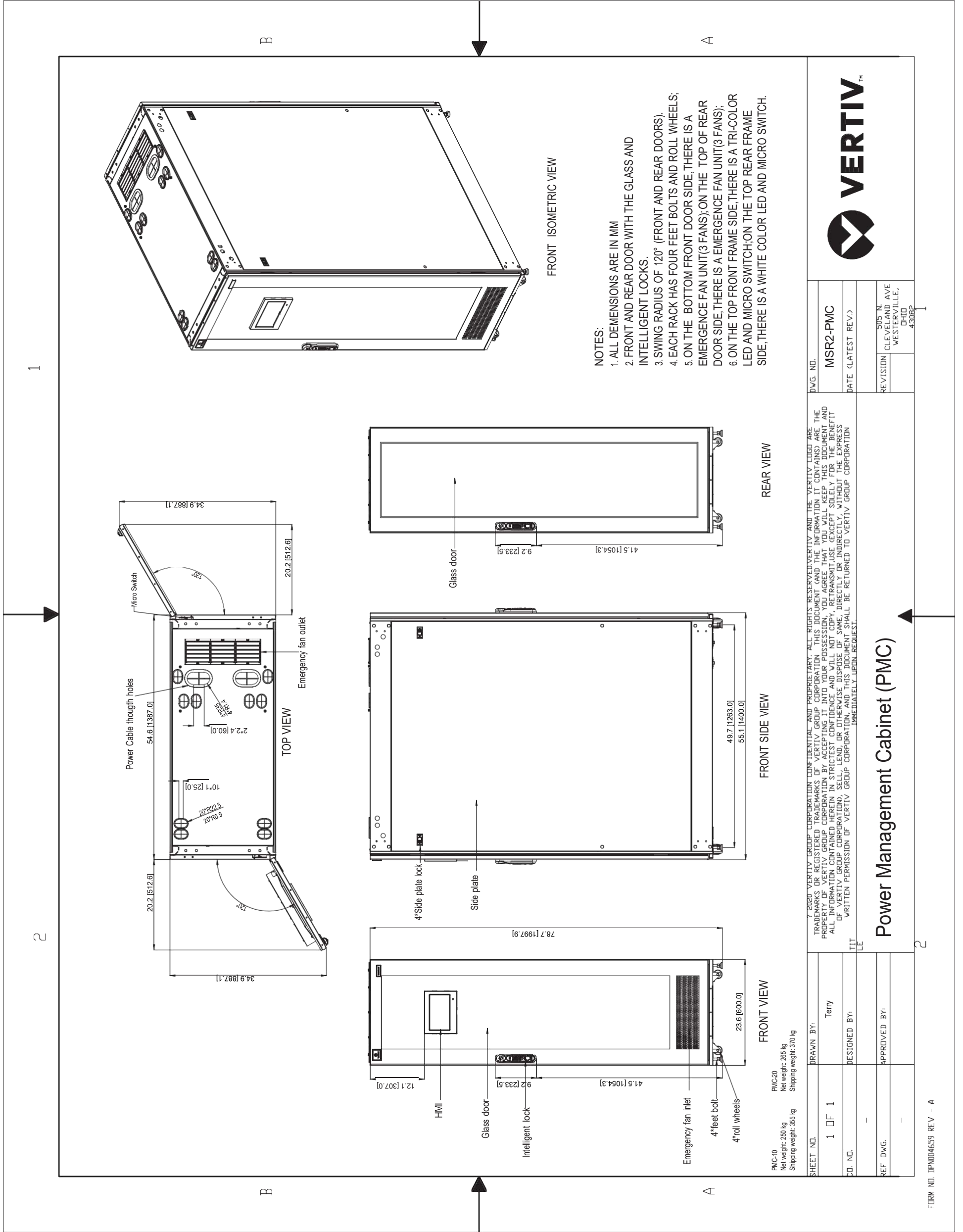
4. Field Supplied Cable & Part List

| | | | | | | | | | |
|---------------------------------|--|---|--------------|-------------|---|--|------------|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| A | FIELD SUPPLIED CABLE & PART LIST | | | | | | | | |
| PART | DETAILS | | | | | | | | |
| CABbus cable (A) | 2 conductors, 22-18AWG shielded cable | | | | | | | | |
| HEAT REJECTION INTERLOCK (B) | 2 conductors, 18AWG or greater | | | | | | | | |
| CONDENSER INPUT POWER CABLE (C) | 3 conductors + PE, 14 AWG copper cable | | | | | | | | |
| CONDENSATE PUMP TUBE (D) | Used with 3/8 in. nylon adapter hose or 1/2 in. MPT x 3/8 in. hose barb threaded adapter | | | | | | | | |
| B | <p style="text-align: center;">CONNECTION DETAILS REFER TO DPN003036</p> | | | | | | | | |
| C | <p style="text-align: center;">DETAILS REFER TO SL-11975</p> | | | | | | | | |
| D | <p style="text-align: center;">© 2020 VERTIV GROUP CORPORATION. CONFIDENTIAL AND PROPRIETARY. ALL RIGHTS RESERVED. VERTIV AND THE VERTIV LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTIV GROUP CORPORATION. THIS DOCUMENT (AND THE INFORMATION IT CONTAINS) IS THE PROPERTY OF VERTIV GROUP CORPORATION. BY ACCEPTING IT INTO YOUR POSSESSION, YOU AGREE THAT YOU WILL KEEP THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN IN STRICTEST CONFIDENCE AND WILL NOT COPY, REPRODUCE, TRANSMIT, USE (EXCEPT SOLELY FOR THE BENEFIT OF VERTIV GROUP CORPORATION), SELL, LEND, OR OTHERWISE DISPOSE OF SAME, DIRECTLY OR INDIRECTLY, WITHOUT THE EXPRESS WRITTEN PERMISSION OF VERTIV GROUP CORPORATION. THIS PERMISSION IS REVOCABLE AND MAY BE REVOKED AT ANY TIME WITHOUT NOTICE.</p> | | | | | | | | |
| E | <p style="text-align: center;">FIELD SUPPLIED CABLE & PART LIST</p> | | | | | | | | |
| SHEET NO. | 1 / 1 | | DRAWN BY: | Petr Harant | | DWG NO. | | | |
| CHANGE NO. | | | APPROVED BY: | Tomáš Krech | | DATE (LATEST REV.) | 30.05.2024 | | |
| PAGE DESCRIPTION: | | | REVISION: | | | 505 N. CLEVELAND AVE. WESTERVILLE OH 43081 | | | |

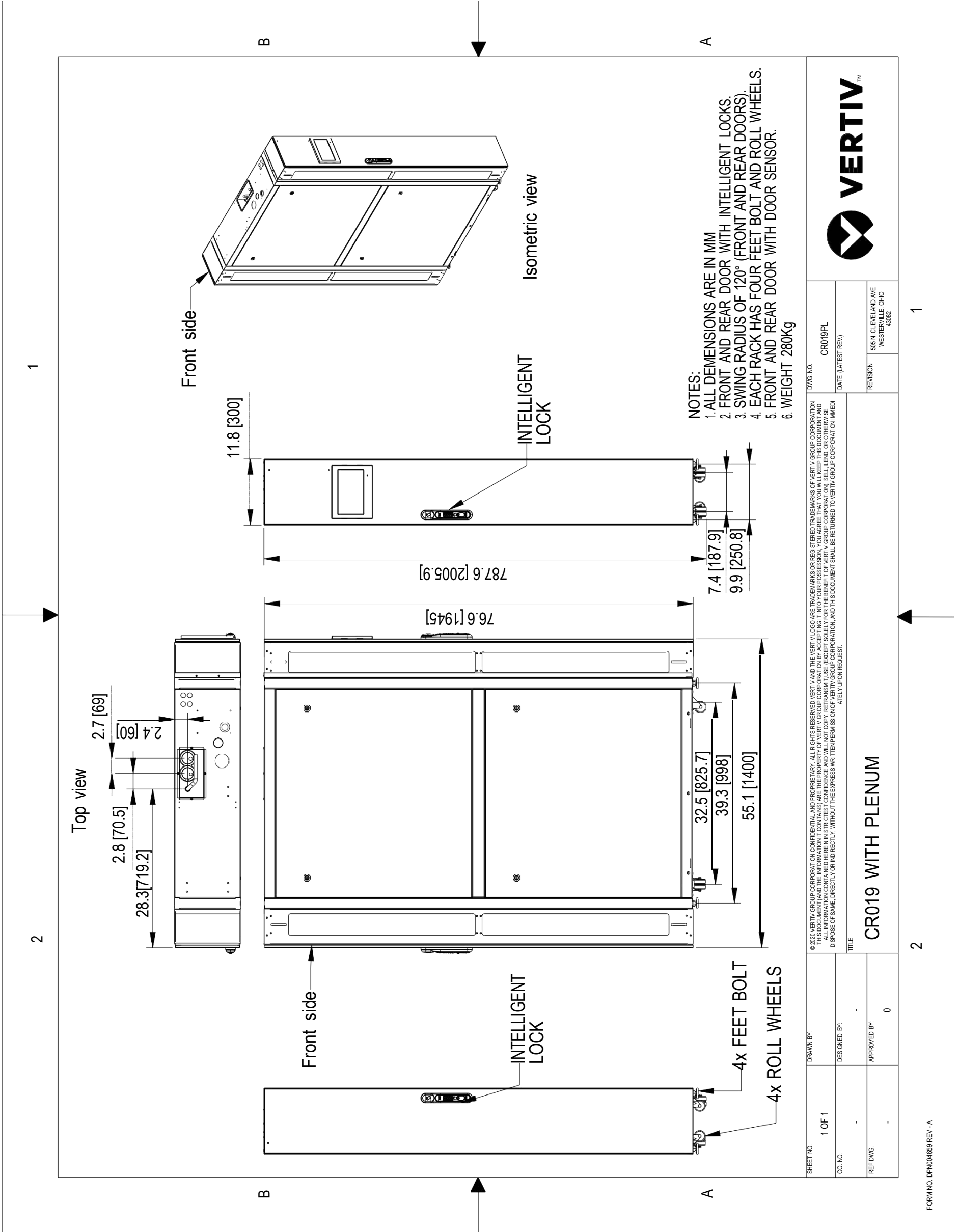
5. Vertiv MSR2 600mm IT Rack



6. Vertiv MSR2 Power Management Cabinet (PMC)

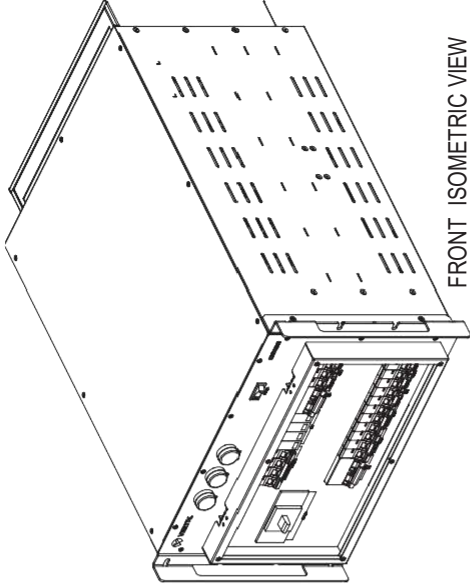


7. Vertiv Liebert CR019 with Plenums

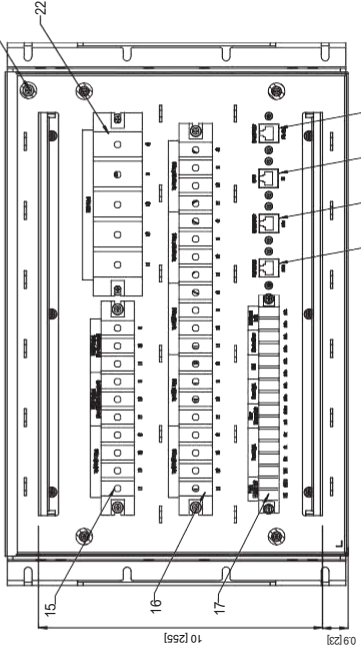


8. Power Management Unit - 20kW (PMU20)

1

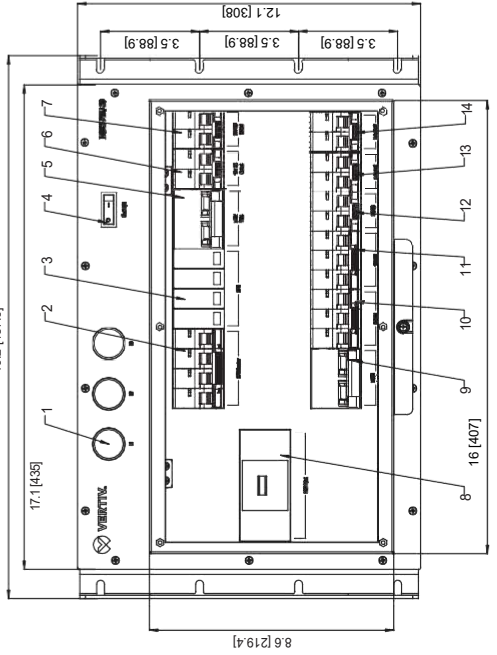


FRONT ISOMETRIC VIEW



REAR VIEW
(PMU COVER REMOVED)

2



FRONT VIEW

| NO. | NAME | Qty | REMARK |
|-----|--------------------------------|-----|--------|
| 23 | GROUND SCREWS | 1 | |
| 22 | MAIN POWER TERMINAL BLOCKS | 1 | |
| 21 | POWER METER RS485(RJ45) | 1 | |
| 20 | SPD D(RJ45) | 1 | |
| 19 | STOBE SIREN CONTROL D01(RJ45) | 1 | |
| 18 | RED CONTROL D02(RJ45) | 1 | |
| 17 | DC POWER TERMINAL BLOCKS | 1 | |
| 16 | POWER TERMINAL 2 BLOCKS | 1 | |
| 15 | POWER TERMINAL 1 BLOCKS | 1 | |
| 14 | PDU EXTENDER 2 BREAKER | 1 | |
| 13 | PDU EXTENDER 1 BREAKER | 1 | |
| 12 | AC/DC BREAKER | 1 | |
| 11 | CRV2 BREAKER | 1 | |
| 10 | CRV1 BREAKER | 1 | |
| 9 | MBC2 INPUT BREAKER | 1 | |
| 8 | MAIN INPUT BREAKER | 1 | |
| 7 | 24VDC OUTPUT BREAKER | 1 | |
| 6 | 12VDC OUTPUT BREAKER | 1 | |
| 5 | MBC1 BREAKER | 1 | |
| 4 | BOATLIKE SWITCH FOR BLUE LIGHT | 1 | |
| 3 | SPD | 1 | |
| 2 | SPD BREAKER | 1 | |
| 1 | POWER LIGHT(L1/L2/L3) | 3 | |

NOTES:
 PMU20 is used in Power Redundancy and No Power Redundancy PMC
 Net weight: 41 kg

| | | | | | |
|-----------|--------|--------------|-------|--------------------|--|
| SHEET NO. | 1 OF 2 | DRAWN BY: | Terry | | |
| CO. NO. | | DESIGNED BY: | | DATE (LATEST REV.) | |
| REF. DWG. | | APPROVED BY: | | REVISION | |

Power Management Unit - 20kW (PMU20)

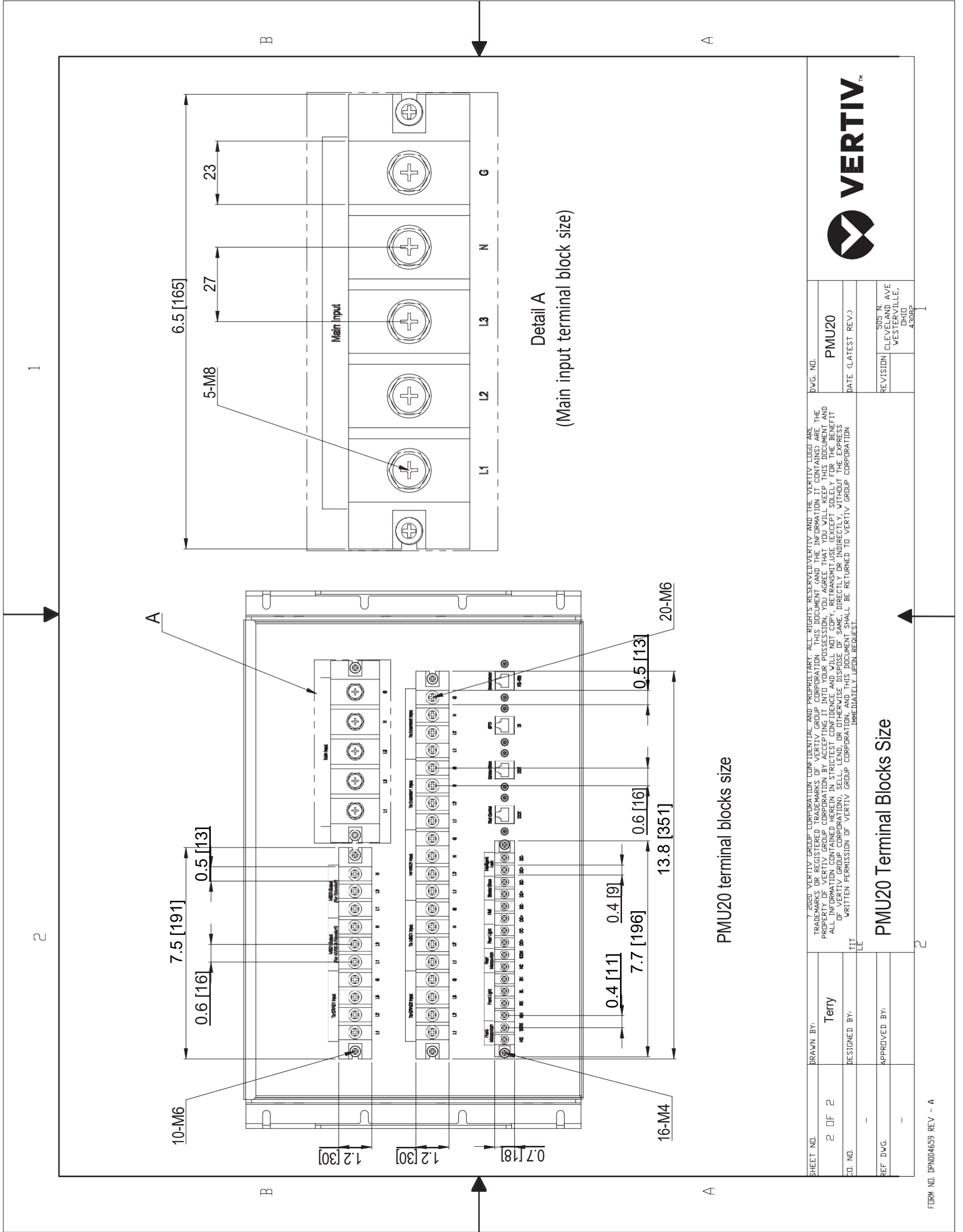
VERTIV™

505 N. CLEVELAND AVE
 WESTERVILLE, OHIO 43082

1. 2020 VERTIV GROUP CORPORATION CONFIDENTIAL AND PROPRIETARY. ALL RIGHTS RESERVED. VERTIV AND THE VERTIV LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTIV GROUP CORPORATION. THIS DOCUMENT (AND THE INFORMATION IT CONTAINS) ARE THE PROPERTY OF VERTIV GROUP CORPORATION. BY ACCEPTING IT INTO YOUR POSSESSION, YOU AGREE THAT YOU WILL KEEP THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN IN STRICT CONFIDENCE AND WILL NOT COPY, REPRODUCE, TRANSMIT, USE (EXCEPT SOLELY FOR THE BENEFIT OF VERTIV GROUP CORPORATION), SELL, LEND, OR OTHERWISE DISPOSE OF SAME, DIRECTLY OR INDIRECTLY, WITHOUT THE EXPRESS WRITTEN PERMISSION OF VERTIV GROUP CORPORATION, AND THIS DOCUMENT SHALL BE RETURNED TO VERTIV GROUP CORPORATION IMMEDIATELY UPON REQUEST.

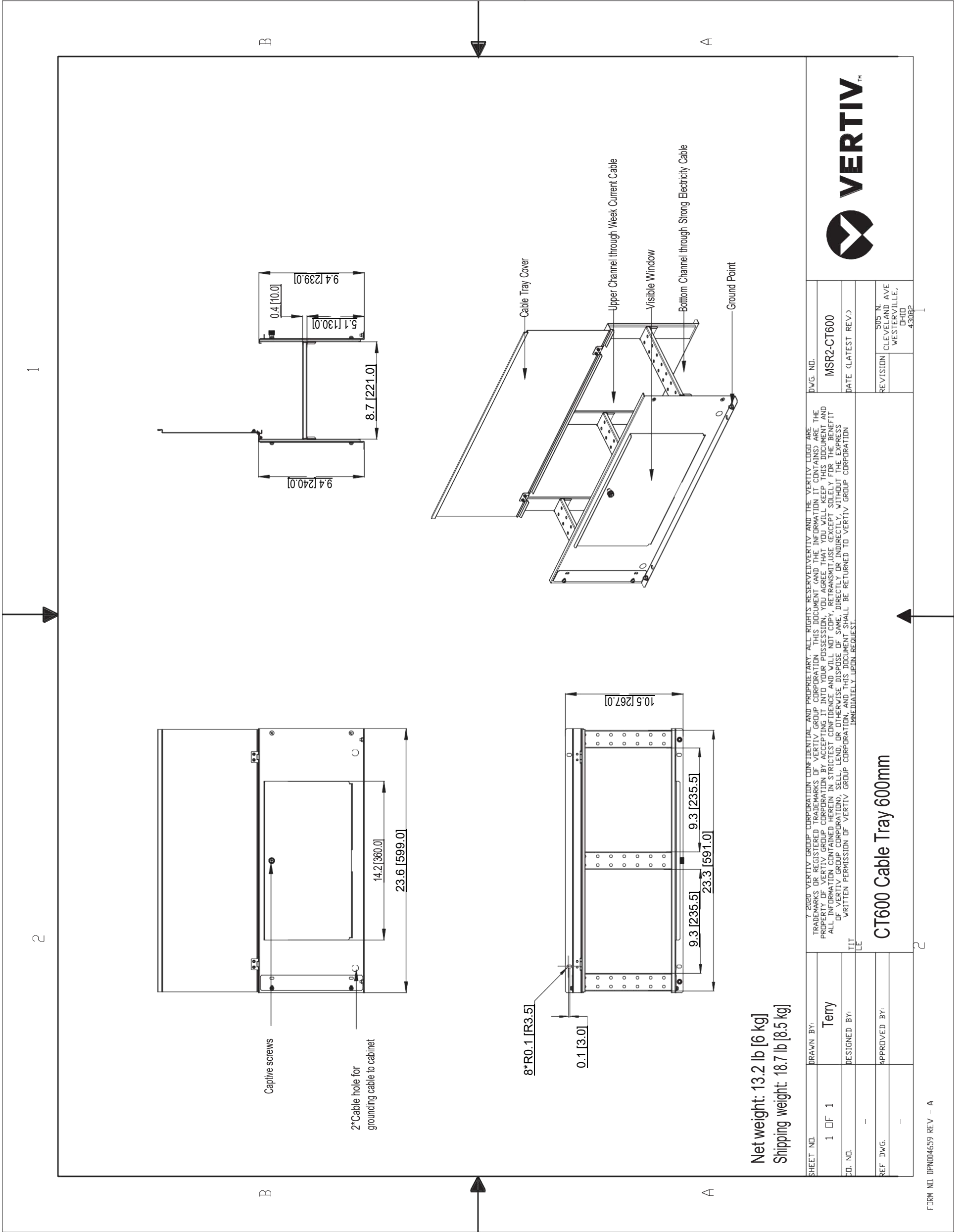
FORM NO. DPN004659 REV - A

9. PMU20 Terminal Blocks Size



| | | | |
|---------------------|--------------------|---|--|
| SHEET NO. 2 OF 2 | DRAWN BY: Terry | 7, 2020 VERTIV GROUP CORPORATION CONFIDENTIAL AND PROPRIETARY. ALL RIGHTS RESERVED. VERTIV AND THE VERTIV LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTIV GROUP CORPORATION. THIS DOCUMENT (AND THE INFORMATION IT CONTAINS) ARE THE PROPERTY OF VERTIV GROUP CORPORATION. BY ACCEPTING IT INTO YOUR POSSESSION, YOU AGREE THAT YOU WILL KEEP THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN IN STRICT CONFIDENCE AND WILL NOT COPY, REPRODUCE, REUSE, TRANSMIT, OR OTHERWISE DISSEMINATE IT WITHOUT THE EXPRESS WRITTEN PERMISSION OF VERTIV GROUP CORPORATION. THIS DOCUMENT SHALL BE RETURNED TO VERTIV GROUP CORPORATION IMMEDIATELY UPON REQUEST. | |
| DO. NO. | DESIGNED BY: | DWG. NO. PMU20 | |
| REF. DWG. | APPROVED BY: | DATE (LATEST REV.) | 505 N. CLEVELAND AVE. WESTERVILLE, OHIO 43082 |

10. Vertiv MSR2 - CT600 Cable Tray 600mm



| | | | |
|---|--|---|--|
| SHEET NO. 1 OF 1 | | DRAWN BY: Terry | |
| CO. NO. - | | DESIGNED BY: - | |
| REF. DWG. - | | APPROVED BY: - | |
| 2020 VERTIV GROUP CORPORATION CONFIDENTIAL AND PROPRIETARY. ALL RIGHTS RESERVED. VERTIV AND THE VERTIV LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTIV GROUP CORPORATION. THIS DOCUMENT (AND THE INFORMATION IT CONTAINS) ARE THE PROPERTY OF VERTIV GROUP CORPORATION. BY ACCEPTING IT INTO YOUR POSSESSION, YOU AGREE THAT YOU WILL KEEP THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN IN STRICTEST CONFIDENCE AND WILL NOT COPY, REPRODUCE, TRANSMIT, USE (EXCEPT SOLELY FOR THE BENEFIT OF VERTIV GROUP CORPORATION), SELL, LEND, OR OTHERWISE DISPOSE OF SAME, DIRECTLY OR INDIRECTLY, WITHOUT THE EXPRESS WRITTEN PERMISSION OF VERTIV GROUP CORPORATION, AND THIS DOCUMENT SHALL BE RETURNED TO VERTIV GROUP CORPORATION IMMEDIATELY UPON REQUEST. | | | |
| DWG. NO. MSR2-CT600 | | DATE (LATEST REV.) | |
| REVISION | | 505 N. CLEVELAND AVE. WESTERVILLE, OHIO 43082 | |
| CT600 Cable Tray 600mm | | | |

11. Scope of Work

SmartRow2 Assembly

SERVICE SUMMARY

| Feature | Detail |
|--------------------|--|
| On-Site Service | Site trip(s) within the 48 contiguous states. Visit(s) to be scheduled by the customer between 7 am-5 pm, Monday-Friday (excluding weekends & national holidays). |
| Customer Support | Includes access to the Customer Resolution Center (1-800-543-2378) and the Vertiv Customer Services Network Online Internet portal for extent of product warranty. |
| Consolidation | The SmartRow2 includes numerous shippable units (typically pallets or boxes) that originate from multiple factories and suppliers. Vertiv consolidates these items into a single customer shipment and reduces the likelihood of shippable units being lost at the customer site. This benefits the customer by relieving the burden of keeping track of multiple partial shipments. |
| Inside Delivery | Vertiv Service will move the shippable units from the delivery truck to the Staging Area. Vertiv Services will unpackage the shippable units and remove/dispose of the packaging material so that it is ready for assembly. Vertiv will verify that all material on the sales order has been received. |
| Project Management | Included with Consolidation and Inside Delivery. Vertiv will assign a project manager for the project. The Project Manager will supervise the Consolidation and Inside Delivery Process and communicate hardware shipment schedules with the customer. |
| Assembly | SmartRow2 is assembled onsite by Vertiv factory-trained and authorized technicians equipped with Vertiv Proprietary tools and software. Vertiv CEs and Vertiv Partners are the only approved OEM service providers for Vertiv products. These technicians are supervised by a Site Manager who also gathers site-specific requirements like safety and work procedures |
| Factory Startup | Warranty inspection and startup validates the warranty and initializes the warranty coverage period |

SERVICE PERFORMED

Consolidated Shipment

Shippable units may be available at time of order or built-to-order with a lead time. Vertiv safely stores these items in-warehouse until the customer is ready to receive the SmartRow2 in a single shipment. Other limits may apply; see Assumption and Clarifications as applicable for more details.

Inside Delivery

Vertiv Services will deliver the shippable units from the delivery truck to the Staging Area. Vertiv Services will unpackage the shippable units and remove/dispose of the packaging material so that it is ready for assembly. Vertiv will verify that all material has been received.

Change order option:

- There must be an appropriate loading dock with continuous, level floor from the dock to the staging area. If the shippable units must be moved up/down stairs, the customer must provide a suitable elevator, or charges for special rigging will be incurred. If the customer does not have an appropriate loading dock, nominal charges may/may-not apply for a lift-truck delivery.

Project Management

Vertiv will assign a project manager and a site manager for the project.

The Project Manager will supervise the Consolidation and Inside Delivery Process and communicate schedules with the customer. The Site Manager will supervise the assembly, startup, warranty inspection and turn over the SmartRow2 to the customer.

Site-Specific Requirements

All personnel will be available for up to two hours per week for Site Access, Safety Training and other site-specific requirements Change Order Option:

- Vertiv can quote a price for additional man-hours if 2 hours per week is insufficient.

Assembly

There shall be continuous, level floor between the Staging Area and the Installation Location so that heavy items can be moved via casters/pallet jacks.

Change Order Option:

- If there is not continuous level floor, the customer must provide or pay for any necessary lift/rigging equipment.

Project Management

Vertiv PMC, including RDU501 SmartRow2 Controller/Display

Vertiv will position, level, and bay together the PMC as described in the submittal documents.

The customer is responsible for providing primary electrical power to the PMC.

Vertiv will program and configure the SmartRow2 RDU501 controller/display. This includes setting IP addresses so that the customer can monitor the system status remotely

Change Order Option:

- Vertiv will quote IP addressing of equipment on the customer network, but this would be done by other personnel and scheduled separately. This is outside the scope of SmartRow2 assembly.

Vertiv IT Rack(s)

Vertiv will position, level, and bay together the Vertiv IT Racks as described in the submittal documents. Vertiv will not populate racks with customer IT gear, including blanking panels, servers, shelves, etc.

The customer must define addressing conventions (1,2,3,4, right-to-left or left-to-right) prior to start of work.

Cable Trays

Vertiv will install the SmartRow2 cable trays that are included with the SmartRow2 solution as described in the submittal documents

Liebert®CRV's, Temperature Sensors, Modbus cables, and associated Plenums

Vertiv will position and level the Liebert® CRV and attach the associated plenums to provide cooling to the SmartRow2.

Vertiv will connect the necessary temperature sensors.

The customer is responsible for piping and primary power to the CRV along with connecting CANBus cable between the CRV and heat rejection. All specific requirements (such as piping traps and proper electrical rounding) for correct product installation are detailed in the product installation manual.

After the SmartRow2 is assembled and the Liebert® CRV is piped and powered by the customer in accordance with the product installation manual, Vertiv will perform a factory warranty inspection along with the rest of the SmartRow2.

Liebert®MC / CCD Condensers for Liebert®CRV's

The customer is responsible for installing the associated heat rejection. This includes primary power, CANBus communication wire, piping, refrigerant charging, and all other tasks in the Installation Manual. Any/all penetration points in the walls/ceilings/floors for any wiring or piping are also the customer's responsibility.

Rack PDUs

Vertiv will install and connect all rack PDUs (if applicable) including GXT5 power extensions (if applicable) as described in the submittal documents.

Liebert®GXT5 Single Phase UPS's

Vertiv will install and connect all Liebert® GXT5 UPS's and connect power within the PMC cabinet and output to the PDUs as described in the submittal documents.

Additionally, Vertiv will install ancillary equipment such as Maintenance bypass and PD2-103 cabling and connectors if not already preinstalled.

After the SmartRow2 is assembled and Primary Power to the SmartRow2 is provided by the customer, Vertiv will perform factory startup of all GXT5 equipment along with the rest of the SmartRow2.

Switch

Vertiv will install and connect the switch within the PMC cabinet. as described in the submittal documents

Firmware Updates

Vertiv will update firmware of any/all units to the current revision level. Shippable units are sourced globally and firmware evolves as products may be in stock with prior revisions.

Wiring

Vertiv will run all necessary wiring for power and communication between cabinets as part of assembly. This includes setting IP/DIP switch settings for proper communication between the device and the PMC.

Accessories

The SmartRow2 is available with lights, door locks/sensors, temperature sensors that Vertiv will connect and install. Services associated with cameras are sold separately and out-of-scope for the SmartRow2 Assembly.

RDU Monitor SmartRow2 mobile application

Services associated with the RDU Monitor SmartRow2 mobile applications are quoted separately and out-of-scope for SmartRow2 assembly.

ASSUMPTIONS AND CLARIFICATIONS

- Vertiv will cover one month of storage costs as part of the consolidation service. If the original ship date is changed due to non-Vertiv delays, the customer is liable for any costs associated with the extended storage time.
- Vertiv start-up validates product warranty.
- Defects or damage resulting from installation not performed by Vertiv are not covered.
- Parts and Labor coverage is in accordance with Product Warranty. If a modified warranty is purchased, terms default to that specific package.
- Any customer site visit is limited to eight (8) hours per visit. Any time beyond forty (40) hours/wk or eight (8) hrs/day or additional Startup visits will be billed separately.
- Expenses incurred due to delays that are beyond the control of Vertiv may be billed at cost.
- Startup visit must be scheduled confirmation of proper installation (if Vertiv not involved with installation).
- This pricing excludes any load bank testing. This can also be quoted separately if required.
- Pricing excludes activities associated with 3rd party commissioning
- Pricing excludes any type of circuit breaker NEMA testing. This can also be quoted separately if required.
- Customer/Installing contractor is responsible for providing elevated access as necessary.
- Any additional requests beyond the scope of this document will be billed separately by Vertiv.
- Vertiv will not perform physical changes to the site building (such as drilling holes, etc.)

CUSTOMER RESPONSIBILITIES

In order to provide timely, accurate and thorough execution of the services described herein, Vertiv requests the following:

- Point of Contact: Provide an authorized point of contact(s), specific for the scope of work, for scheduling and coordination purposes.
- Scheduling: Make dates available for scheduling service. All visits must be requested 10 business days in advance of need by contacting the Vertiv Customer Resolution Center at 1-800-543-2378.
- Site Access: Prior to time of scheduled work, provide site access including any customer required escort, security clearance, safety training and badging for Vertiv service personnel.
- Equipment Access: Convenient access to the equipment covered by the Scope of Work. Prior to scheduled time of work, notify Vertiv service personnel of any special requirements for equipment access including lifts, ladders, etc.
- Shutdown: Service may require shutdown of load to ensure electrical connection integrity.
- Notification: If for any reason the work cannot be performed during scheduled time, notify Vertiv service personnel 24-hours prior to scheduled event.

TERMS AND CONDITIONS

Subject to all Terms & Conditions as noted in the Vertiv Terms & Conditions or the terms of a Master Agreement between the parties, if any, shall apply.



SmartRow 2 Scope of Work Checklist

Customer Name: _____

Project Name: _____

Project Number: _____

This document is to serve as a checklist to help identify and budget the various work activities involved with assembling and installing a SmartRow 2. It is the customers responsibility to ensure all tasks are assigned to partners which will result in a successful SmartRow 2 project.

Contact Vertiv for available local support resources to provide technical guidance as needed. Call 800 543-2378

The **X** indicates the responsible party for that task. Multiple **X**'s indicate shared responsibility.

This document is provided as a reference document and does not replace any product manuals or supporting documentation. Always read all product documentation before performing any work.

Customer (Name) *includes responsibility for Mechanical, Electrical, and/or General Contractors as needed* : _____

Project Management: _____

Assembly Team Lead: _____

Consolidator: _____

Vertiv Warranty Inspection Tech: _____

Vertiv Sales Rep (LVO): _____

