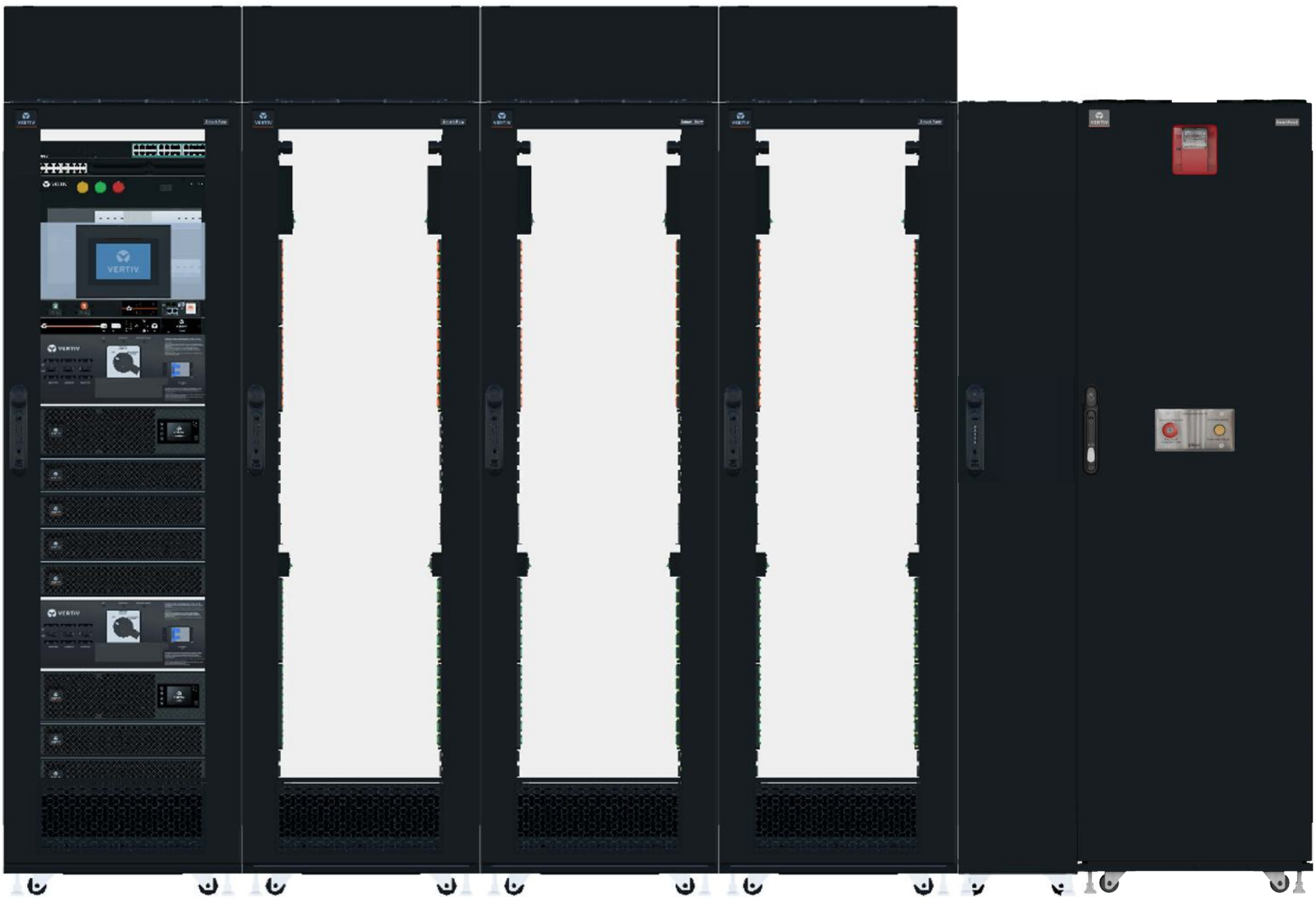
SR2N03020PAA2-SUBTL
Revision: Rev B
Author: Tomáš Krech
Date: 4/7/2025



Solution: SR2N03020PAA2

1. Change Log

Rev	Date	Author	Description	Number of Change
A	1/29/2024	TK	Initial Release	CO-1104874
B	4/7/2025	TK	ICGs Update	CO-1112923

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 m2 (ft2)
16	SR2N02010NAA2	10	2	5	1	2	100A	N/A[5]	60 (132.3)	2700 (106.3) x 2271 (107) x 1400 (55.2)	2048 (4516)	15.76 (169.7)
17	SR2N02010PAA2	10	2	5	1	4	100A	N/A[5]	60 (132.3)	2700 (106.3) x 2271 (107) x 1400 (55.2)	2076 (4577)	16.34 (175.9)
18	SR2N02010FAA2	10	2	5	2	4	100A	N/A[5]	60 (132.3)	3000 (118.2) x 2271 (107) x 1400 (55.2)	2696 (5945)	19.02 (204.8)
19	SR2N03010NAA2	10	3	3	1	3	100A	N/A[5]	60 (132.3)	3300 (130) x 2271 (107) x 1400 (55.2)	2218 (4890)	17.11 (184.2)
20	SR2N03010PAA2	10	3	3	1	6	100A	N/A[5]	60 (132.3)	3300 (130) x 2271 (107) x 1400 (55.2)	2260 (4983)	17.69 (190.5)
21	SR2N03010FAA2	10	3	3	2	6	100A	N/A[5]	60 (132.3)	3600 (141.8) x 2271 (107) x 1400 (55.2)	2880 (6350)	20.37 (219.3)
22	SR2N03020NAA2	20	3	6	1	3	175A	15A	118 (260.2)	3300 (130) x 2271 (107) x 1400 (55.2)	2448 (5397)	19.81 (213.3)
23	SR2N03020PAA2	20	3	6	1	6	175A	15A	118 (260.2)	3300 (130) x 2271 (107) x 1400 (55.2)	2490 (5490)	21.86 (235.3)
24	SR2N03020FAA2	20	3	6	2	6	175A	15A	118 (260.2)	3600 (141.8) x 2271 (107) x 1400 (55.2)	3110 (6857)	25.77 (277.4)
25	SR2N04020NAA2	20	4	5	1	4	175A	15A	118 (260.2)	3900 (153.6) x 2271 (107) x 1400 (55.2)	2618 (5772)	21.16 (227.8)
26	SR2N04020PAA2	20	4	5	1	8	175A	15A	118 (260.2)	3900 (153.6) x 2271 (107) x 1400 (55.2)	2674 (5896)	23.21 (249.9)
27	SR2N04020FAA2	20	4	5	2	8	175A	15A	118 (260.2)	4200 (165.4) x 2271 (107) x 1400 (55.2)	3294 (7263)	27.12 (292)
28	SR2N05020NAA2	20	5	4	1	5	175A	15A	118 (260.2)	4500 (177.2) x 2271 (107) x 1400 (55.2)	2788 (6147)	22.51 (242.3)
29	SR2N05020PAA2	20	5	4	1	10	175A	15A	118 (260.2)	4500 (177.2) x 2271 (107) x 1400 (55.2)	2858 (6301)	24.56 (264.4)
30	SR2N05020FAA2	20	5	4	2	10	175A	15A	118 (260.2)	4800 (189.0) x 2271 (107) x 1400 (55.2)	3478 (7669)	28.47 (306.5)

NOTES:

1. 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)
2. Floor surface must be level and continuous (expansion joints sealed, raised floor tile gaps sealed, no floor drains, etc).
3. No building sprinkler head should be within 19.7 in (0.5 m).
4. Install in accordance with national and local electrical codes
5. 10kW condenser power is sourced from the indoor unit
6. Cable Sizing: 100A = 3 AWG ; 175A = 2/0 AWG
7. Row Dimensions do not include necessary space needed for access including per ADA or local codes.
8. Fire Suppression cabinet requires its own minimum 15A 120V utility drop.

SHEET NO.	DRAWN BY:		DWG. NO.	
CO. NO.	DESIGNED BY:	TITLE	DATE (LATEST REV.)	
REF. DWG.	APPROVED BY:	Smart Row 2 Site Planning Datasheet (208V, 3 phase, 4 wire + PE)	REVISION	505 N. CLEVELAND AVE WESTERVILLE, OHIO 43081

FORM NO. DPN004659 REV - A

SR2N03020PAA2-SUBTL
Revision: Rev B
Author: Tomáš Krech
Date: 4/7/2025

Vertiv Row Solution

Knowledge to Build Optimized Infrastructure Solutions

VERTIV™

Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System

Row IT Load Capacity: 20 kW
Power Redundancy UPS: Yes
Power Redundancy rPDU: Yes
Cooling Redundancy: No
Fire Suppression: Yes
Dimensions:
Length: 10.82 ft [3300 mm]
Depth: 4.6 ft [1400 mm]
Height: 7.38 ft [2250 mm]

SHEET NO. 1 / 15	DRAWN BY: Nilesh Patil		DWG NO. SR2N03020PAA2	VERTIV™
CHANGE NO.	APPROVED BY: Gmerek, Mike		DATE (LATEST REV.) 02.04.2025	
PAGE DESCRIPTION: 1- Title page / cover sheet		TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System	REVISION:	505 N. CLEVELAND AVE WESTERVILLE OH 43081

Front View

No.	Components
1	UPS1 (Feed A)
2	MBC1 (Feed A)
3	rPDU Feed A
4	UPS2 (Feed B)
5	MBC2 (Feed B)
6	rPDU Feed B
7	RTS
8	Fan controller
9	PMU
10	RDU501
11	Switch
12	NVR (Optional)
13	Fire Control Panel (FCP)
14	VESDA Detector
15	Air mixing fan UPS
16	Air mixing fan

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

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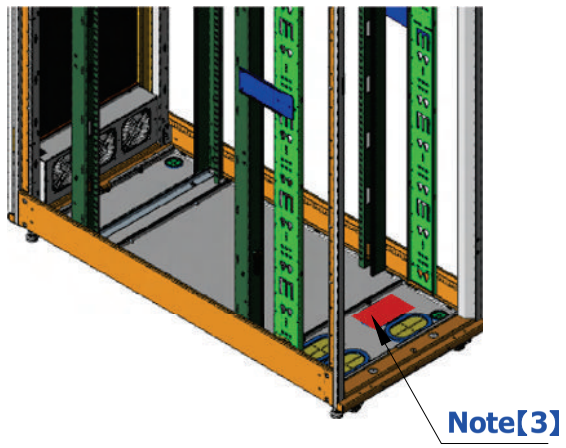
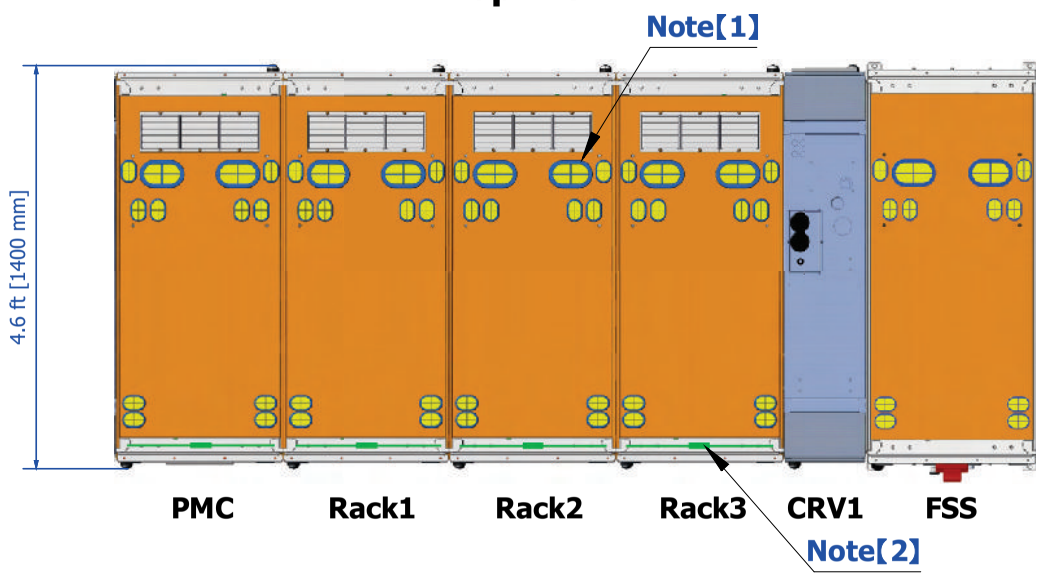
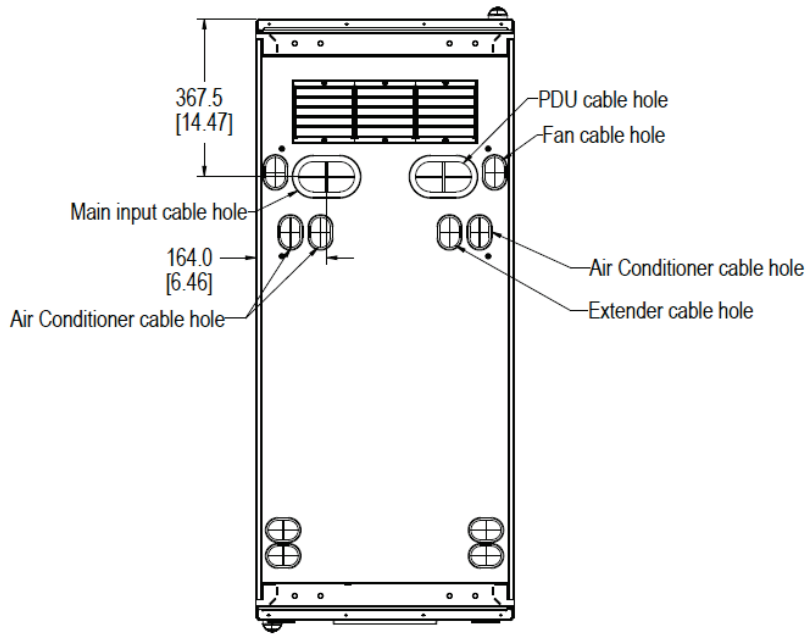
CHANGE NO.	APPROVED BY: Gmerek, Mike	TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System	DATE (LATEST REV.) 02.04.2025
PAGE DESCRIPTION: 2- vRow Front View			REVISION: 505 N. CLEVELAND AVE WESTERVILLE OH 43081

Top View



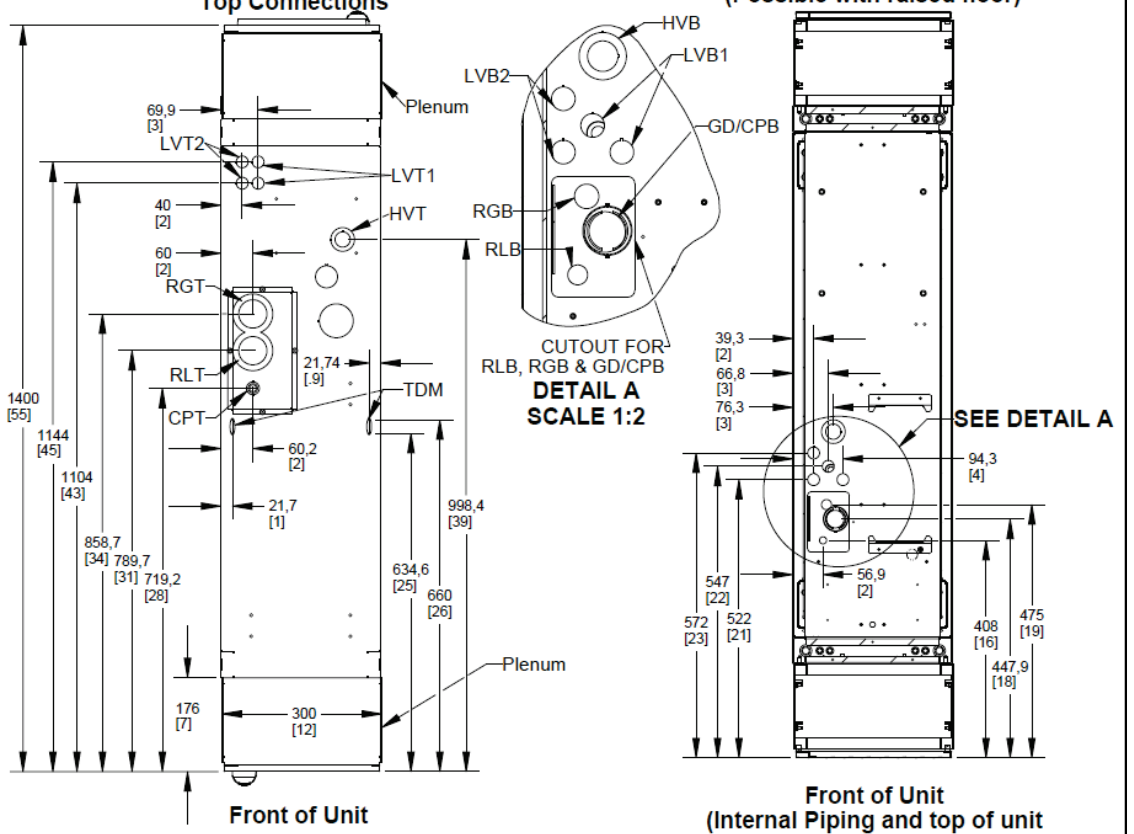


PMC Connection Details



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.

CRV Connection Details



Unit Top Connections			Unit Bottom Connections		
RLT	Refrigerant Liquid Line Inlet	1/2" O.D Copper	RLB	Refrigerant Liquid Line Inlet	1/2" O.D Copper
RGT	Refrigerant Gas Line Outlet	5/8" O.D Copper	RGB	Refrigerant Gas Line Outlet	5/8" O.D Copper
CPT	Condensate Pump	Knockout Hole Ø1-3/8" (35mm)	GD	Gravity Coil Pan Drain	Knockout Hole Diameter 1-3/4" (44mm)
HVT	High Voltage Top Connection	Combination Knockout Ø1-1/8" (29mm) & Ø1-3/4"	CPB	Condensate Pump	
LVT1	Low Voltage (Twisted Pair)	Knockout Hole Ø7/8" (22mm) 2 places	HVB	High Voltage Bottom Entrance (feed through the base of the unit)	Combination Knockout 1-1/8" (29mm) & 1-3/4"
LVT2	Low Voltage (Shielded Cable)	Knockout Hole Ø7/8" (22mm) 2 places	LVB1	Low Voltage (Twisted Pair)	Knockout Hole Ø7/8" (22mm) 2 places
TDM	Tie Down (Top) Mounting	Hole Ø1/8" (3mm) 4 places	LVB2	Low Voltage (Shielded Cable)	

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

Dimensions in "mm[in]"

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CHANGE NO.	APPROVED BY: Gmerek, Mike		DATE (LATEST REV.) 02.04.2025	
PAGE DESCRIPTION: 2.a- vRow Top View		TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System	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 CRV1
	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)
0411A860	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 PDU1B communication cable
	Communication cable	W117	PDU	PDU	118.1/3000	PDU1B to PDU2A communication cable
	Communication cable	W116	PDU	PDU	157.5/4000	PDU2A to PDU2B communication cable
	Communication cable	W117	PDU	PDU	118.1/3000	PDU2B to PDU3A communication cable
	Communication cable	W116	PDU	PDU	157.5/4000	PDU3A to PDU3B 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	W02	PMU_TO MBC2 INPUT L1 L2 N G	MBC2 MAIN INPUT L1 L2 N G	27.6/700	PMU to MBC2 power cable (MBC2 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	W04	PMU_TO MBC2 OUTPUT L1 L2 N	MBC2 MAIN OUTPUT L1 L2 N	45.3/1150	MBC2 to PMU power cable (MBC2 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)

TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System

505 N. CLEVELAND
AVE WESTERVILLE
OH 43081

VERTIV™

Cable overview

Packaging No.	Cable Category	Cable No.	Tag1	Tag2	Length (inch/mm)	Description
0411A860	Power cable	W06	MBC2_TO UPS2 INPUT L1 L2 N G	UPS2 INPUT L1 L2 N G	39.4/1000	MBC2 to UPS2 power cable (UPS2 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)
	Power cable	W08	UPS2 OUTPUT L1 L2 N G	MBC2_FROM UPS2 O/P L1 L2 N G	39.4/1000	UPS2 to MBC2 power cable (UPS2 output)
	Communication cable	W112	UPS1	Switcher(From UPS1)	177.2/4500	UPS 1 to Switch communication cable
	Communication cable	W113	UPS2	Switcher(From UPS2)	165.4/4200	UPS 2 to Switch communication cable
	Communication cable	W118	NVR	Switcher(From NVR)	47.2/1200	NVR to Switch Communication Cable
FSS Cabinet-Factory Assembled	Preinstalled cables for cascading FSS cabinets	W403	I-LOCK	I-LOCK	16.54/420	FSS cabinet rear door preinstalled cascading wiring harness-for Door Lock
	Preinstalled cables for cascading FSS cabinets	W403	RACK_RLIGHT	FSS_RLIGHT	14.96/380	FSS cabinet rear door preinstalled cascading wiring harness-for Door Light
	Preinstalled cables for cascading FSS cabinets	W403	RACK_R-SW	FSS_R-SW	14.96/380	FSS cabinet rear door preinstalled cascading wiring harness-for Door Swich
	Door switch communication cable	W407	208-NO;208-COM	201-Smoke/DI4	76.77/1950	FSS Rear door switch to 4DIF Smoke/DI4
	Door switch communication cable	W408	208-NO;208-COM	201-Door1/DI1	17.71/450	FSS Front door switch to 4DIF Smoke/DI4
	Communication cable(factory assembled)	W409	RACK_THD-RJ2	FSS_4DIF_1-RJ1	47.24/1200	FSS cabinet the first 4DIF to the previous RACK4 THD communication cable
	Communication cable(factory assembled)	W410	FSS_4DIF_1-RJ2	FSS_4DIF_2-RJ1	15.75/400	FSS cabinet the first 4DIF to the second 4DIF communication cable
	FSS cabinet fire communication & control cables	W413	4DIF_1_Door1/DI1	TB3-5/6	78.74/2000	FSS_4DIF_1 to FSS Terminal Blocks(RELEASE ALARM Signal)
	FSS cabinet fire communication & control cables	W414	4DIF_1_Door2/DI2	TB3-3/4	78.74/2000	FSS_4DIF_1 to FSS Terminal Blocks(SUPERVISORY ALARM Signal))
	FSS cabinet fire communication & control cables	W415	4DIF_1_Water/DI3	TB3-7/8	78.74/2000	FSS_4DIF_1 to FSS Terminal Blocks(ALARM Signal))
	FSS cabinet fire communication & control cables	W416	4DIF_1_Smoke/DI4	TB3-1/2	78.74/2000	FSS_4DIF_1 to FSS Terminal Blocks(TROUBLE ALARM Signal))
FSS Cabinet-Packaged Separately	Intelligent door lock Communication Cables	W404-S	FSS-FLOCK	8COM-COM7	181.10/4600	FSS to RDU501_ COM7 intelligent door lock front door communication cable
	Intelligent door lock Communication Cables	W405-S	FSS-RLOCK	8COM-COM8	259.84/6600	FSS to RDU501_ COM8 intelligent door lock Rear door communication cable
	Front door light and microswitch cascade cables	W412	RACK_F-SW	FSS_F-SW	13.78/350	RACK4 TO FSS Cabinet Front door light microswitch cascade cable(across CRV)
	Front door light and microswitch cascade cables	W411	RACK_FLIGHT	FSS_FLIGHT	13.78/350	RACK4 TO FSS Cabinet Front door light power cascade cable(across CRV)
	FSS cabinet fire communication & control cables	W419	CRV S_37/38	TB8-3 NC/COM	59.06/1500	CRV1 to FSS Terminal Blocks/Relays - Short
	FSS cabinet fire communication & control cables	W420	UPS1_7/8	TB9-1 NC/COM	295.28/7500	UPS 1 EPO to FSS Terminal Blocks/Relays
	FSS cabinet fire communication & control cables	W421	UPS2_7/8	TB9-2 NC/COM	295.28/7500	UPS 2 EPO to FSS Terminal Blocks/Relays
	FSS cabinet fire communication & control cables	W423	L TB10-2/N TB10-3/PE TB10-4	FAN 1 L/N/PE	118.11/3000	Fan 1 to FSS Terminal Blocks/Relays
	FSS cabinet fire communication and control cables	W426	L TB5-7 COM/N TB10-9/PE TB10-10	PSI5	100.4/2550	PSI5 output to FSS Terminal Blocks/Relays
	FSS cabinet fire communication and control cables	W427	PSI5 FSS	PSI5 FSS	314.96/8000	Extension Line Cord for PSI5 Input

TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System

Cable overview

Packaging No.	Cable Category	Cable No.	Tag1	Tag2	Length (inch/mm)	Description
IT Rack-Factory Assembled	CRV1 Integrated rear doors cable	W301	I-LOCK	I-LOCK	25.6/650	CRV1 R-Door power cascade 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 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
	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
	Door switch communication cable	W201	204-NO;204-COM	201-AI/DI_L	17.71/450	PMC Front door switch to THD AI/DI_L
	Door switch communication cable	W202	204-NO;204-COM	201-AI/DI_R	76.77/1950	PMC Rear door switch to THD AI/DI_R
	THD cascading pre-installed on the front door	W208	PMC/RACK-THD-RJ2	RACK-THD-RJ1	25.59/650	PMC to RACK1 Cascade Cable
	Door switch communication cable	W201	204-NO;204-COM	201-AI/DI_L	17.71/450	Rack1 Front door switch to THD AI/DI_L
	Door switch communication cable	W202	204-NO;204-COM	201-AI/DI_R	76.77/1950	Rack1 Rear door switch to THD AI/DI_R
	THD cascading pre-installed on the front door	W208	PMC/RACK-THD-RJ2	RACK-THD-RJ1	25.59/650	RACK1 to RACK2 Cascade Cable
	Door switch communication cable	W201	204-NO;204-COM	201-AI/DI_L	17.71/450	Rack2 Front door switch to THD AI/DI_L
	Door switch communication cable	W202	204-NO;204-COM	201-AI/DI_R	76.77/1950	Rack2 Rear door switch to THD AI/DI_R
	THD cascading pre-installed on the front door	W208	PMC/RACK-THD-RJ2	RACK-THD-RJ1	25.59/650	RACK2 to RACK3 Cascade Cable
	Door switch communication cable	W201	204-NO;204-COM	201-AI/DI_L	17.71/450	Rack3 Front door switch to THD AI/DI_L
	Door switch communication cable	W202	204-NO;204-COM	201-AI/DI_R	76.77/1950	Rack3 Rear door switch to THD AI/DI_R
	RACK1 Integrated front doors cable	W300	RACK_LOCK	RACK_LOCK	25.6/650	RACK1 F-Door communication 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 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
	RACK1 Integrated rear doors cable	W301	I-LOCK	I-LOCK	25.6/650	RACK1 R-Door power cascade cable
	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	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

TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System

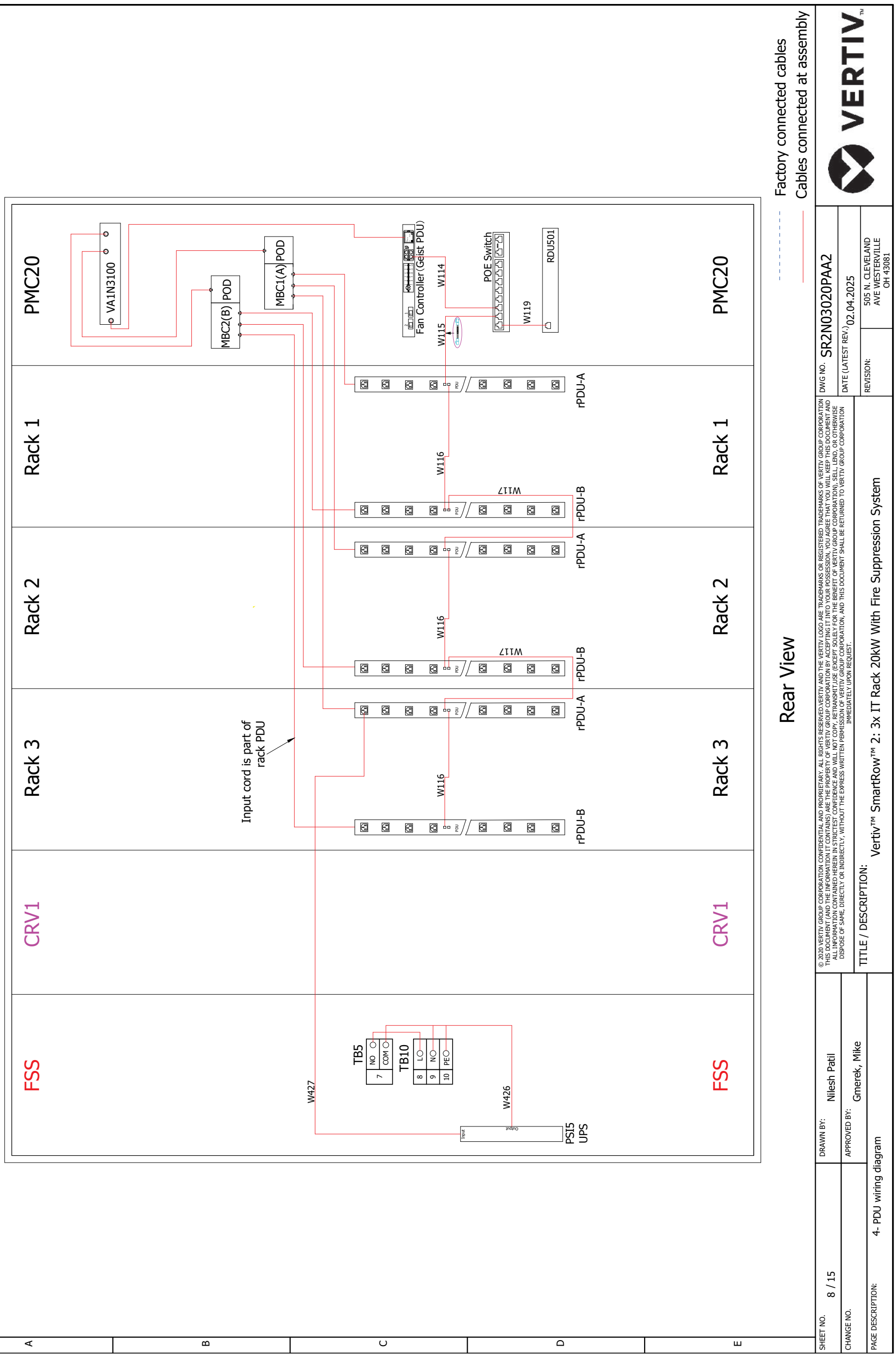
Cable overview

Packaging No.	Cable Category	Cable No.	Tag1	Tag2	Length (inch/mm)	Description
IT Rack-Factory Assembled	RACK2 Integrated rear doors cable	W301	RACK_R-SW	RACK_R-SW	25.6/650	RACK2 Cascade cables for rear door microswitches
	RACK2 Integrated rear doors cable	W301	I-LOCK	I-LOCK	25.6/650	RACK2 R-Door power cascade 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	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
	RACK3 Integrated rear doors cable	W301	I-LOCK	I-LOCK	25.6/650	RACK3 R-Door power cascade 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 FSS
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
	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

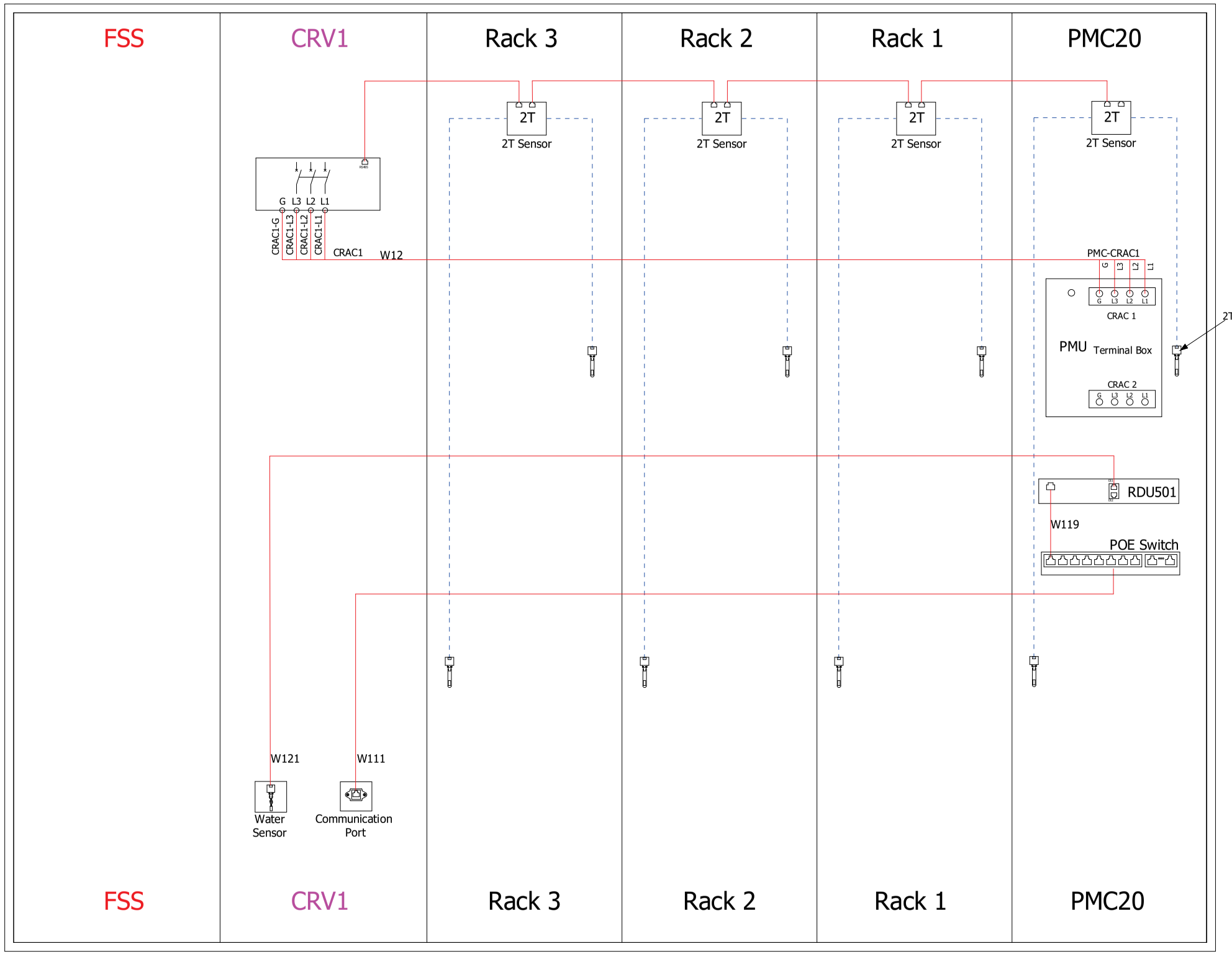
TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System

VERTIV™

FC & Geist PDUs -SR2 FSS for 20K(3*ITRack)



CRVs(CR019)-SR2 FSS for 20K (3*ITRack)



Rear View

Factory connected cables

Cables connected at assembly

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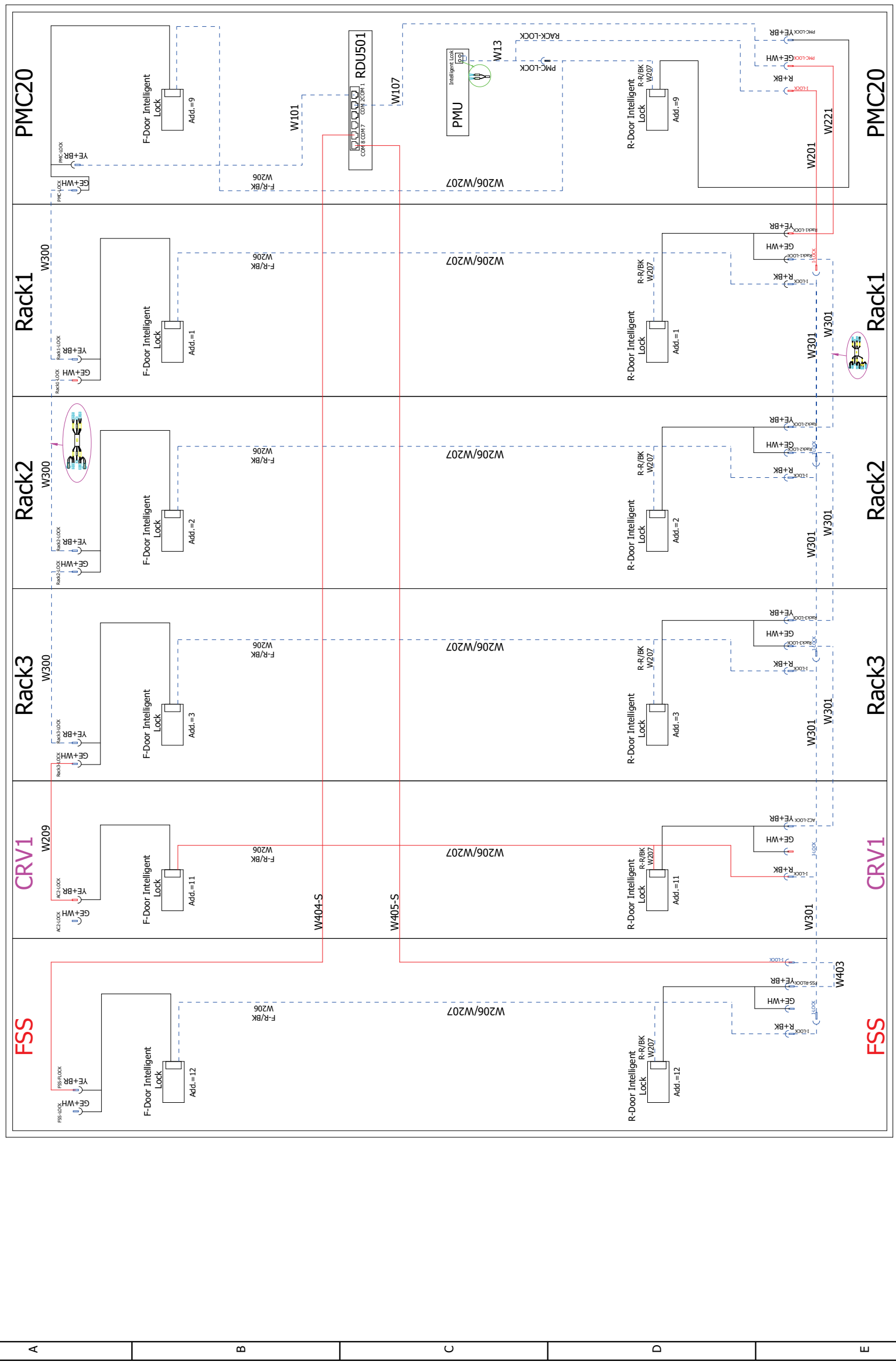
CHANGE NO.	APPROVED BY: Gmerek, Mike		DATE (LATEST REV.) 02.04.2025	
PAGE DESCRIPTION: 4.a- Air conditioner wiring diagram		TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System	REVISION:	505 N. CLEVELAND AVE WESTERVILLE OH 43081

SR2N03020PAA2-SUBTL
Revision: Rev B
Author: Tomáš Krech
Date: 4/7/2025

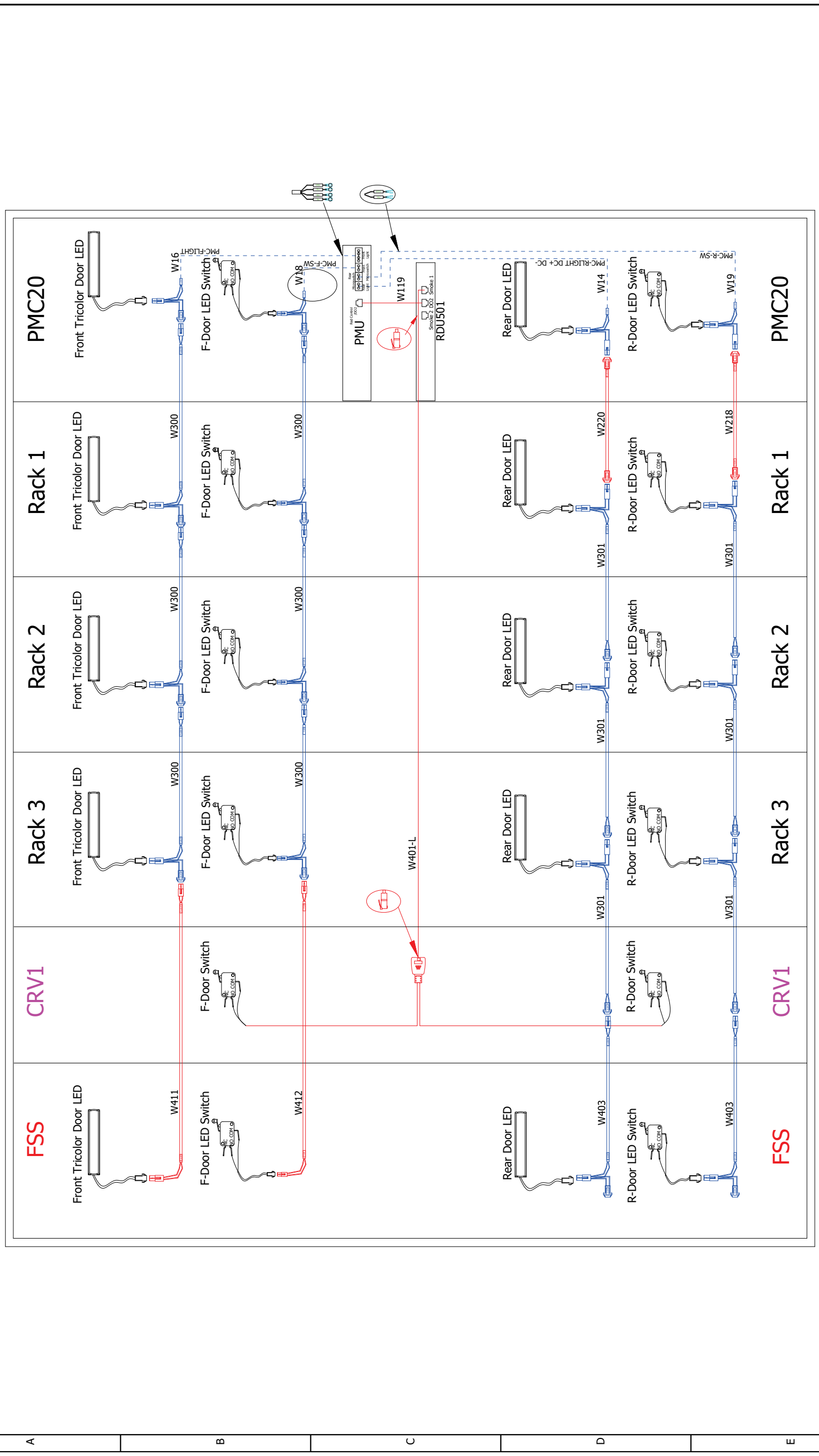
Intelligent Locks -SR2 FSS for 20K(Max 3*ITRack)



DWG NO.	SR2N03020PAA2
DATE (LATEST REV.)	02.04.2025
REVISION:	
DRAWN BY:	Nilesh Patil
APPROVED BY:	Gmerek, Mike
SHEET NO.	10 / 15
CHANGE NO.	
PAGE DESCRIPTION:	4.b- Intelligent lock wiring diagram
TITLE / DESCRIPTION:	Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System

505 N. CLEVELAND AVE WESTERVILLE OH 43081

LED & Micro Switch -SR2 FSS for 20K (3*ITRack)



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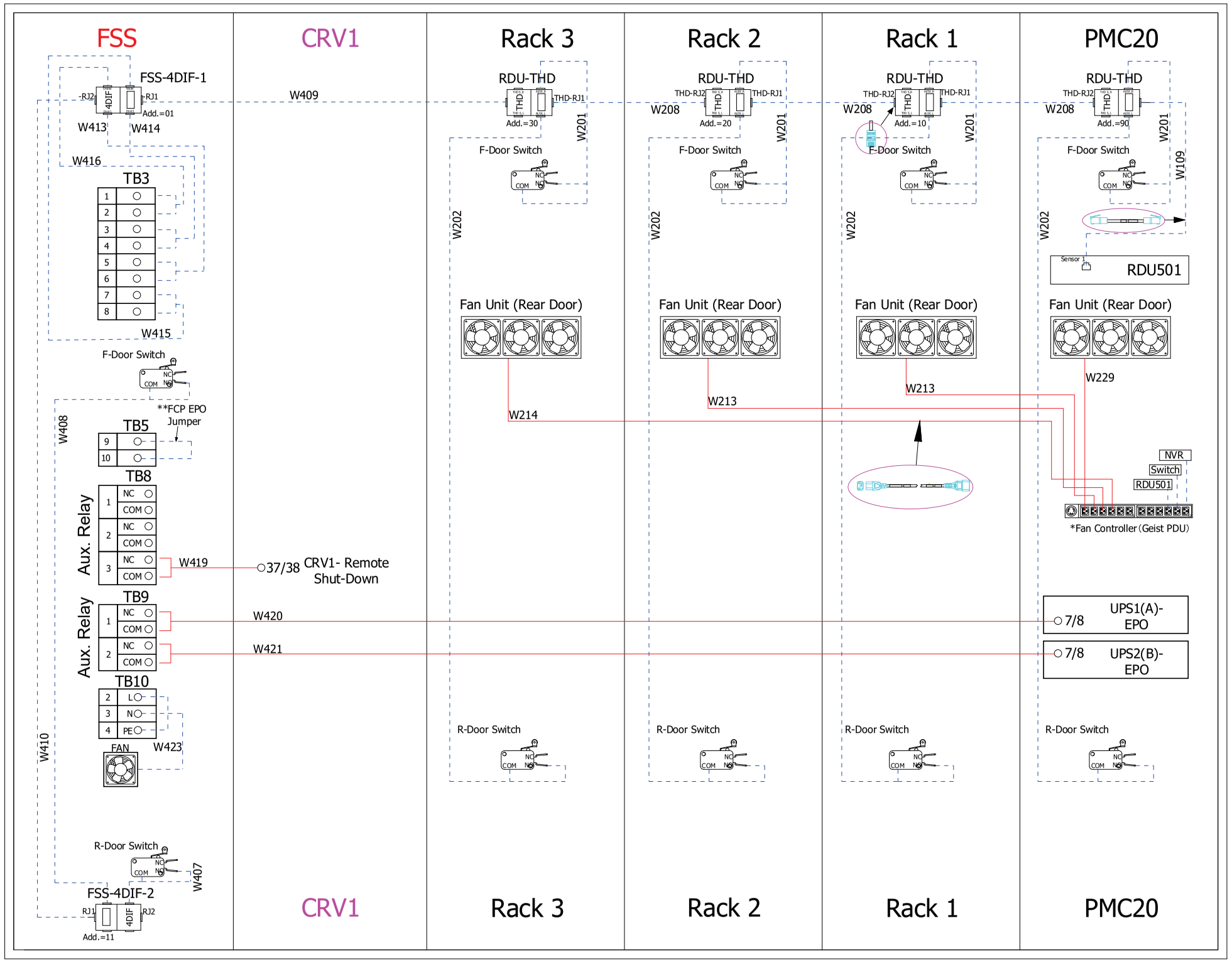
DWG NO. SR2N03020PAA2
DATE (LATEST REV.) 02.04.2025
505 N. CLEVELAND AVE WESTERVILLE OH 43081
REVISION:

TITLE / DESCRIPTION:
Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System

SHEET NO. 11 / 15
DRAWN BY: Nilesh Patil
CHANGE NO.
APPROVED BY: Gmerek, Mike
PAGE DESCRIPTION: 4.c- LED&Micro Switch wiring diagram

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



Note :- *Fan controller positions 1 to 6 reserved for emergency fans.
**Fire control panel (FPC) UPS EPO jumper remove to deactivate.

Rear View

Factory connected cables
Cables connected at assembly

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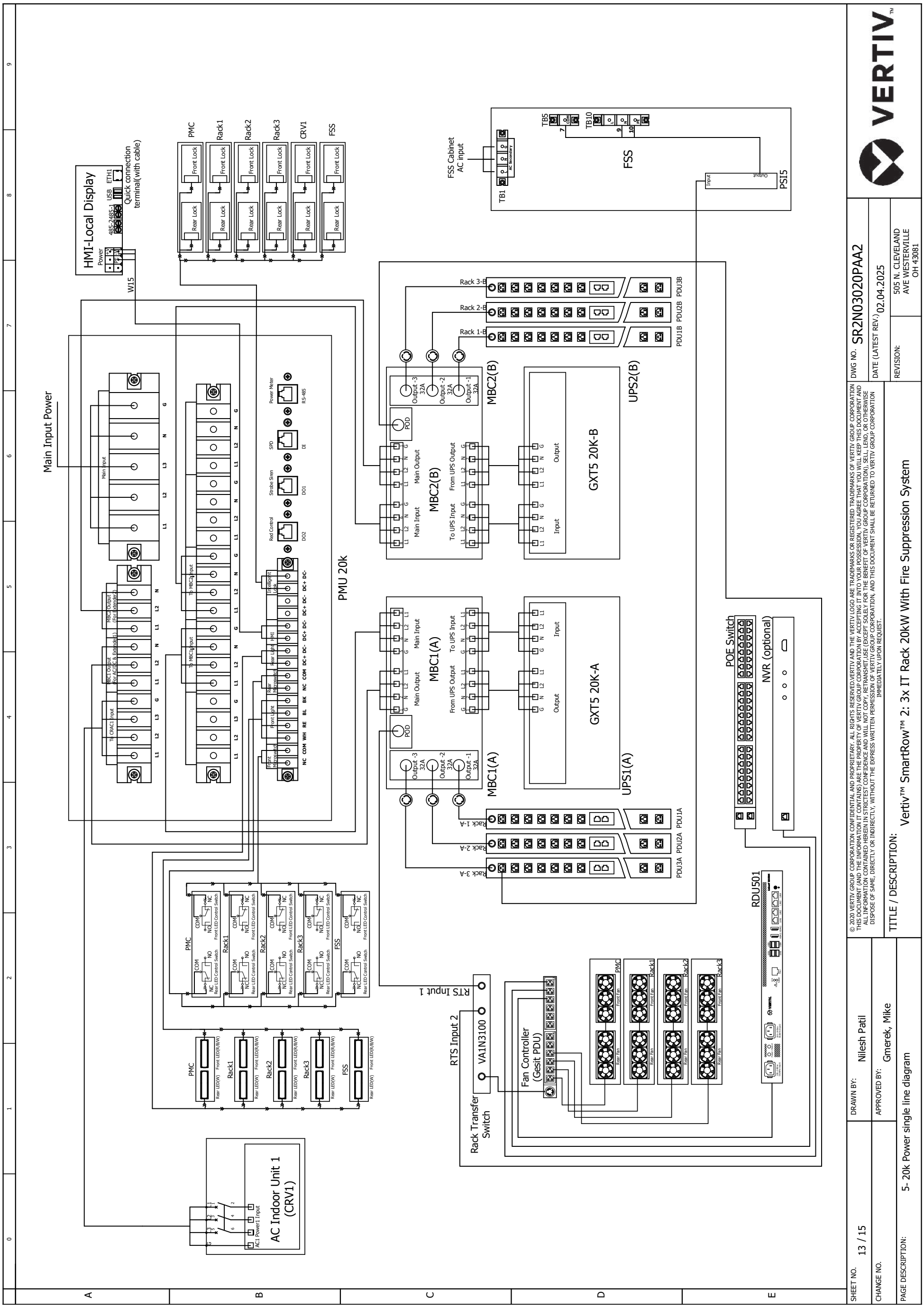
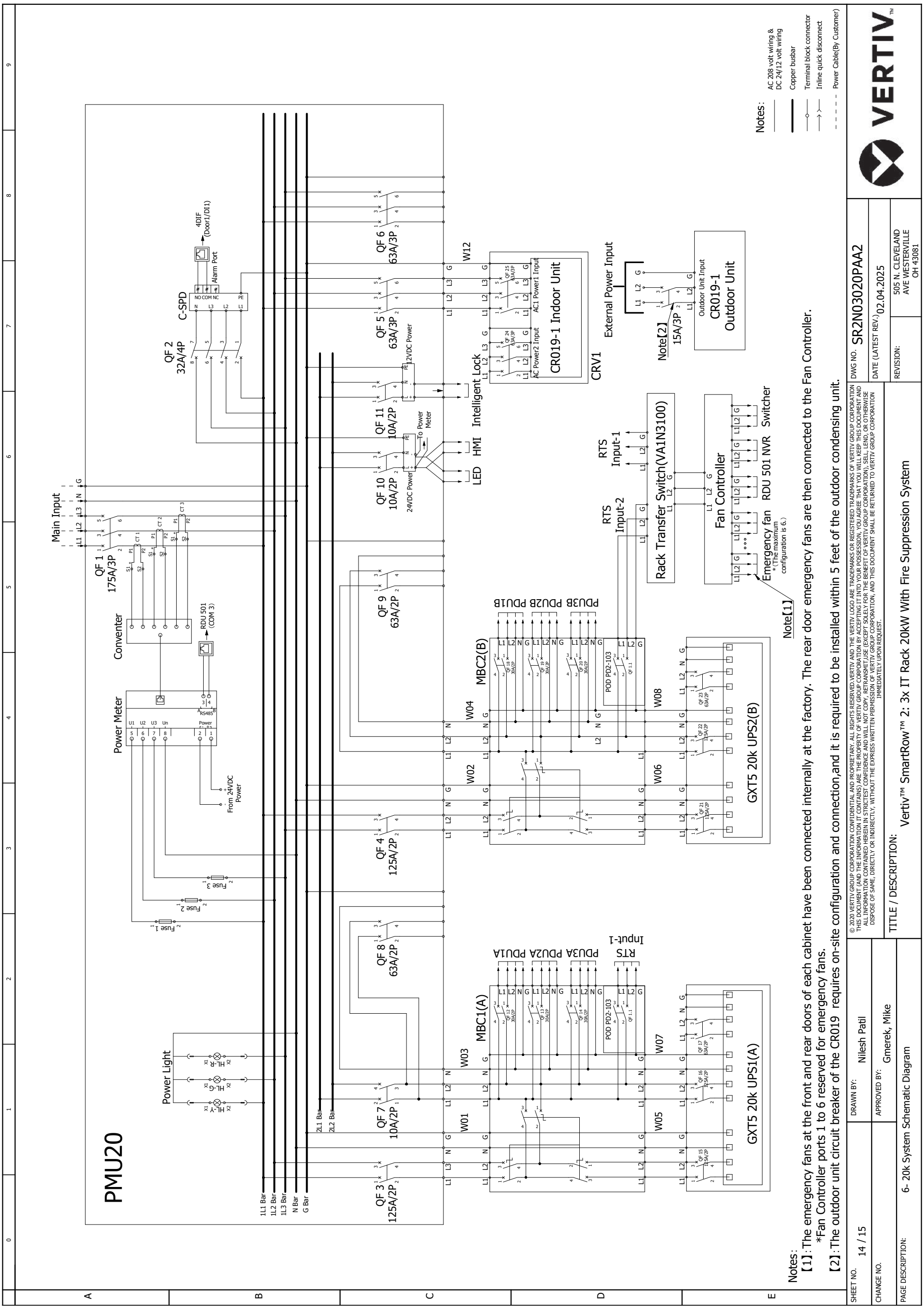
CHANGE NO.	APPROVED BY: Gmerek, Mike		DATE (LATEST REV.) 02.04.2025	
PAGE DESCRIPTION: 4.d- THD& Emergency Fan wiring diagram		TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System	REVISION:	505 N. CLEVELAND AVE WESTERVILLE OH 43081

SR2N03020PAA2-SUBTL
Revision: Rev B
Author: Tomáš Krech
Date: 4/7/2025



DWG NO. SR2N03020PAA2
DATE (LATEST REV.) 02.04.2025
505 N. CLEVELAND AVE WESTERVILLE OH 43081
REVISION:
TITLE / DESCRIPTION:
Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System

SHEET NO. 13 / 15
DRAWN BY: Nilesh Patil
CHANGE NO.
APPROVED BY: Gmerek, Mike
PAGE DESCRIPTION: 5- 20k Power single line diagram



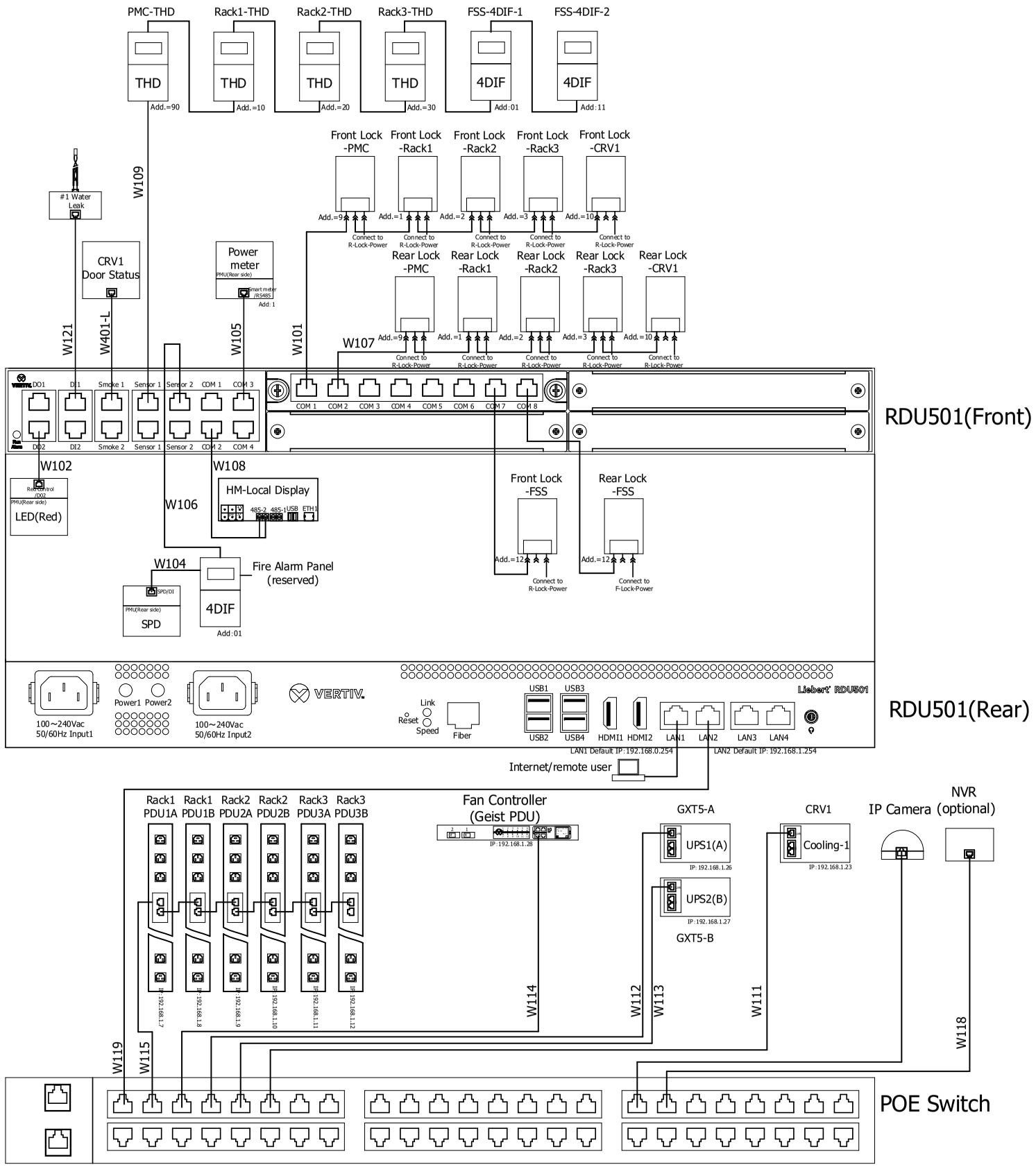
Notes:

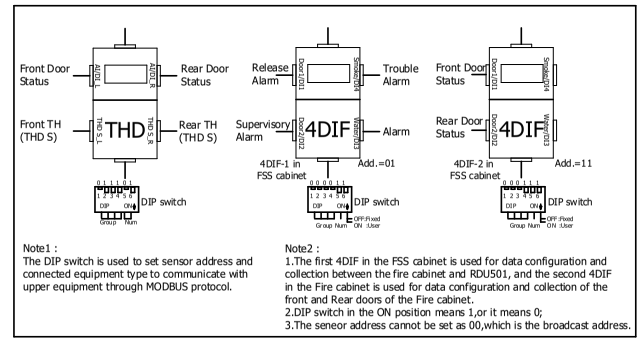
【1】:The emergency fans at the front and rear doors of each cabinet have been connected internally at the factory. The rear door emergency fans are then connected to the Fan Controller ports 1 to 6 reserved for emergency fans.

*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.

DWG NO.	SR2N03020PAA2
DATE (LATEST REV.)	02.04.2025
REVISION:	505 N. CLEVELAND AVE WESTERVILLE OH 43081
TITLE / DESCRIPTION:	Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System
SHEET NO.	14 / 15
DRAWN BY:	Nilesh Patil
CHANGE NO.	
APPROVED BY:	Gmerek, Mike
PAGE DESCRIPTION:	6- 20k System Schematic Diagram

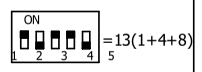




THD Sensors Dial Code Address Setting table (THD-Temperature and Humidity sensors)			
	Group Number	Sequence Number	Address
Cabinets	DIP1 ~ DIP4	DIP5 ~ DIP6	
PMC -THD (factory default)	1 0 0 1	0 0	90
Rack 1-THD	0 0 0 1	0 0	10
Rack 2-THD	0 0 1 0	0 0	20
Rack 3-THD	0 0 1 1	0 0	30

4DIF Sensors Dial Code Address Setting table (set in factory)				
	Group Number	Sequence Number	Sequence Number	Address
Cabinets	DIP1 ~ DIP4	DIP5	DIP6	
PMC-4DIF & FSS-4DIF-1 (factory default)	0 0 0 0	1	User	01 User equipment
FSS-4DIF-2	0 0 0 1	1	User	11 User equipment

Intelligent Lock DIP switch					
DIP Switch No.	1	2	3	4	5
Communication Address	1	2	4	8	16



Interlligent Lock of PMC/CRV/ITRack add. setting(front&rear)			
Name	Add.(Front&Rear)	Name	Add.(Front&Rear)
PMC Locks	9	ITRack 3 Locks	3
CRV1 Locks	10	FSS Locks	12
ITRack 1 Locks	1		
ITRack 2 Locks	2		

Note: Communication Cable
Inline quick disconnect

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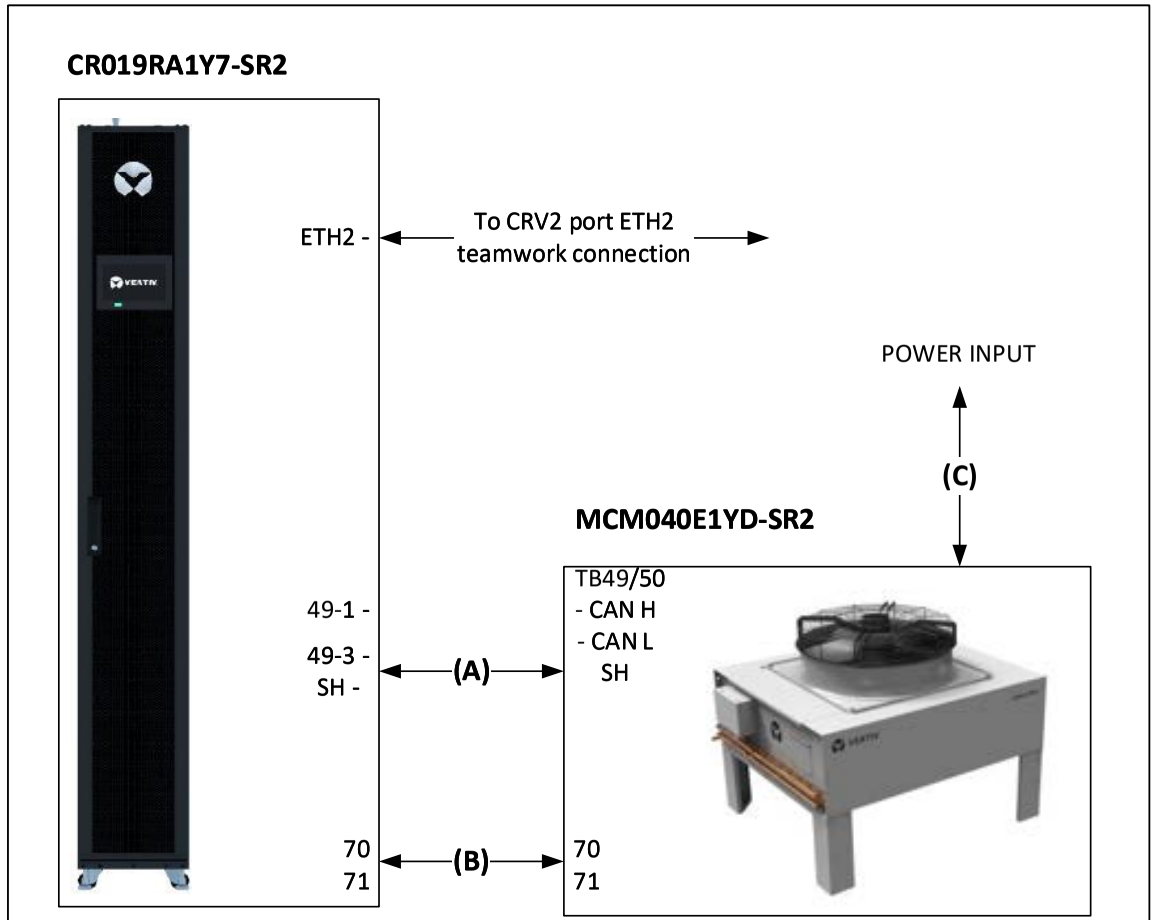
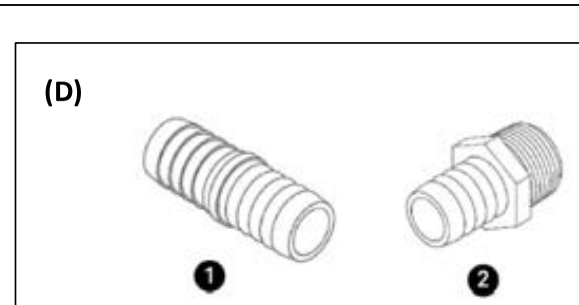
CHANGE NO.	APPROVED BY: Gmerek, Mike		DATE (LATEST REV.) 02.04.2025	
PAGE DESCRIPTION: 7- Monitoring system diagram		TITLE / DESCRIPTION: Vertiv™ SmartRow™ 2: 3x IT Rack 20kW With Fire Suppression System	REVISION:	505 N. CLEVELAND AVE WESTERVILLE OH 43081

4. Field Supplied Cable & Part List

FIELD SUPPLIED CABLE & PART LIST	
PART	**DETAILS**
CAN bus 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



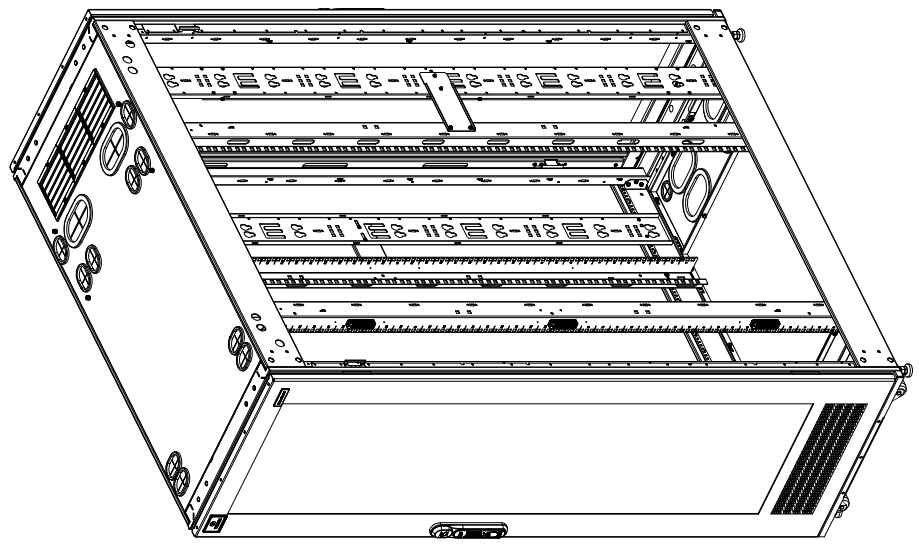
CONNECTION DETAILS REFER TO DPN003036



DETAILS REFER TO SL-11975

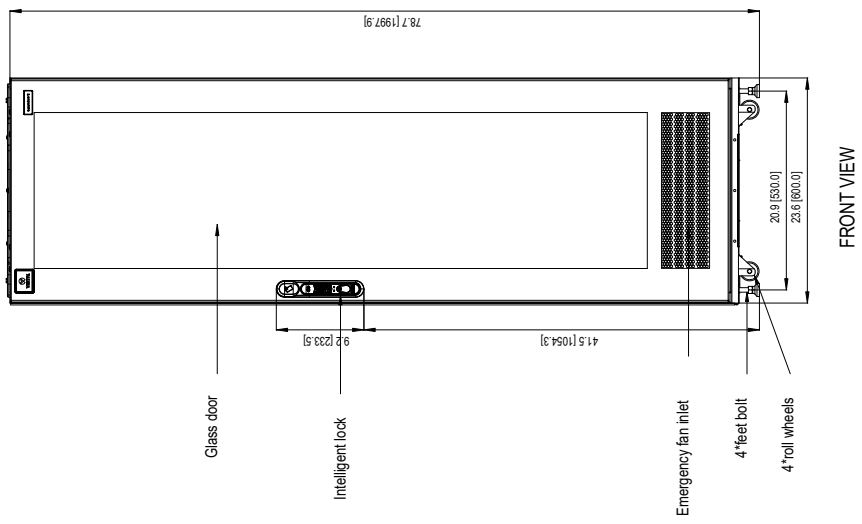
SHEET NO. 1 / 1	DRAWN BY: Petr Harant		DWG NO.	
CHANGE NO.	APPROVED BY: Tomáš Krech	TITLE / DESCRIPTION: **FIELD SUPPLIED CABLE & PART LIST**	DATE (LATEST REV.) 30.05.2024	
PAGE DESCRIPTION:			REVISION:	505 N. CLEVELAND AVE WESTERVILLE OH 43081

5. Vertiv MSR2 600mm IT Rack

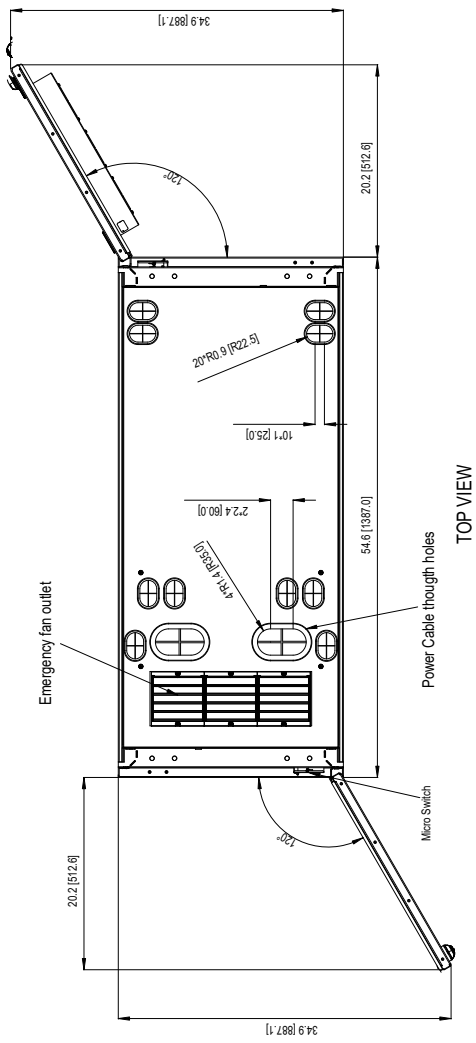


1.ALL DEMENSIONS ARE IN INCHES (MM)
2.FRONT AND REAR DOOR WITH THE GLASS AND INTELLIGENT LOCKS.
3.SWING RADIUS OF 120° (FRONT AND REAR DOORS).
4.EACH RACK HAS FOUR FEET BOLT AND ROLL WHEELS;
5.ON THE BOTTOM FRONT DOOR SIDE,THERE IS A EMERGENCE FAN UNIT(3 FANS);ON THE TOP OF REAR DOOR SIDE,THERE IS A EMERGENCE FAN UNIT(3 FANS);
6.ON THE TOP FRONT FRAME SIDE,THERE IS A TRI-COLOR LED AND MICRO SWITCH;ON THE TOP REAR FRAME SIDE,THERE IS A WHITE COLOR LED AND MICRO SWITCH.

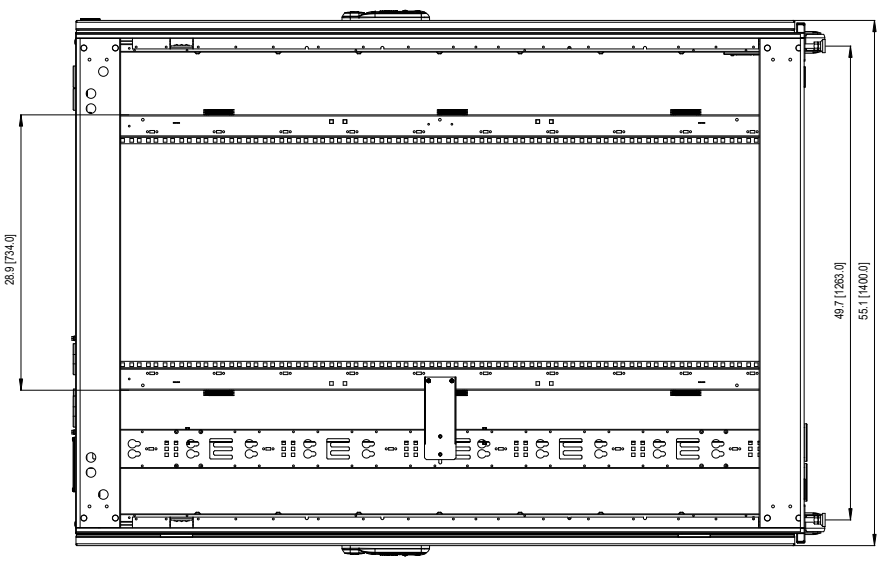
NOTES:



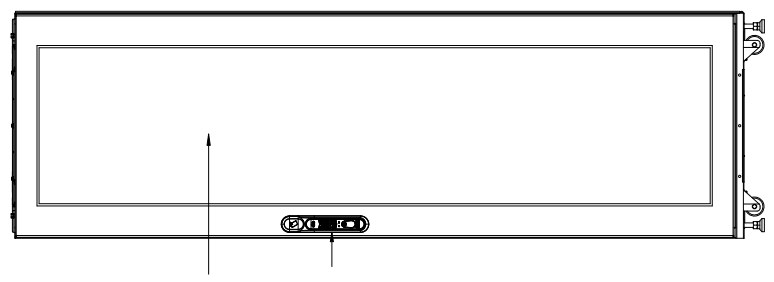
FRONT VIEW



TOP VIEW



FRONT SIDE VIEW



REAR VIEW

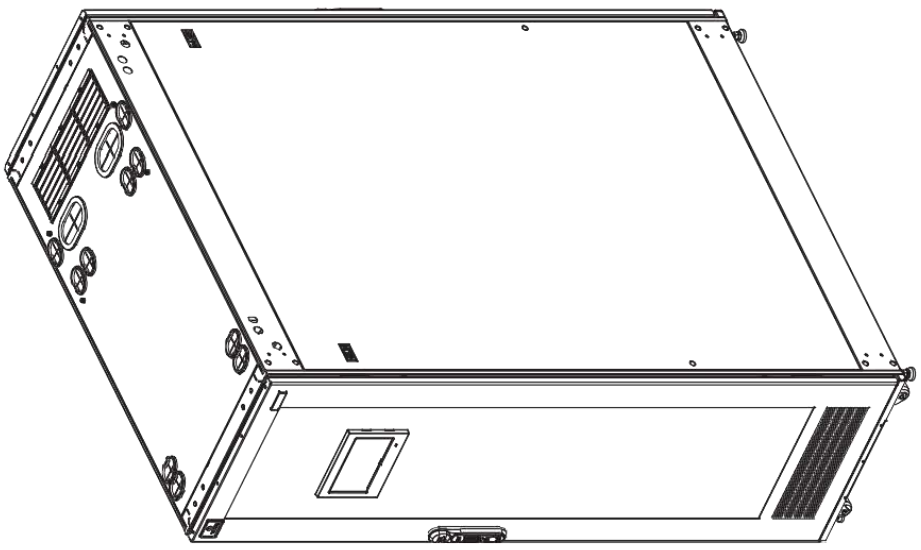
Net weight: 150 kg
Shipping weight: 250 kg

SHEET NO.	1 OF 1
DRAWN BY:	Terry
CO. NO.	–
DESIGNED BY:	
REF DWG.	–
APPROVED BY:	
DWG. NO.	MSR2-NR6S
DATE (LATEST REV.)	
REVISION	

VERTIV™
505 N. CLEVELAND AVE
WESTERVILLE, OHIO 43082

FORM NO. DPN004659 REV - A

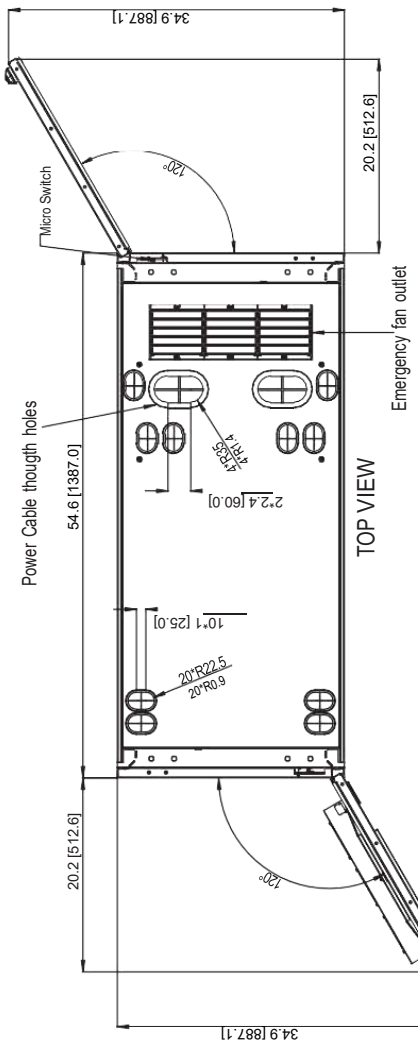
6. Vertiv MSR2 Power Management Cabinet (PMC)

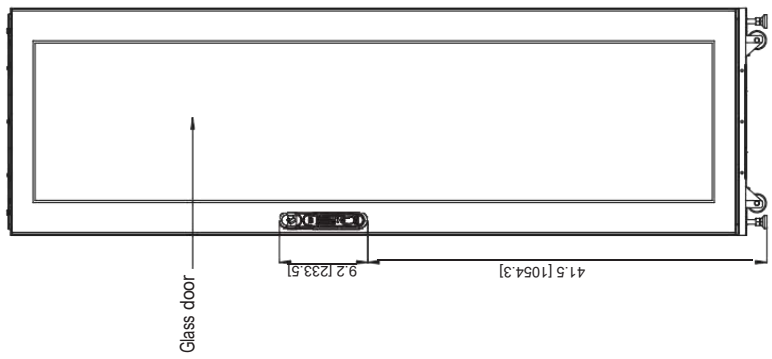


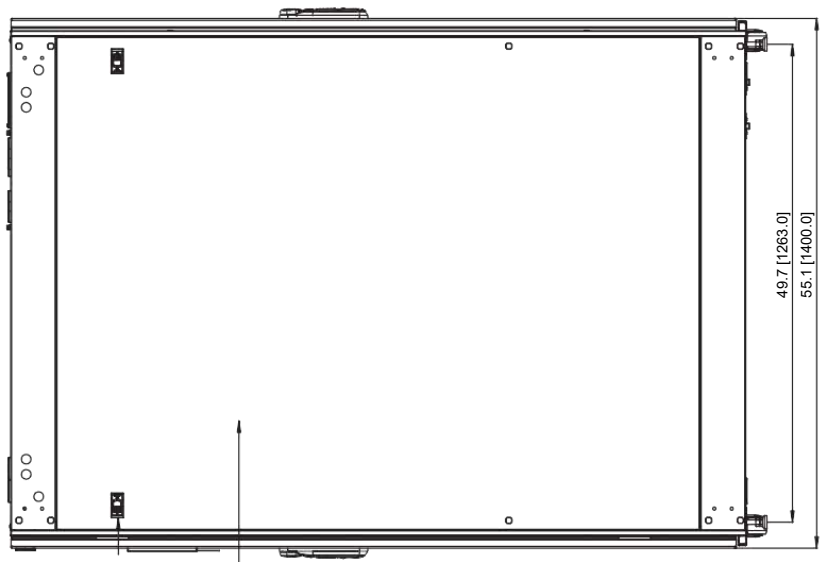
FRONT ISOMETRIC VIEW

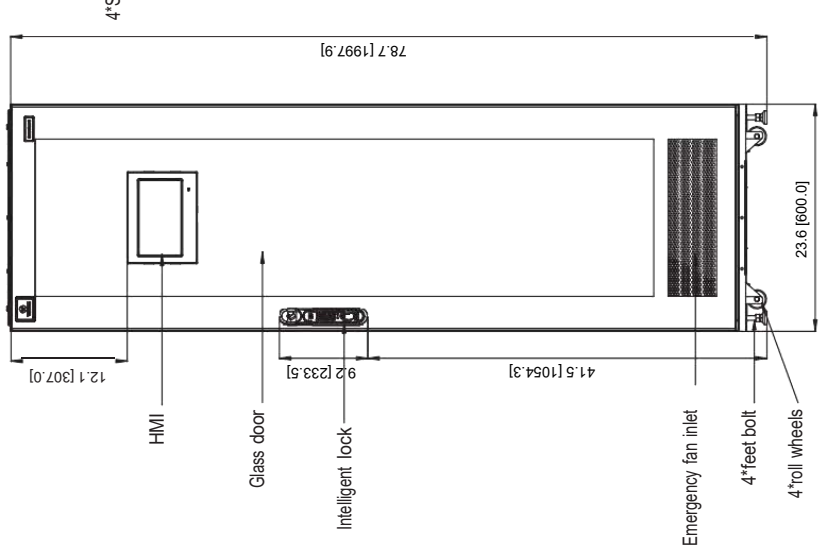
NOTES:

1. ALL DEMENSIONS ARE IN MM
2. FRONT AND REAR DOOR WITH THE GLASS AND INTELLIGENT LOCKS.
3. SWING RADIUS OF 120° (FRONT AND REAR DOORS).
4. EACH RACK HAS FOUR FEET BOLT AND ROLL WHEELS;
5. ON THE BOTTOM FRONT DOOR SIDE,THERE IS A EMERGENCE FAN UNIT(3 FANS);ON THE TOP OF REAR DOOR SIDE,THERE IS A EMERGENCE FAN UNIT(3 FANS);
6. ON THE TOP FRONT FRAME SIDE,THERE IS A TRI COLOR LED AND MICRO SWITCH;ON THE TOP REAR FRAME SIDE,THERE IS A WHITE COLOR LED AND MICRO SWITCH.









PMC-10
Net weight: 250 kg
Shipping weight: 355 kg

PMC-20
Net weight: 265 kg
Shipping weight: 370 kg

DWG. NO.	MSR2-PMC
DATE (LATEST REV.)	
REVISION	505 N. CLEVELAND AVE WESTERVILLE, OHIO 43082

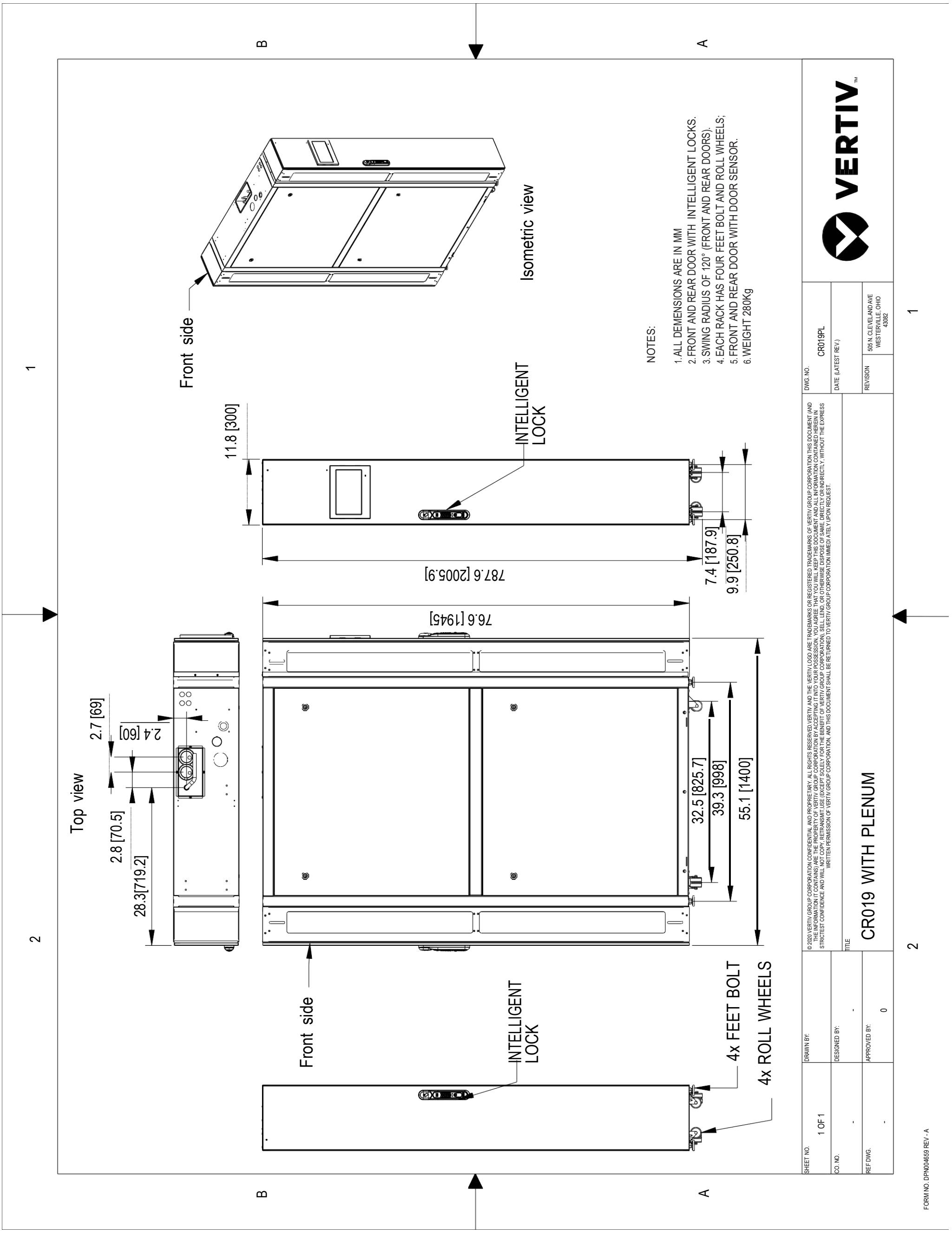
VERTIV™

Power Management Cabinet (PMC)

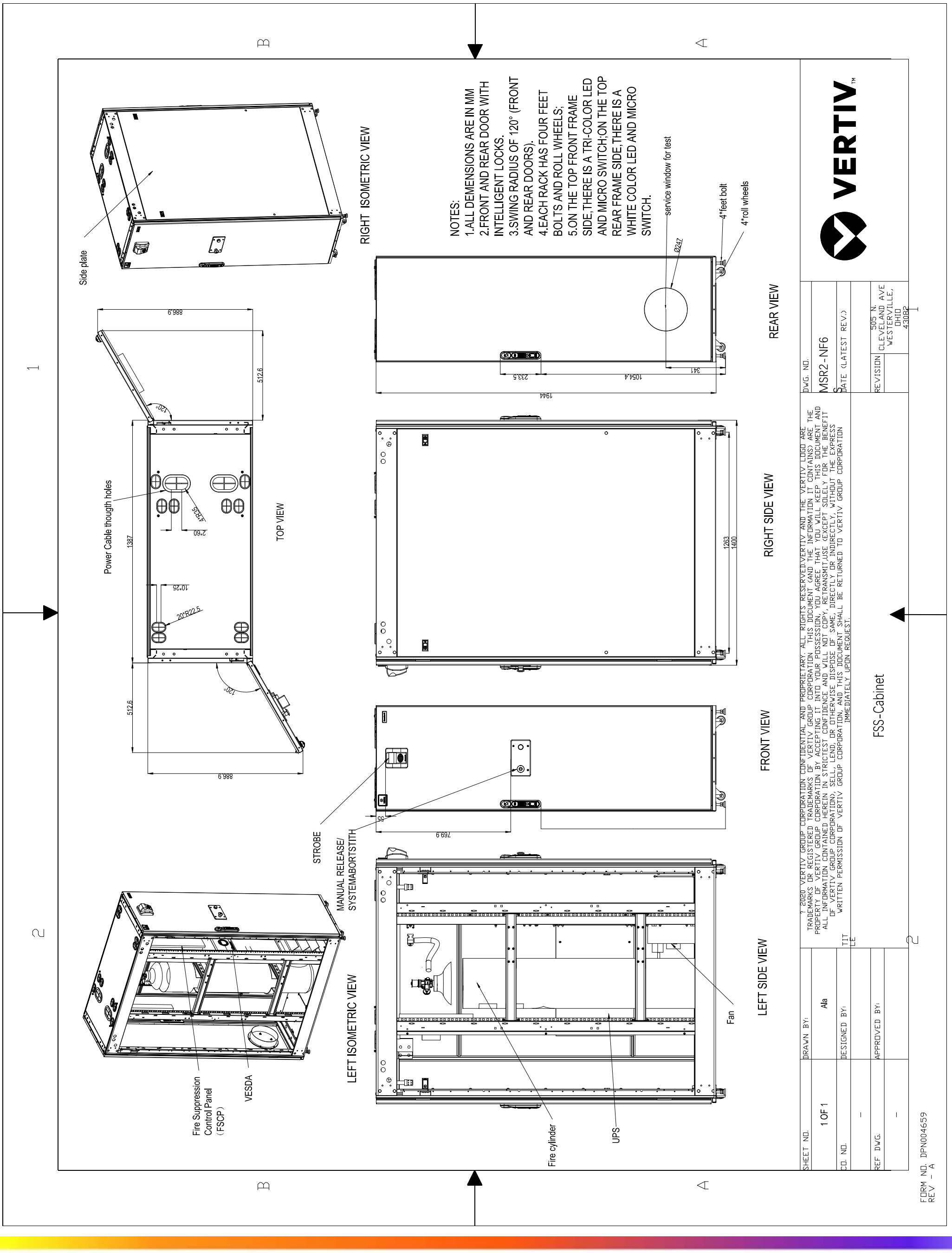
SHEET NO.	DRAWN BY:	TIT	
1 OF 1	Terry	LE	
CO. NO.	DESIGNED BY:		
–			
REF DWG.	APPROVED BY:		
–			

FORM NO. DPN004659 REV - A

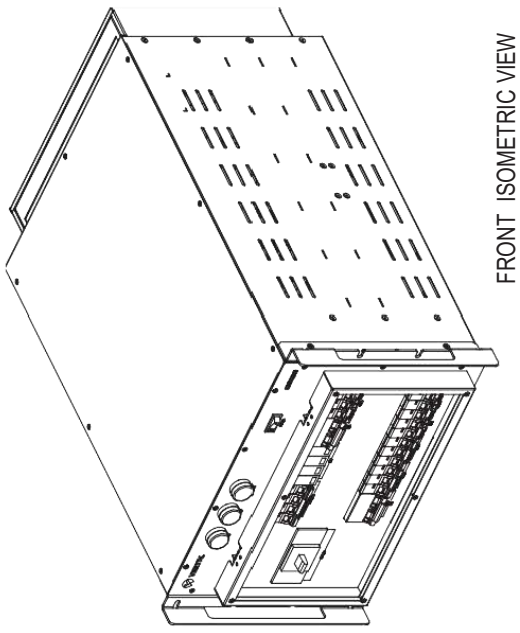
7. Vertiv Liebert CR019 with Plenums



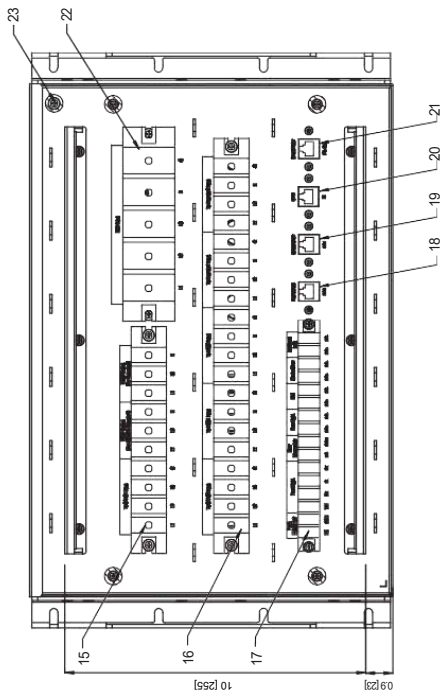
8. Vertiv MSR2 Fire Suppression System (FSS)



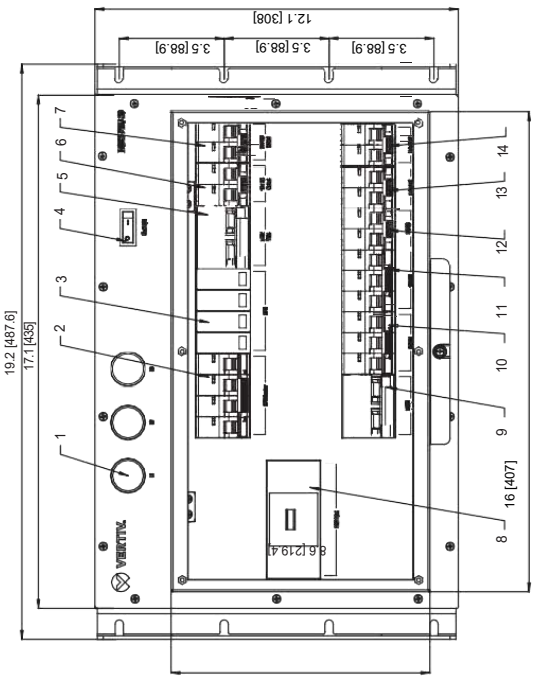
9. Power Management Unit - 20kW (PMU20)



NO.	NAME	Qty	REMARK
23	GROUND SCREWS	1	
22	MAIN POWER TERMINAL BLOCKS	1	
21	POWER METER RS485(RJ45)	1	
20	SPD DI(RJ45)	1	
19	STOBE SIREN CONTROL DO1(RJ45)	1	
18	RED CONTROL DO2(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	1	
3	LIGHT SPD	1	
2	SPD BREAKER	1	
1	POWER LIGHT(L1/L2/L3)	3	



REAR VIEW
(PMU COVER REMOVED)



FRONT VIEW

NOTES:

A PMU20 is used in Power Redundancy and No Power Redundancy PMC

Net weight: 41 kg

DWG. NO.

PMU20

DATE (LATEST REV.)

REVISION

505 N. CLEVELAND AVE WESTERVILLE, OHIO 43082

SHEET NO. 1

DRAWN BY: Terry

CO. NO.

DESIGNED BY:

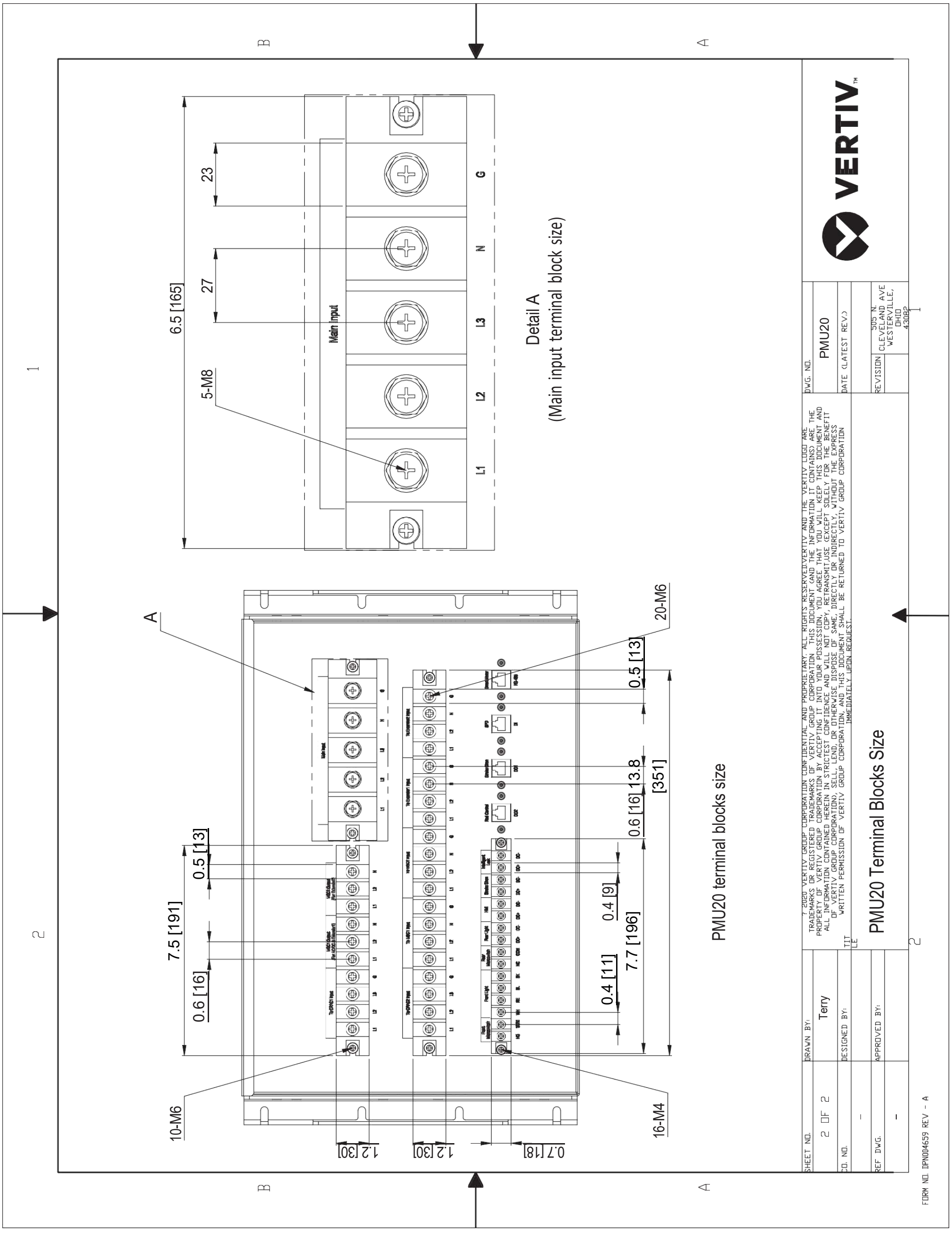
REF DWG.

APPROVED BY:

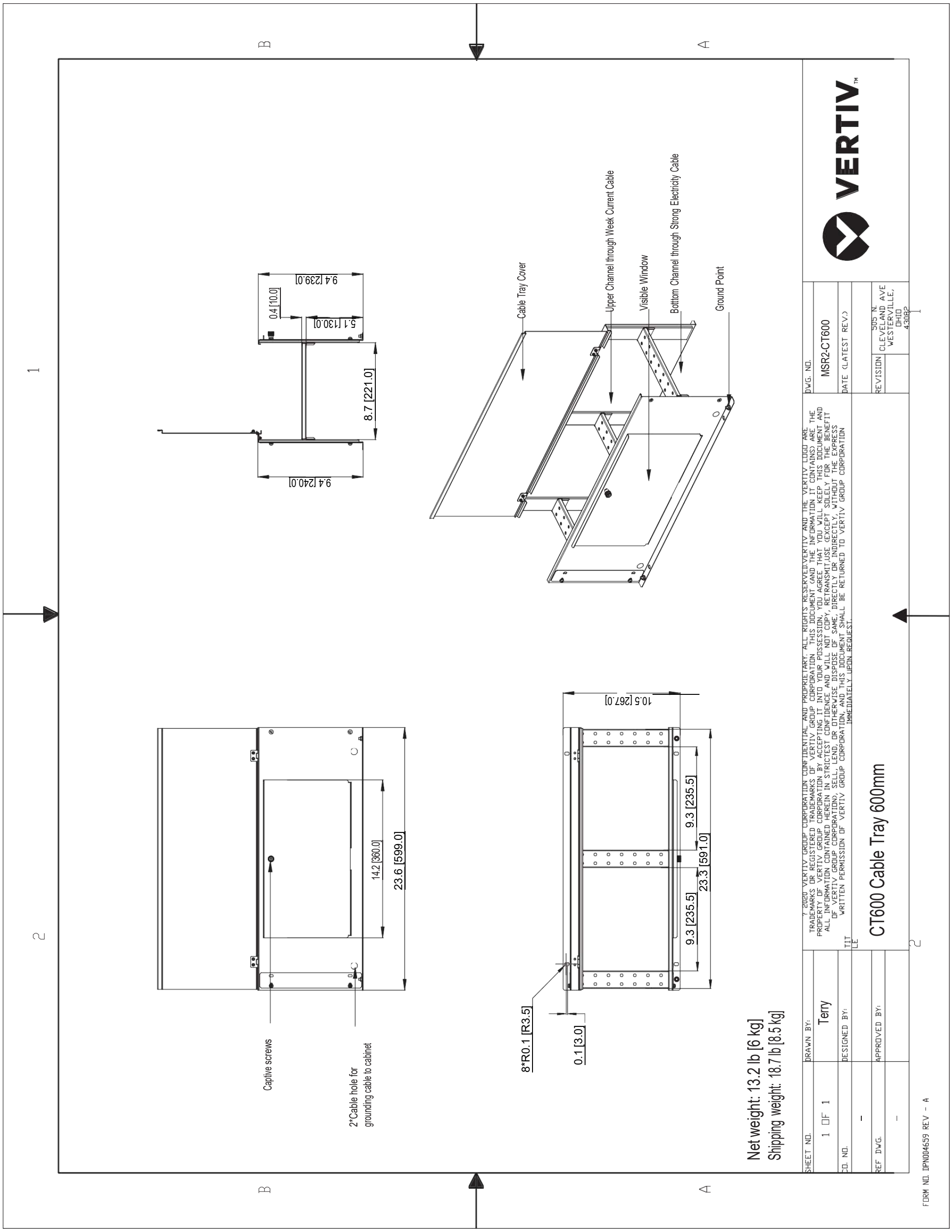
FORM NO. DPN004659 REV - A

Power Management Unit - 20kW (PMU20)

10. PMU20 Terminal Blocks Size



11. Vertiv MSR2 - CT600 Cable Tray 600mm



12. SCOPE OF WORK

SMART ROW 2 – ASSEMBLY & START-UP

SERVICE SUMMARY

Feature	Detail
On-site Service	One site trip within the 48 contiguous states to start-up the system. Visit to be scheduled by the customer between 8am-5pm, Monday-Friday (excluding 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/downstairs, 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.

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 grounding) 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® CRVs

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

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.

Fire Suppression Cabinet Assembly (if Applicable)

Vertiv will unpackage the Fire Suppression cabinet so that it is ready for installation.

Position level and bolt together the Fire Suppression cabinet to the adjoining cabinets.

Ensure all the wirings are connected, according to the information available in the submittal documents.

Install the piping in all the other cabinets in accordance with system drawings.

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 4 weeks in advance for assembly and 10 days for startup/warranty-inspection of need by contacting the Vertiv Project Manager. Site must be available for 5 consecutive business days. Customer may choose to pay for premium time if weekend work is necessary.
- Site Access: Prior to time of scheduled work, provide site access including any customer required escort, security clearance, safety training and badging for Vertiv personnel.
- Equipment Access: Convenient access to the equipment covered by the Scope of Work. Prior to scheduled time of work, notify Vertiv 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 personnel 24-hours prior to scheduled event.
- Provide Method of Procedure (MOP) requirements/ templates, and required review period(s)

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.)

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.

SCOPE OF WORK

SMART ROW 2 – FIRE SUPPRESSION

START-UP & OPTIONAL SERVICES

SERVICE SUMMARY

Feature	Detail
On-site Service	One site trip within the 48 contiguous states to start-up the system. Visit to be scheduled by the customer between 8am-5pm, Monday-Friday (excluding national holidays).
Service Professional	Performed by Vertiv factory-trained and authorized technician equipped with Vertiv Proprietary tools and software. Vertiv CEs and Vertiv Partners are the only approved OEM service providers for Vertiv products.
Permitting	Permits are the responsibility of the customer to see if one is required. Additional fees may apply and can vary based on the customer's location. (see Assumptions and Clarifications).
Optional services	Optional system integrity services can be requested by the customer as part of the startup and installation.

SERVICE PERFORMED

Fire Suppression Start-up:

1. Verify that 120V AC circuit has been ran to the fire suppression panel.
2. Verify all the items on the Fire Suppression readiness punch list have been completed and acknowledged.
3. Functionality test all input and output circuits for proper operation.
4. Complete the warranty inspection of the system.
5. Provide training to the customer on the operation of the Fire Suppression system.

Door Fan Test (if applicable):

1. Conduct a door fan test with the standardized Fan test system.
2. Measure the pressure retention rate and calculate the amount of air flowing through the Door fan.
3. Determine the total size of the air leaks (if any).
4. Provide the customer with the pressure test report.

Discharge Test (if applicable):

1. Replace the system cylinder with the Proinert test cylinder provided by the manufacturer.
2. Conduct a discharge test on the system.
3. Ensure that the oxygen level falls below 15% and maintains that level for a minimum of 10 minutes.
4. Place the system cylinder back into place and arm the system.
5. Provide the customer with a discharge test report.

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.

ASSUMPTIONS AND CLARIFICATIONS

- Assembly: The assembly of the Fire Suppression cabinet is included in the SmartRow2.
- Punch list: This document confirms system readiness and must be completed before startup. It is included in the submittal package.
- Permitting: The customer is responsible for any permits (if required), as it falls outside the original scope. While the process can be facilitated, the customer will be responsible for all permitting costs, including any optional services listed above.
- Maintenance: Per NFPA 2001, the FIKE Proinert IG-55 SHP Pro suppression system protecting the SmartRow2 shall be inspected on a semi-annual basis. These inspections are not only important in ensuring the included clean agent system is functionally operational but are necessary to qualify for any manufacturer warranties. Per the manufacturer's warranty guidelines, the equipment must be maintained on a semi-annual frequency by an authorized FIKE distributor commencing with the date of Startup.
- Optional Integrity testing: Manufacturer intends to provide both the integrity test services (Door fan test and Discharge test) at the customer's facility either directly or through a local Fike distributor. This pricing includes the necessary labor, equipment, and materials to complete this testing.
- Manufacturer does not guarantee a passing test after the system has been handed over to the customer and is not responsible for the patching and sealing of the enclosure if the cable and CRV penetrations have not been sealed.

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): _____

	Customer	Local Vertiv Sales Rep	Project Management	Assembly Team	Consolidator / Inside Delivery	Flagship/FIKE Rep	Vertiv Warranty Inspection Tech	Tasks
1	Pre-Sale Activities							
1,01	X	X	☐	☐	☐	☐	☐	Perform / arrange Site Visit to qualify deployment. Add any incremental site-specific Tasks in Section 6 of this checklist.
1,02	X	X	☐	☐	☐	☐	☐	Assess whether the building has enough power available to support the SmartRow 2 and heat rejection.
1,03	X	X	☐	☐	☐	☐	☐	Advise if a floor loading analysis should be conducted.
1,04	☐	X	☐	☐	☐	☐	☐	Ensure the customer understands and adheres to the minimum and maximum SmartRow 2 heat load and rack density limits.
1,05	X	X	☐	☐	☐	☐	☐	Assess if a crane will be required to locate the heat rejection on a roof and plan accordingly.
1,06	X	X	☐	☐	☐	☐	☐	If a freight elevator will be used, confirm adequate lifting capacity and dimensional clearances (PMC cabinet is typically the heaviest piece of equipment at 1998mm height, 1400mm depth, 600mm width and up to 1,600 lb weight.)
2	Post Sale, Equipment Pre-Delivery Activities							
2,01	☐	X	☐	☐	☐	☐	☐	Ensure every task in this Trade SOW Guide is assigned to at least one responsible party (Marked by X). This guide is specific to the SmartRow 2.
2,02	☐	X	☐	☐	☐	☐	☐	Send a completed copy of this document to all involved parties.
2,03	☐	X	X	☐	☐	☐	☐	Ensure all trades receive a current and accurate manual and set of submittals.
2,04	☐	X	☐	☐	☐	☐	☐	Acknowledge all tasks listed in the Trade SOW Checklist are completed by all the resposibile parties.
2,05	X	X	☐	☐	☐	☐	☐	Verify whether permits are necessary for the installation of the Fire Suppression System.
2,06	X	X	X	☐	☐	☐	☐	Asses whether the customer requires any onsite system integrity tests as part of the Fire suppression System Startup activity.
2,07	X	X	☐	☐	☐	☐	☐	Complete SmartRow 2 Delivery Service (Inside Delivery) checklist and return to factory within 10 days of PO receipt (Document MBFM 7160-10 in submittal packet).
2,08	X	X	☐	☐	☐	☐	☐	Ensure indoor space meets all SmartRow 2 requirements (see SmartRow 2 manual); identify any issues and resolve: (1) Floor surface must be level and continuous (expansion joints sealed, raised floor tile gaps sealed, no floor drains, etc). (2) Mezzanine/roof can support outdoor heat rejection (if applicable) (3) Adequate service, egress and electrical clearances (see submittal packet) (4) Room containing SmartRow 2 maintained year-round within 0°C – 40°C. (5) The room and floor must be clean and free of debris. (6) Ensure there is at least 24 inches clearance above the rack top plates (7) Ensure no part of the SmartRow 2 will be closer than 18 inches to a sprinkler head (per NFPA 13)
2,09	X	X	☐	☐	☐	☐	☐	Make sure condenser is within 300 equivalent feet (see cooling equipment manuals for calculation guidance).Outdoor Condenser Installation. Follow Installer/User Guide. (1) Condenser is bolted, mounted and leveled (2) Provide and install (2) low voltage twisted pair wires between each indoor cooling unit and outdoor heat rejection (condenser / drycooler) for CANbus communication and dry contact closure. (3) This includes qty (3) vacuum pulls of the refrigerant lines (oil must be changed in the vacuum pump between each pull, and readings should be 250 microns or less. Provide picture with date/time to confirm) (4) Refrigerant lines charged with freon (5) The outdoor piping are wrapped in aluminum and braced
2,10	X	X	☐	☐	☐	X	X	Confirm that the nearest drain for condensate is within the cooling unit's pump head limitations (see cooling equipment manuals).
2,11	X	X	☐	☐	☐	☐	☐	Provide and install utility over-current protection and circuit for each outdoor condenser/drycooler when applicable.
2,12	X	X	☐	☐	☐	☐	☐	Provide and install utility over-current protection and circuit for main input row connection in PMC.
2,13	X	X	X	☐	☐	☐	☐	Schedule delivery. If new construction, installation is recommended before office furniture is installed but after building construction is completed. Permanent, continuous power must be available.
2,14	☐	X	X	☐	☐	☐	☐	Schedule Vertiv Cooling System Warranty Inspection.
2,15	☐	X	X	☐	☐	☐	☐	Schedule Vertiv UPS System Warranty Inspection.

3	SmartRow 2 Assembly							
3,01	☐	☐	☐	☐	X	☐	☐	Receive shipment(s).
3,02	☐	☐	☐	☐	X	☐	☐	Bring equipment from truck into room, unpackage and remove debris (included with SmartRow 2 Delivery Service).
3,03	☐	☐	☐	☐	X	☐	☐	Review equipment for shipping damage (recommended the same party who receives the equipment).
3,04	☐	☐	☐	X	☐	☐	☐	Assemble, gasket and level PMC unit per submittal package.
3,05	☐	☐	☐	X	☐	☐	☐	Assemble, gasket and level indoor cooling unit(s) per submittal package.
3,06	☐	☐	☐	X	☐	☐	☐	Assemble, gasket and level racks per submittal package.
3,07	☐	☐	☐	X	☐	☐	☐	Assemble and attach rubber cable grommets.
3,08	☐	☐	☐	X	☐	☐	☐	Connect door switch wire and rack lighting wire harnesses.
3,09	☐	☐	☐	X	☐	☐	☐	Install cable troughs on top of equipment.
3,10	☐	☐	☐	X	☐	☐	☐	Neatly connect and route CANbus communication cables and address rack temperature 2T-sensors (set dip switches).
3,11	☐	☐	☐	X	☐	☐	☐	Neatly route the rack temperature 2T temperature probes into position in front of EIA rails.
3,12	☐	☐	☐	X	☐	☐	☐	Neatly route and connect all Ethernet cables between SmartRow 2 Network vNSA switch, and all UPS and cooling unit Unity monitoring cards, primary rack-PDU RPC2 monitoring cards, and cooling unit teamwork connections.
3,13	☐	☐	☐	X	☐	☐	☐	Neatly route and connect all rack-PDU array Ethernet cables.
4	SmartRow 2 Installation including the Fire Suppression System							
4,01	☐	☐	☐	X	☐	☐	☐	Install PMC to MBC (20KVA) or PMC to UPS (10KVA) interconnect cabling (cables provided with SmartRow 2)
4,02	☐	☐	☐	X	☐	☐	☐	Install UPS to MBC (20KVA) interconnect cabling (cables provided with SmartRow 2) or Mount POD (Included in SmartRow 2) on UPS (10KVA).
4,03	☐	☐	☐	☐	☐	☐	X	Connect low voltage wires to indoor cooling unit and outdoor heat rejection.
4,04	X	☐	☐	☐	☐	☐	☐	Provide and connect condensate drain line to each indoor cooling unit.
4,05	X	☐	☐	☐	☐	☐	☐	Connect utility high voltage building feed to main input in PMC.
4,06	X	☐	X	☐	☐	☐	☐	Ensure the handover document is completed and acknowledged by all responsible parties if startup activities are scheduled at different times.
5	SmartRow 2 Startup							
5,01	☐	☐	☐	X	☐	☐	☐	Ensure all rubber cable grommets are installed
5,02	☐	☐	☐	☐	☐	☐	X	Cooling system Warranty Inspection.
5,03	☐	☐	☐	☐	☐	☐	X	UPS system Warranty Inspection.
5,04	☐	☐	☐	☐	☐	☐	X	Configure RDU501 Controller
5,05	☐	☐	☐	X	☐	☐	☐	Close breakers on rack-PDUs.
5,06	☐	☐	☐	X	☐	☐	☐	Perform final SmartRow 2 functional test (Door switches, backup fans, HMI).
5,07	☐	☐	☐	X	☐	☐	☐	Clean entire SmartRow 2, inside and outside. When cleaning see-through Plexiglas doors follow instructions in manual to avoid scratching.
5,08	☐	☐	☐	X	☐	☐	☐	Ensure the SmartRow 2 Startup Form has been completed.
6	Fire Suppression System Start up							
6,01	X	X	☐	X	☐	X	☐	Ensure all the required parties are present on site for the installation of the Fire Suppression System.
6,02	☐	☐	☐	X	☐	☐	☐	Position, level and bolt together the Fire suppression cabinet to the rest of the row.
6,03	☐	☐	☐	X	☐	☐	☐	Ensure all the wiring is connected, according to the information available in the submittals.
6,04	☐	☐	☐	X	☐	☐	☐	Install the piping in all the other cabinets.
6,05	X	X	☐	☐	☐	X	☐	Ensure the Punch list items are completed and signed by the responsible parties.
6,06	X	X	☐	☐	☐	X	☐	Review the closeout document with the information about the pre-test conducted at Flagship.
6,07	☐	☐	☐	☐	☐	X	☐	Validate the warranty of the Fire supression system.
6,08	☐	☐	☐	☐	☐	X	☐	Verify that all components are functioning as intended.
6,09	X	☐	☐	☐	☐	X	☐	Provide training to the customer on the system.
7	Optional - Fire Suppression System Integrity Test (upon customer request)							
7,01	☐	☐	☐	☐	☐	X	☐	Conduct a door fan test with the standardized Fan test system.
7,02	☐	☐	☐	☐	☐	X	☐	Measure the pressure retention rate and calculate the amount of air flowing through the Door fan.
7,03	☐	☐	☐	☐	☐	X	☐	Determine the total size of the air leaks.
7,04	☐	☐	☐	☐	☐	X	☐	Provide the customer with the pressure test report.
7,05	☐	☐	☐	☐	☐	X	☐	Replace the system cylinder with the Proinert test cylinder provided by the manufacturer.
7,06	☐	☐	☐	☐	☐	X	☐	Conduct a discharge test on the system.
7,07	☐	☐	☐	☐	☐	X	☐	Ensure that the oxygen level falls below 15% and maintains that level for a minimum of 10 minutes.
7,08	☐	☐	☐	☐	☐	X	☐	Place the system cylinder back into place and arm the system.
7,09	☐	☐	☐	☐	☐	X	☐	Provide the customer with a discharge test report.