

## Solution: SR2N05020FAA2



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# 1. Change Log

Rev	Date	Author	Description	Number of Change
А	1/29/2024	ТК	Initial Release	CO-1104874
В	4/7/2025	ТК	ICGs Update	CO-1112923

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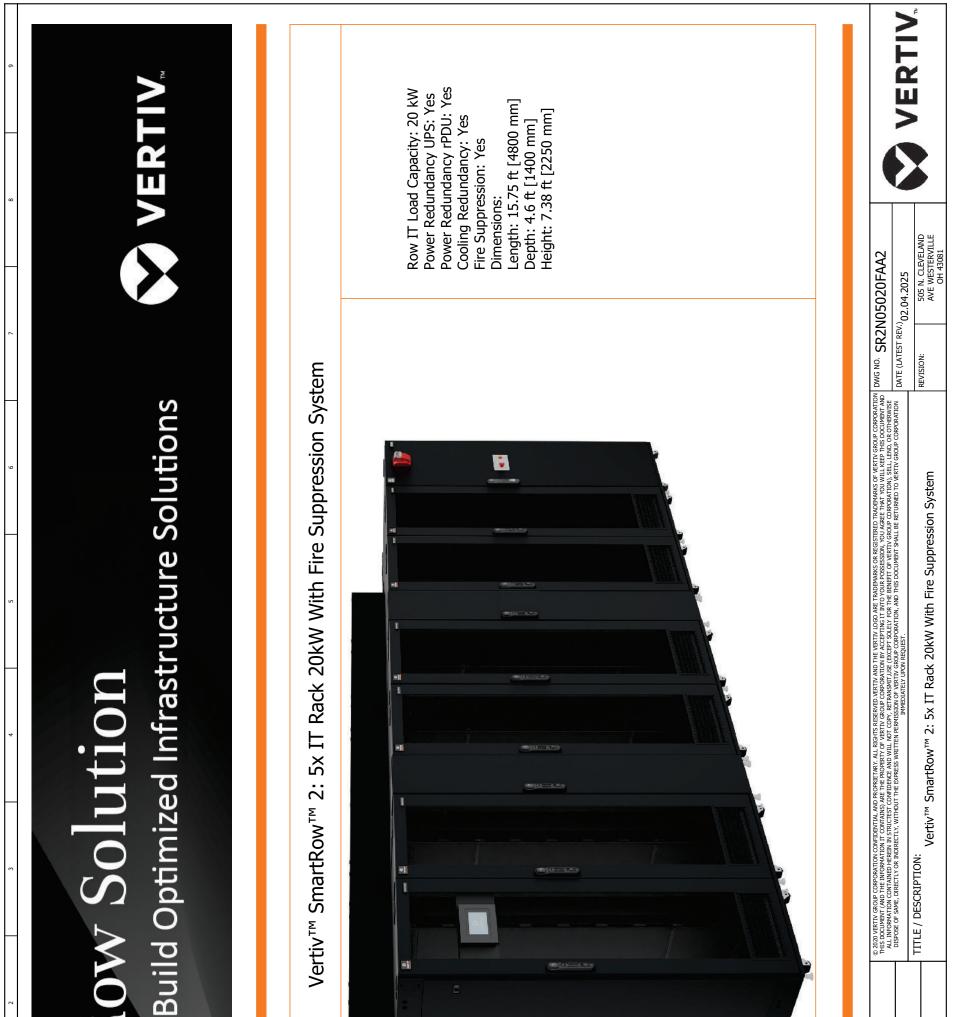


# 2. Site Planning Datasheet

	Row Weight kg Min. Staging (Ibs) Area m2 (ft2)	2048 (4516) 15.76 (169.7)		2696 (5945) 19.02 (204.8)	2218 (4890) 17.11 (184.2)	2260 (4983) 17.69 (190.5)	2880 (6350) 20.37 (219.3)	2448 (5397) 19.81 (213.3)	2490 (5490) 21.86 (235.3)	3110 (6857) 25.77 (277.4)	2618 (5772) 21.16 (227.8)	2674 (5896) 23.21 (249.9)	3294 (7263) 27.12 (292)	2788 (6147) 22.51 (242.3)	2858 (6301) 24.56 (264.4)	3478 (7669) 28.47 (306.5)						
e + PE				2)	3300 (130) x 2271 (107) x 1400 (55.2) 221	3300 (130) x 2271 (107) x 1400 (55.2) 226(	3600 (141.8) x 2271 (107) x 1400 (55.2) 288(	3300 (130) x 2271 (107) x 1400 (55.2) 244	3300 (130) x 2271 (107) x 1400 (55.2) 2490	3600 (141.8) x 2271 (107) x 1400 (55.2) 3110	3900 (153.6) x 2271 (107) x 1400 (55.2) 261	3900 (153.6) x 2271 (107) x 1400 (55.2) 2674	4200 (165.4) x 2271 (107) x 1400 (55.2) 3294	4500 (177.2) x 2271 (107) x 1400 (55.2) 278	4500 (177.2) x 2271 (107) x 1400 (55.2) 285	4800 (189.0) x 2271 (107) x 1400 (55.2) 347				DWG.NO.		WESTERVILLE OHIO 43081
: (208V, 3 phase, 4 wire + PE)	Per Condenser Dry Weight kg (lbs)	60 (132.3)	60 (132.3)	60 (132.3)	60 (132.3)	60 (132.3)	60 (132.3)	118 (260.2)	118 (260.2)	118 (260.2)	118 (260.2)	118 (260.2)	118 (260.2)	118 (260.2)	118 (260.2)	118 (260.2)		28°C)		© 2000 VERTV GROUP CORPORATION CONFIDENTIM, AND PROPRETARY, ALL RIGHTS RESERVED VERTV AND THE GETMULOSO ARE TRACEMARKS OR REGISTERED TRADEMARKS OF VERTV GROUP CORPORATION THIS DOCUMENT AND THE RECEIVENT CONFIDENTIATE HER PROPERTING FOR VERTVEND CONFORMATION OF DAGGASCREAD TRADEMARKS OF AND ALL NOT DAGGASCREAT AND ALL INCOMMENT CONTINNED RECEIVE TRATERT CONFIDENTIATION CONFIDENTIATION CORPORATION AND THIS DOCUMENT SANCE AND ALL ROLO ROOP OF AND ALL NOT DAGGASCREAT AND ALL RECEIVANT CONTINNED RECEIVES AND ALL NOT CONFIDENTIATION CONFIDENCE AND ALL AND AGOTHERINGES DAGGASCREAD FOR ADDITIONAL MOMENTALY AND THE EXPERSION CONFIDENTIATION CONFIDENCE AND ALL NOT DAGGASCREAD FOR ADDITIONAL AND ALL RECEIVANT MOMENTALY AND THE EXPERSION OF VERTIN CROUP CORPORATION, AND THIS DOCUMENT SANL IS RECEIVED TO VERTING FOUR POLICIES AND ALL AND ADDITIONAL MOMENTALY AND ADDITIONAL AND ADDITIONAL AND		
08V, 3 ph	ser ze	N/A <sup>5</sup>	N/A <sup>5</sup>	ς <sup>Ρ/Ν</sup>	ς <sup>Ρ/Ν</sup>	N/A <sup>5</sup>	N/A <sup>5</sup>	15A	15A	15A	15A	15A	15A	15A	15A	15A		w point of 82.4°F (28°C) Irains, etc).		EGISTERED TRADEMARKS OF V GREE THAT YOU WILL KEEP TH ION), SELL, LEND, OR OTHERW RTV GROUP CORPORATION IM	ase 4 wire + PF)	/
	Main Input Breaker Size <sup>6</sup>	100A	100A	100A	100A	100A	100A	175A	175A	175A	175A	175A	175A	175A	175A	175A		x de oor c		LOGO ARE TRADEMARKS OR R TOYOUR POSSESSION, YOU A OF VERTIV GROUP CORPORAT IT SHALL BE RETURNED TO VEF		
ng Data	pdu count	2	4	4	ю	9	9	с	9	9	4	8	8	2	10	0		gaps sealed, DA or local α		VERTIV AND THE VERTIV ATION BY ACCEPTING IT IN SOLELY FOR THE BENEFIT TION, AND THIS DOCUMEN	atasheet (2(	-1
te Planni	Cooling Units per Row	~	~	2	-	1	2	~	~	2	~	1	2	Ļ	Ļ	2		to 40°C), RH aised floor tile ncluding per Al	.do	ETARY. ALL RIGHTS RESERVED Y OF VERTIV GROUP CORPOR I, RETRANSMITUSE (EXCEPT 5 OF VERTIV GROUP CORPORA	e Planning D	
Smart Row 2 Site Planning Datasheet	Capacity per Rack (kW)	5	ນ	Ð	с	3	ю	9	9	9	5	5	5	4	4	4		to 104∘F (5∘C n joints sealed, n m). odes t t	A 120V utility dı	ON CONFIDENTIAL AND PROPRICON CONTAINS) ARE THE PROPERITY CONTAINS) AND WILL NOT COP XINFIDENCE AND WILL NOT COP XPRESS WRITTEN PERMISSION	Smart Row 2 Site Planning Datasheet (208V_3 nh	
Smart I	IT Racks per Row	2	2	2	3	3	ю	3	с	3	4	4	4	5	5	ى		idoors, 41°F bus (expansior in 19.7 in (0.5 cal electrical α the indoor unit 0 AWG any space neec	n minimum 15,	20 VERTIV GROUP CORPORATI NI AND THE NFORMATION IT NED HEREIN IN STRUCTEST CC INDIRECTLY, WITHOUT THE E	, v	
	Max Row Capacity (kW)	10	10	10	10	10	10	20	20	20	20	20	20	20	20	20		Conditions: Ir el and continue i should be with national and lo sourced from MG ; 175A = 2 nolude necess	requires its ow	© 20 DOCUME CONTAI	ШПЕ	
	Part Number	SR2N02010NAA2	SR2N02010PAA2	SR2N02010FAA2	SR2N03010NAA2	SR2N03010PAA2	SR2N03010FAA2	SR2N03020NAA2	SR2N03020PAA2	SR2N03020FAA2	SR2N04020NAA2	SR2N04020PAA2	SR2N04020FAA2	SR2N05020NAA2	SR2N05020PAA2	SR2N05020FAA2	S:	System Environmental Conditions: Indoors, 41°F to 104°F (5°C to 40°C), RH to 80% with Max dew point of 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 mational and local electrical codes 10kW condenser power is sourced from the indoor unit Cable Sizing: 100A = 3 AWG ; 175A = 2/0 AWG Roor Dimensions do not include necessary space needed for access including per ADA or local codes.	Fire Suppression cabinet requires its own minimum 15A 120V utility drop.	DRAWN BY:	DESIGNED BY: APPROVED BY:	
	Configuration Number	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	NOTES	<ol> <li>Syste</li> <li>Ploor 3</li> <li>No bui</li> <li>A Install</li> <li>10kW</li> <li>Cable</li> <li>Row D</li> </ol>	αj	SHEET NO.	CO.NO. REF DWG.	

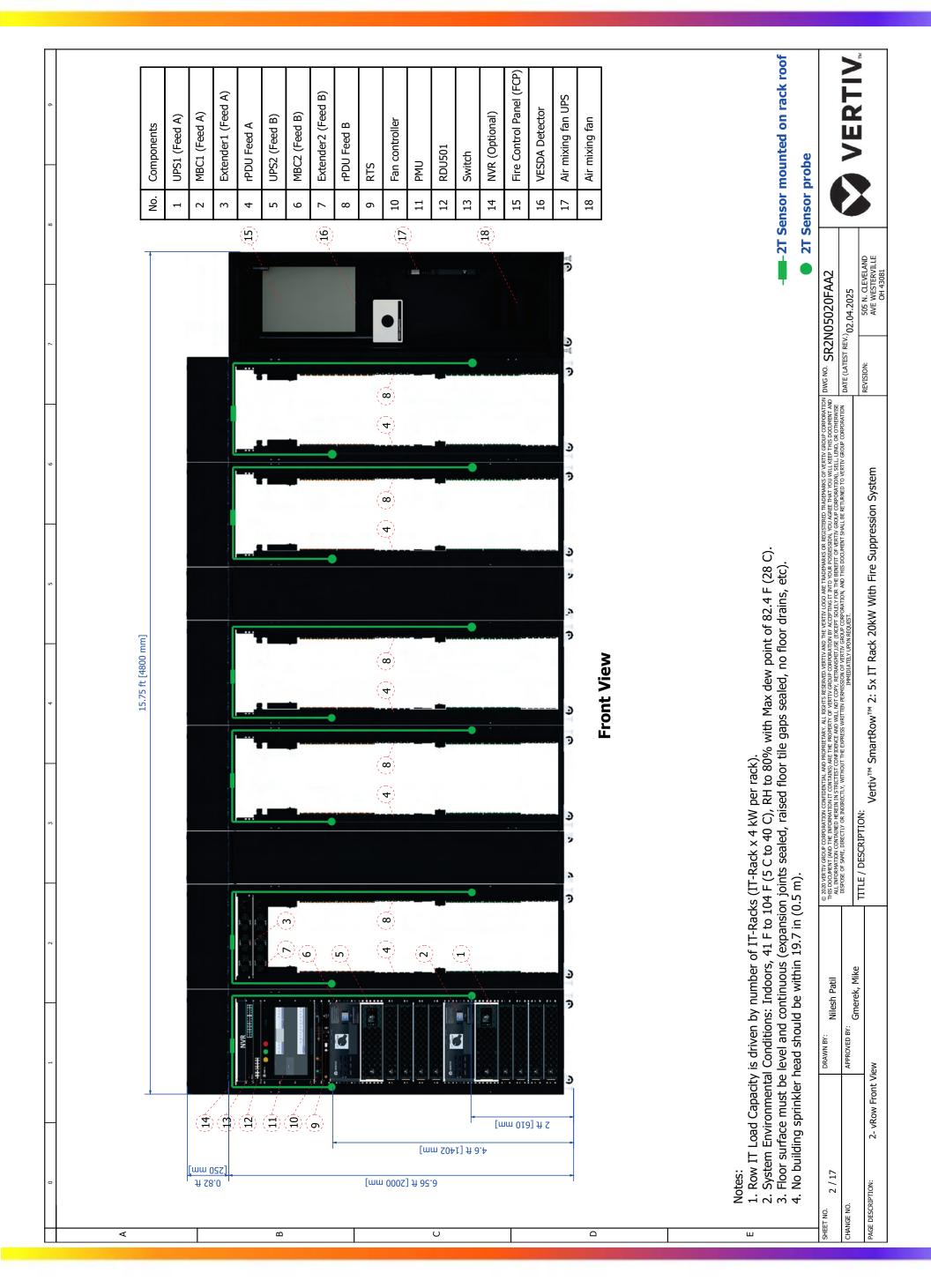


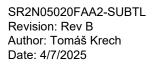
## 3. Interconnection Guide (ICG)



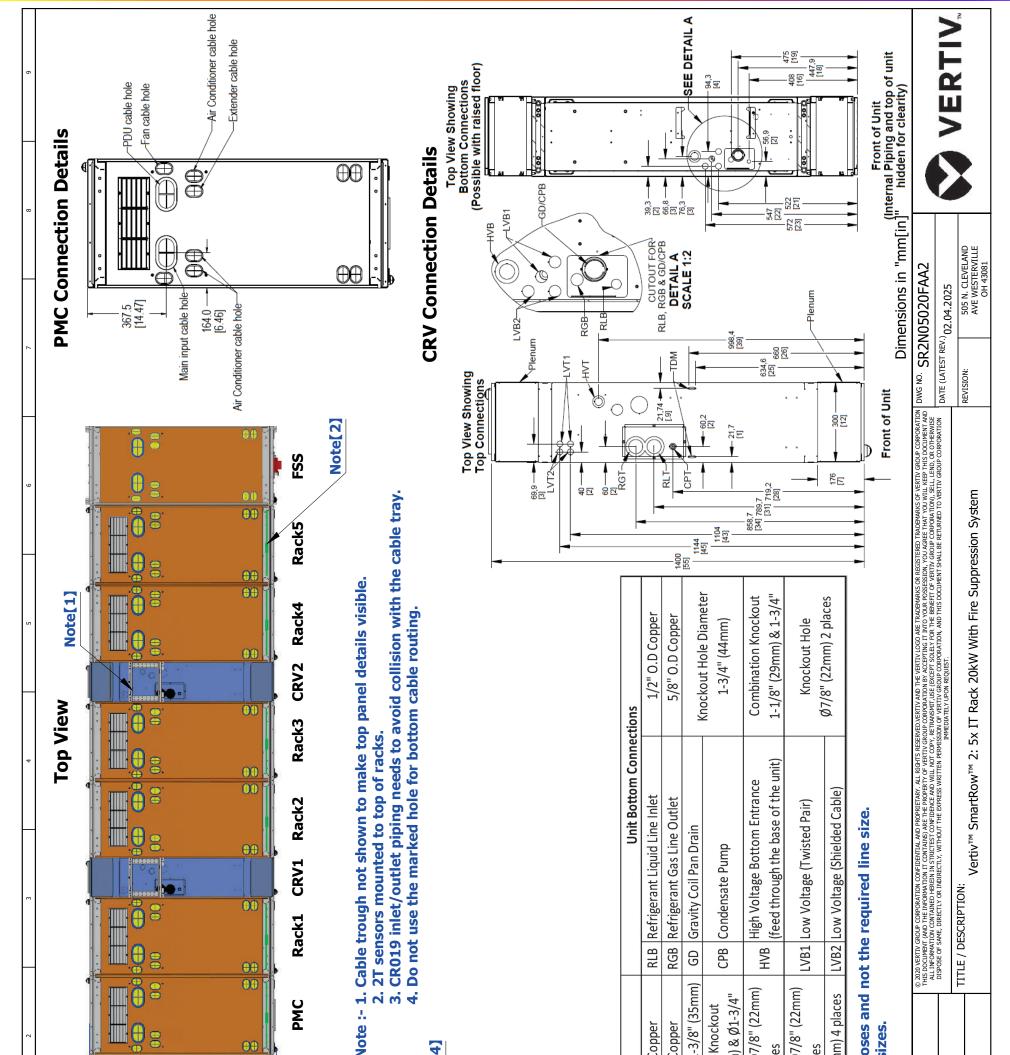
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				Cable overview	rview		
A	Packaging No.	Cable Category	Cable No.	Tag1	Tag2	Length (inch/mm)	Description
	0411A817	Rear door microswitch cascade	W218	PMC_R-SW	RACK_R-SW	25.6/650	PMC to RACK1 cascade cables for rear door microswitches
		Rear door light cascade cable	W220	PMC_RLIGHT	RACK_RLIGHT	25.6/650	PMC to RACK1 rear door LED light cascade cable
		Water immersion to RDU501	W120	Water Leak1	RDU501_DI1	137.8/3500	Water immersion 1 to RDU501 communication cable
		Water immersion to RDU501	W121	Water Leak2	RDU501_DI2	216.5/5500	Water immersion 2 to RDU501 communication cable
		Smart door lock cascade cable	W201	PMC-LOCK	RACK-LOCK	25.6/650	PMC to RACK1 power cascade cable
В		Smart door lock cascade cable	W203	FLOCK7	8COM-COM3	149.6/3800	No.7 Lock front door to RDU501_ COM3 communication cable
		Smart door lock cascade cable	W204	LADCK7	8COM-COM4	212.6/5400	No.7 Lock rear door to RDU501_ COM4 communication 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	W209	RACK-FLOCK	AC-FLOCK	13.8/350	RACK1 to CRV1 F-Door communication cascade cable
		Smart door lock cascade cable	W202	RACK-LOCK	AC-LOCK	13.77/350	CRV1 to RACK2 power 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
		Smart door lock cascade cable	W210	AC-RLOCK	RACK-RLOCK	13.8/350	CRV1 to RACK2 R-Door communication cascade cable
υ		Smart door lock cascade cable	W209	RACK-FLOCK	AC-FLOCK	13.8/350	RACK3 to CRV2 F-Door communication cascade cable
		Smart door lock cascade cable	W202	RACK-LOCK	AC-LOCK	13.77/350	AC2 to RACK4 power 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 CRV2
		Front door light cascade cable	W215	RACK_FLIGHT	RACK_FLIGHT	13.78/350	RACK1 to RACK2 (across air conditioner) front door LED light cascade cable
		Front door microswitch cascade cable	W216	RACK_F-SW	RACK_F-SW	13.78/350	RACK1 to RACK2 (across air conditioner) cascade cables for front door microswitches
		Rear door microswitch cascade cable	W217	RACK_R-SW	RACK_R-SW	13.78/350	RACK1 to RACK2 (across air conditioner) cascade cables for rear door microswitches
		Rear door light cascade cable	W219	RACK_RLIGHT	RACK_RLIGHT	13.78/350	RACK1 to RACK2 (across air conditioner) rear door LED light cascade cable
۵		CRV's microswitch and Smart door lock cascade	k cascade W401-S	RDU:Smoke1	W401-S 385	118.11/3000	Microswitch communication cable from PMC to CRV1
		Front door light cascade cable	W215	RACK_FLIGHT	RACK_FLIGHT	13.78/350	RACK3 to RACK4 (across air conditioner) front door LED light cascade cable
		Front door microswitch cascade cable	W216	RACK_F-SW	RACK_F-SW	13.78/350	RACK3 to RACK4 (across air conditioner) cascade cables for front door microswitches
		Rear door microswitch cascade cable	W217	RACK_R-SW	RACK_R-SW	13.78/350	RACK3 to RACK4 (across air conditioner) cascade cables for rear door microswitches
		Rear door light cascade cable	W219	RACK_RLIGHT	RACK_RLIGHT	13.78/350	RACK3 to RACK4 (across air conditioner) rear door LED light cascade cable
		CRV's microswitch and Smart door lock cascade	k cascade W401-L	RDU:Smoke2	W401-L 385	177.17/4500	Microswitch communication cable from PMC to CRV2
		Emergency fan to FC	W229	FC Port1	PMC-FAN	59.1/1500	PMC Emergency fan to FC controller cable
ш		Emergency fan to FC	W213	FC Port2/3	RACK1/2-FAN	122/3100	Rack1 Emergency fan to FC controller cable (shorter)
SHEET NO.	4 / 17	DRAWN BY: Nilesh Patil	<ul> <li>2020 VERTIV GROUP CORPORATION CONFIDENTIA THIS DOCUMENT (AND THE INFORMATION IT CONTA ALL INFORMATION CONTAINED HEREIN IN STRICT</li> </ul>	L AND PROPRIETARY, ALL RIGHTS RESERVED.VERTIV AND 1 JINS) ARE THE PROPERTY OF VERTIV GROUP CORPORATION EST CONFIDENCE AND WILL NOT COPY, RETRANSMIT,USE (	© 302 VERTY GROUP CORPORATION CONFIDENTIAL AND PROPRETARY. AL RIGHTS RESERVED VERTY AND THE VERTY LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTY GROUP CORPORATION THIS DOCUMENT (AND THE INFORMATION IT CONTAINS) ARE THE PROPERTY OF VERTY GROUP CORPORATION BY ACCEPTING IT INTO YOUR POSSESSION, YOU AGREE THAT YOU MUL KEEP THIS DOCUMENT AND ALL INFORMATION CONTAINED HEREIN IN STRICTEST CONFIDENCE AND MILL NOT COPY, RETRANSINT, USE (EXCEPT SOLEY FOR THE BENETT OF VERTIX GROUP CORPORATION), SELL, LEND, OR OTHERWATION CONTAINED HEREIN IN STRICTEST CONFIDENCE AND MILL NOT COPY, RETRANSINT, USE (EXCEPT SOLEY FOR THE BENETT OF VERTIX GROUP CORPORATION).	EMARKS OF VERTIV GROUP COF AT YOU WILL KEEP THIS DOCU DRATION), SELL, LEND, OR OTH	DWG NO. SR2N05020FAA2
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PAGE DESCRIPTION:		3- Cable overview : =vRow+RACK1-W218 - =vRow+12Rack1-W213		™ SmartRow™ 2: 5x IT Rack	Vertiv <sup>TM</sup> SmartRow <sup>TM</sup> 2: 5x IT Rack 20kW With Fire Suppression System	ystem	REVISION: 505 N. CLEVELAND AVE WESTERVILLE OH 43081



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				Cable overview	erview		
A	Packaging No.	Cable Category	Cable No.	Tag1	Tag2	Length (inch/mm)	Description
	0411A817	THD cascading	W212	RACK-THD-RJ2	RACK-THD-RJ1	13.78/350 R/	RACK1 to RACK2 (across air conditioner) cascade cable
		Emergency fan to FC	W213	FC Port2/3	RACK1/2-FAN	122/3100 Re	Rack2 Emergency fan to FC controller cable (shorter)
		Emergency fan to FC	W214	FC Port4/5/6	RACK3/4/5-FAN	177.2/4500 Ra	Rack3 Emergency fan to FC controller cable (longer)
		THD cascading	W212	RACK-THD-RJ2	RACK-THD-RJ1	13.78/350 R/	RACK3 to RACK4 (across air conditioner) cascade cable
		Emergency fan to FC	W214	FC Port4/5/6	RACK3/4/5-FAN	177.2/4500 Re	Rack4 Emergency fan to FC controller cable (longer)
B		Emergency fan to FC	W214	FC Port4/5/6	RACK3/4/5-FAN	177.2/4500 Ra	Rack5 Emergency fan to FC controller cable (longer)
	0411A860	Communication cable	W116	PDU	PDU	157.5/4000 PC	PDU1A to PDU1B communication cable
		Communication cable	W117	PDU	PDU	118.1/3000 PC	PDU1B to PDU2A communication cable
		Communication cable	W116	PDU	NDA	157.5/4000 PC	PDU2A to PDU2B communication cable
		Communication cable	W117	PDU	PDU	118.1/3000 PC	PDU2B to PDU3A communication cable
		Communication cable	W116	PDU	NDA	157.5/4000 PC	PDU3A to PDU3B communication cable
		Communication cable	W117	PDU	PDU	118.1/3000 PC	PDU3B to PDU4A communication cable
υ		Communication cable	W116	PDU	NQA	157.5/4000 PC	PDU4A to PDU4B communication cable
		Communication cable	W117	PDU	PDU	118.1/3000 PC	PDU4B to PDU5A communication cable
		Communication cable	W116	PDU	NGA	157.5/4000 PC	PDU5A to PDU5B communication cable
		Power cable	W11	PMU TO CRV1 L1 L2 N G	1	72/1830 PN	PMU to CRV1 power cable
		Communication cable	W110	CRV1	Switcher(From CRV1)	137.8/3500 CF	CRV1 to Switch communication cable
		Power cable	W12	PMU TO CRV2 L1 L2 N G	ı	144.1/3660 PM	PMU to CRV2 power cable
		Communication cable	W111	CRV2	Switcher(From CRV2)	196.9/5000 CF	CRV2 to Switch communication cable
۵		Power cable	W01	PMU_TO MBC1 INPUT L1 L2 N G	MBC1 MAIN INPUT L1 L2 N G	51.2/1300 PM	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 PM	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 MI	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 MI	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 MI	MBC1 to UPS1 power cable (UPS1 input)
		Power cable	W06	MBC2_TO UPS2 INPUT L1 L2 N G	UPS2 INPUT L1 L2 N G	39.4/1000 MI	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 UF	UPS1 to MBC1 power cable (UPS1 output)
ш		Power cable	W08	UPS2 OUTPUT L1 L2 N G	MBC2_FROM UPS2 O/P L1 L2 N G	39.4/1000 UF	UPS2 to MBC2 power cable (UPS2 output)
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				Cable overview	irview		
٩	Packaging No.	Cable Category	Cable No.	Tag1	Tag2	Length (inch/mm)	Description
	0411A860	Power cable	60M	PMU TO Extender1 L1 L2 N G	1	102.4/2600 PMI	PMU to Extender1 power cable
		Power cable	W10	PMU TO Extender2 L1 L2 N G	1	102.4/2600 PMI	PMU to Extender2 power cable
		Communication cable	W112	UPS1	Switcher(From UPS1)	177.2/4500 UPS	UPS 1 to Switch communication cable
		Communication cable	W113	UPS2	Switcher(From UPS2)	165.4/4200 UPS	UPS 2 to Switch communication cable
		Communication cable	W118	NVR	Switcher(From NVR)	47.2/1200 NVF	NVR to Switch Communication Cable
В		Communication cable	W114	£	Switcher(From FC)	70.9/1800 FC	FC to Switch communication cable
		Communication cable	W115	DDU	Switcher(From PDU)	137.8/3500 PDU	PDU to Switch communication cable
		Communication cable	W119	RDU501	Switcher(From RDU501)	47.2/1200 RDI	RDU501 to Switch Communication Cable
	FSS Cabinet-Factory Assembled	Preinstalled cables for cascading FSS cabinets	s W402	RACK_F-SW	FSS_F-SW	26.77/680 FSS	FSS cabinet front door preinstalled cascading wiring harness-for Door Swich
		Preinstalled cables for cascading FSS cabinets	s W402	RACK_FLIGHT	FSS_FLIGHT	27.56/700 FSS	FSS cabinet front door preinstalled cascading wiring harness-for Door Light
		Door switch communication cable	W407	208-NO;208-COM	201-Smoke/DI4	76.77/1950 FSS	FSS Rear door switch to 4DIF Smoke/DI4
		Door switch communication cable	W408	208-NO;208-COM	201-Door1/DI1	17.71/450 FSS	FSS Front door switch to 4DIF Smoke/DI4
U		Communication cable(factory assembled)	W409	RACK_THD-RJ2	FSS_4DIF_1-RJ1	47.24/1200 FSS	FSS cabinet the first 4DIF to the previous RACK5 THD communication cable
		Communication cable(factory assembled)	W410	FSS_4DIF_1-RJ2	FSS_4DIF_2-R01	15.75/400 FSS	FSS cabinet the first 4DIF to the second 4DIF communication cable
		FSS cabinet fire communication & control cables	oles W413	4DIF_1_Door1/DI1	TB3-5/6	78.74/2000 FS	FSS_4DIF_1 to FSS Terminal Blocks(RELEASE ALARM Signal)
		FSS cabinet fire communication & control cables	oles W414	4DIF_1_Door2/DI2	TB3-3/4	78.74/2000 FSS	FSS_4DIF_1 to FSS Terminal Blocks(SUPERVISORY ALARM Signal))
		FSS cabinet fire communication & control cables	oles W415	4DIF_1_Water/DI3	TB3-7/8	78.74/2000 FSS	FSS_4DIF_1 to FSS Terminal Blocks( ALARM Signal))
		FSS cabinet fire communication & control cables	oles W416	4DIF_1_Smoke/DI4	TB3-1/2	78.74/2000 FSS	FSS_4DIF_1 to FSS Terminal Blocks( TROUBLE ALARM Signal))
		Preinstalled cables for cascading FSS cabinets	s W403	I-FOCK	I-LOCK	16.54/420 FSS	cabinet rear door preinstalled cascading wiring harness-for Door Lock
D		Preinstalled cables for cascading FSS cabinets	s W403	RACK_R-SW	FSS_R-SW	14.96/380 FSS	cabinet rear door preinstalled cascading wiring harness-for Door Swich
	FSS Cabinet-Packaged Separately	/ Intelligent door lock Communication Cables	W404-L	FSS-FLOCK	8COM-COM7	244.09/6200 FSS	FSS to RDU501_ COM7 intelligent door lock front door communication cable
		Intelligent door lock Communication Cables	W405-L	FSS-RLOCK	8COM-COM8	322.83/8200 FSS	FSS to RDU501_ COM8 intelligent door lock Rear door communication cable
		FSS cabinet fire communication & control cables	oles W417	CRV L_37/38	TB8-1 NC/COM	295.28/7500 CRV	CRV1 to FSS Terminal Blocks/Relays - Long
		FSS cabinet fire communication & control cables	oles W418	CRV M_37/38	TB8-2 NC/COM	169.29/4300 CRV	CRV2 to FSS Terminal Blocks/Relays - Medium
		FSS cabinet fire communication & control cables	oles W420	UPS1_7/8	TB9-1 NC/COM	295.28/7500 UPS	UPS 1 EPO to FSS Terminal Blocks/Relays
		FSS cabinet fire communication & control cables	oles W421	UPS2_7/8	TB9-2 NC/COM	295.28/7500 UPS	UPS 2 EPO to FSS Terminal Blocks/Relays
ш		FSS cabinet fire communication & control cables	oles W423	L TB10-2/N TB10-3/PE TB10-4	FAN 1 L/N/PE	118.11/3000 Fan	Fan 1 to FSS Terminal Blocks/Relays
SHEET NO.	6 / 17 DRAV	DRAWN BY: © 2020 VER THIS DOCUM ALL INFO	(TIV GROUP CORPORATION CONFIDENTIAL / MENT (AND THE INFORMATION IT CONTAIN AMATION CONTAINED HEREIN IN STRICTES	VERTU GROUP CORPORATION CONFIDENTIAL AND PROPRIETARY. ALL RIGHTS RESERVED VERTU AND THE VERTU LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTU GROUP CORPORATION DCUMENT (AND THE INFORMATION IT CONTAINS) ARE THE PROPERTV OF VERTU GROUP CORPORATION BY ACCEPTING IT ANTO VOUR POSSESSION, YOU MARE THAT YOU WILL KEED THAS DOCUMENT AND MFORMATION CONTAINED HEREIN IN STRUCTEST CONFIDENCE AND WILL NOT COPY, RETRANSINT, USE (EXCEPT SOLEY FOR THE BENEFIT OF VERTUR GROUP CORPORATION), SELI, LEND, OR OTHERWISE	VERTIV LOGO ARE TRADEMARKS OR REGISTERED TRADEM ACCEPTING IT INTO YOUR POSSESSION, YOU AGREE THAT FOT SOLELY FOR THE BENEFIT OF VERTIV GROUP CORPORU	ARKS OF VERTIV GROUP CORPORATIO YOU WILL KEEP THIS DOCUMENT AND ATION), SELL, LEND, OR OTHERWISE	DWG NO: SR2N05020FAA2
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PAGE DESCRIPTION:	PTION: 3.b- Cable overview : =vRow+14PMU-W09 - =vRow+FSS-W423			Vertiv <sup>™</sup> SmartRow <sup>™</sup> 2: 5x IT Rack 20kW With Fire S	JkW With Fire Suppression System	stem	REVISION: 505 N. CLEVELAND AVE WESTERVILLE OH 43081



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				Cable overview	erview			
٩	Packaging No.	Cable Category	Cable No.	Tag1	Tag2	Length (inch/mm)	Description	
	FSS Cabinet-Packaged Separately	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	
		Rear door light cascade cable	W406	RACK_RLIGHT	FSS_RLIGHT	2.36/60	RACK5 TO FSS Rear door light power cascade 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	
В		Smart door lock cascade (Factory assembled)	W206/W207	I-FOCK	F-R/BK W206, R-R/BK W207	82.7/2100	Smart door lock cable from rear door to front door in RACK3	
		Smart door lock cascade (Factory assembled)	W206/W207	I-FOCK	F-R/BK W206, R-R/BK W207	82.7/2100	Smart door lock cable from rear door to front door in RACK4	
		Smart door lock cascade (Factory assembled)	W206/W207	I-FOCK	F-R/BK W206, R-R/BK W207	82.7/2100	Smart door lock cable from rear door to front door in RACK5	
		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	
υ		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	
		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	W201	204-NO;204-COM	201-AI/DI_L	17.71/450	Rack4 Front door switch to THD AI/DI_L	
		Door switch communication cable	W202	204-NO;204-COM	201-AI/DI_R	76.77/1950	Rack4 Rear door switch to THD AI/DI_R	
۵		THD cascading pre-installed on the front door	W208	PMC/RACK-THD-RJ2	RACK-THD-RJ1	25.59/650	RACK4 to RACK5 Cascade Cable	
		Door switch communication cable	W201	204-NO; 204-COM	201-AI/DI_L	17.71/450	Rack5 Front door switch to THD AI/DI_L	
		Door switch communication cable	W202	204-NO;204-COM	201-AI/DI_R	76.77/1950	Rack5 Rear door switch to THD AI/DI_R	
		RACK1 Integrated front doors cable	M300	RACK_LOCK	RACK_LOCK	25.6/650	RACK1 F-Door communication cascade cable	
		RACK1 Integrated front doors cable	W300	RACK_FLIGHT	RACK_FLIGHT	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	I-LOCK	I-LOCK	25.6/650	RACK1 R-Door power cascade cable	
ш		RACK1 Integrated rear doors cable	W301	RACK_LOCK	RACK_LOCK	25.6/650	RACK1 R-Door communication cascade cable	
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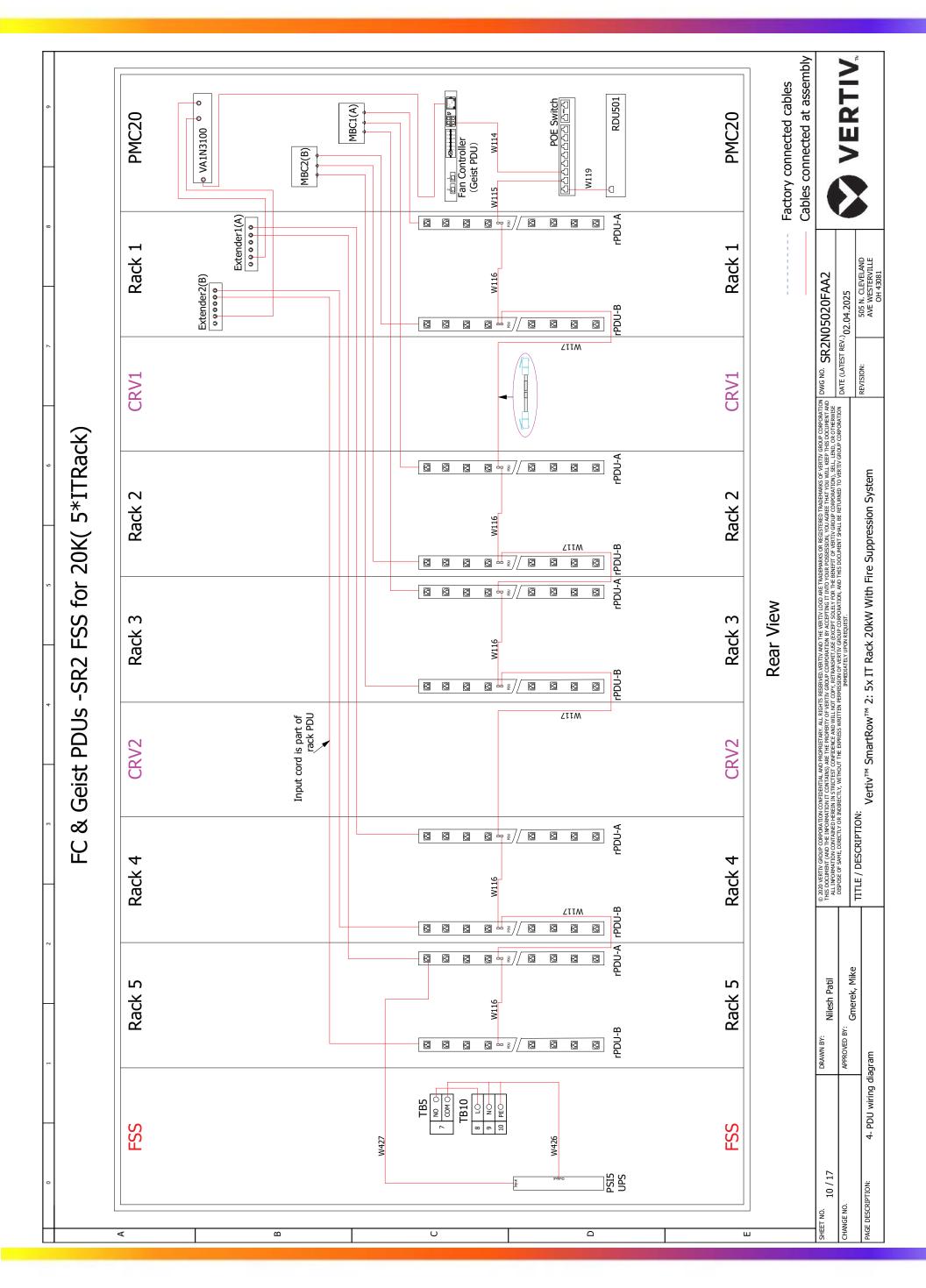


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				Cable overview	erview		
۷	Packaging No.	Cable Category	Cable No.	Tag1	Tag2	Length (inch/mm)	Description
	IT Rack-Factory Assembled	RACK1 Integrated rear doors cable	W301	Rack_RLIGHT	Rack_RLIGHT	25.6/650	RACK1 rear door LED light cascade cable
		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_LOCK	RACK_LOCK	25.6/650	RACK2 F-Door communication 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
ß		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 F	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 F	RACK2 Cascade cables for rear door microswitches
		RACK3 Integrated front doors cable	W300	RACK_LOCK	RACK_LOCK	25.6/650	RACK3 F-Door communication 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
υ		RACK3 Integrated rear doors cable	W301	I-LOCK	I-FOCK	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
		RACK4 Integrated front doors cable	W300	RACK_LOCK	RACK_LOCK	25.6/650	RACK4 F-Door communication cascade cable
		RACK4 Integrated front doors cable	W300	RACK_FLIGHT	RACK_FLIGHT	25.6/650	RACK4 front door LED light cascade cable
		RACK4 Integrated front doors cable	W300	RACK_F-SW	RACK_F-SW	25.6/650	RACK4 cascade cables for front door microswitches
۵		RACK4 Integrated rear doors cable	W301	Rack_RLIGHT	Rack_RLIGHT	25.6/650	RACK4 rear door LED light cascade cable
		RACK4 Integrated rear doors cable	W301	RACK_R-SW	RACK_R-SW	25.6/650	RACK4 Cascade cables for rear door microswitches
		RACK5 Integrated front doors cable	W300	RACK_FLIGHT	RACK_FLIGHT	25.6/650	RACK5 front door LED light cascade cable
		RACK5 Integrated front doors cable	W300	RACK_F-SW	RACK_F-SW	25.6/650	RACK5 cascade cables for front door microswitches
		RACK5 Integrated front doors cable	W300	RACK_LOCK	RACK_LOCK	25.6/650	RACK5 F-Door communication cascade cable
		RACK5 Integrated rear doors cable	W301	I-LOCK	I-FOCK	25.6/650 F	RACK5 R-Door power cascade cable
		RACK5 Integrated rear doors cable	W301	RACK_LOCK	RACK_LOCK	25.6/650	RACK5 R-Door communication cascade cable
ш		RACK5 Integrated rear doors cable	W301	Rack_RLIGHT	Rack_RLIGHT	25.6/650	RACK5 rear door LED light cascade cable
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PAGE DESCRIPTION		-		Vertiv <sup>TM</sup> SmartRow <sup>TM</sup> 2: 5x IT Rack 20kW With Fire S	0kW With Fire Suppression System	System	REVISION: 505 N. CLEVELAND AVE WESTERVILLE OH 43081

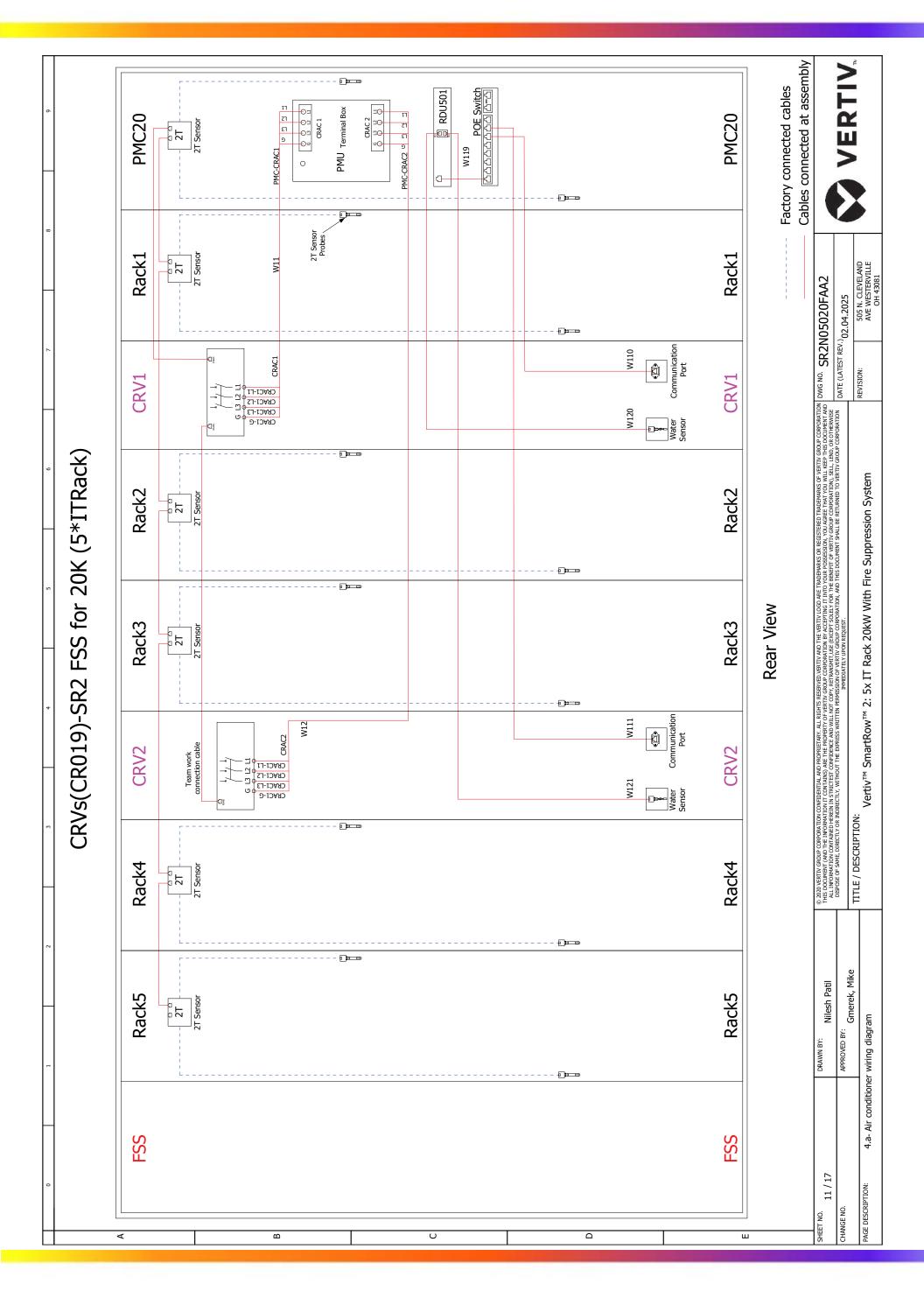


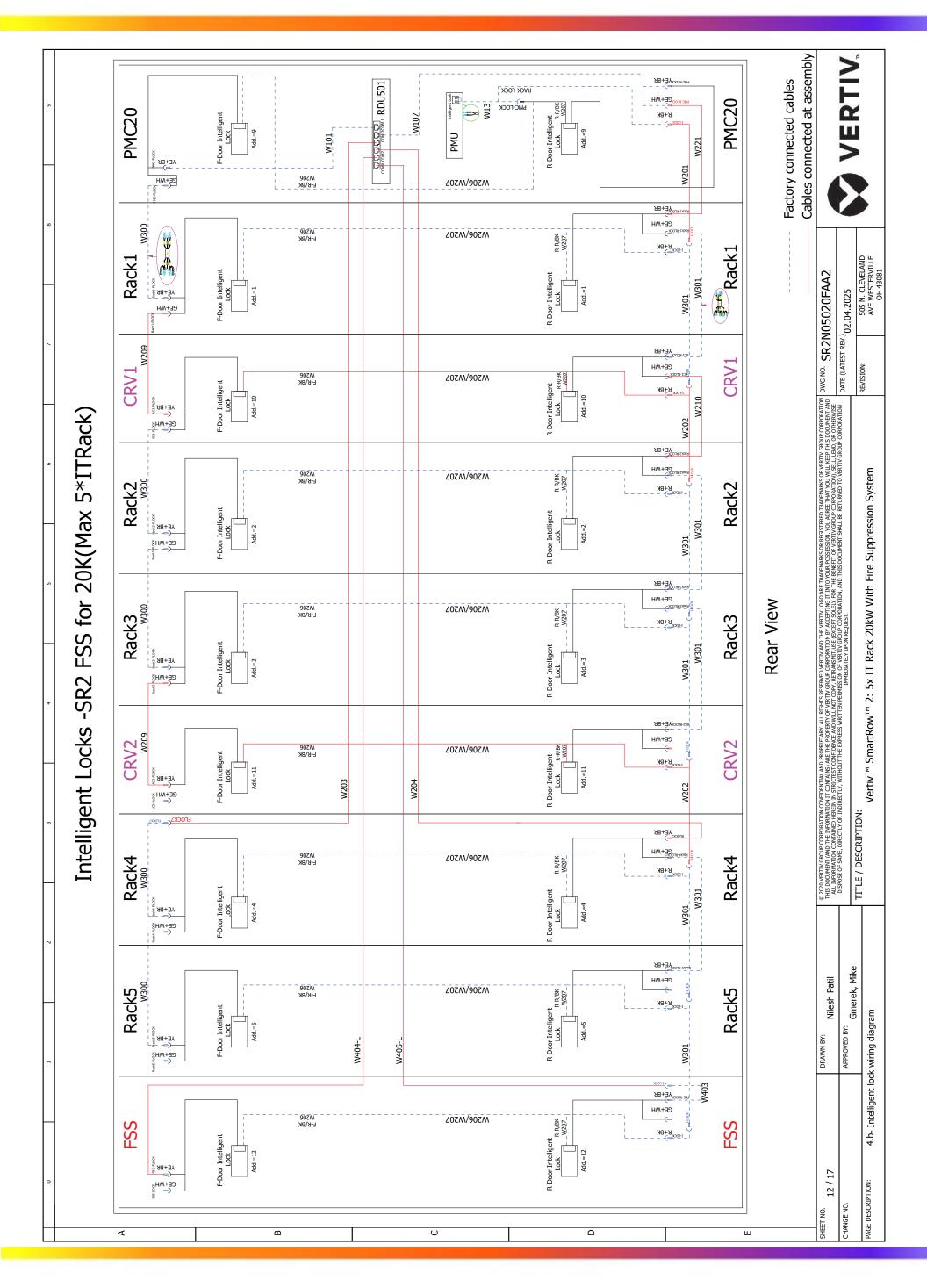
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				Cable overview	erview		
۲	Packaging No.	Cable Category	Cable No.	Tag1	Tag2	Length (inch/mm)	Description
	IT Rack-Factory Assembled	RACK5 Integrated rear doors cable	W301	RACK_R-SW	RACK_R-SW	25.6/650	RACK5 cascade cables for rear door microswitches
		FSS Integrated rear doors cable	W301	I-LOCK	I-LOCK	25.6/650	FSS 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
В		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
U		Power cable (Factory assembled)	W15	d-IMH	PMU-HMI DC+ DC-	59.1/1500	PMU to HMI power cable
		Communication cable (factory assembled)	W104	ID-UM4	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
		Communication cable (factory assembled)	W102	PMU-DO2	RDU501-DO2	70.9/1800	PMU to RDU501 D02 Control Red Light Cable
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PAGE DESCRIPTION:		3.e- Cable overview : =vRow+RACKR5.4-W301 - =vRow+Red Light-W102	Vertiv	<sup>4</sup> SmartRow™ 2: 5x IT Rack 2	Vertiv <sup>TM</sup> SmartRow <sup>TM</sup> 2: 5x IT Rack 20kW With Fire Suppression System	'stem	AVE WESTERVILLE OH 43081





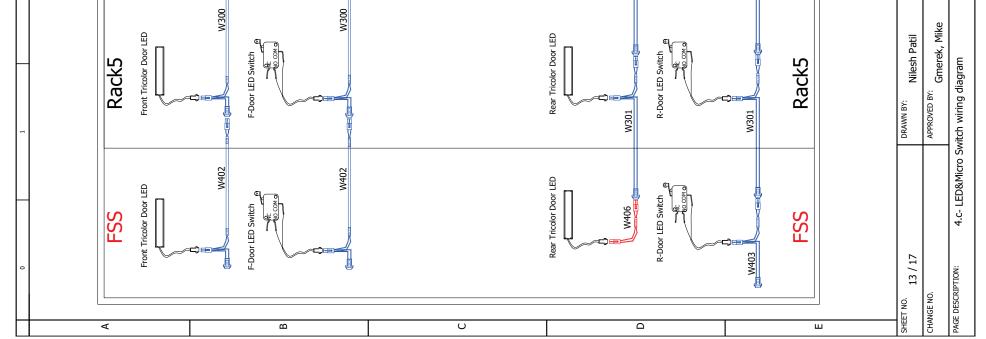






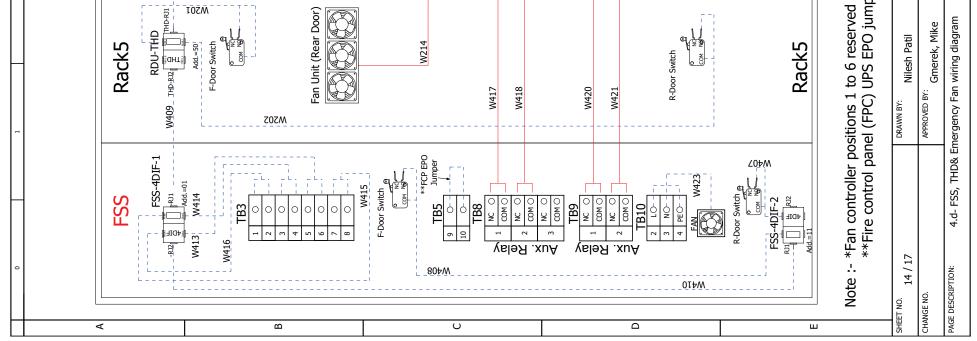
VERTIV Cables connected at assembly . 116 1611 PMC-R-SW Factory connected cables M2-1-2M4 18 18 18 РМС-ВЦЕНТ DC+ DC-Rear Nacroswitch NC COM O W19 Front Tricolor Door LED Rear Tricolor Door LED L se s PMC20 COM PMC20 R-Door LED Switch W14 F-Door LED Switch Dğ W102 \_\_\_\_ gg RDU501 • 8 РМU w218 💼 👘 W220 W300 W300 Front Tricolor Door LED Rear Tricolor Door LED NO COM F-Door LED Switch **R-Door LED Switch** 505 N. CLEVELAND AVE WESTERVILLE OH 43081 Rack1 Rack1 W401-S © 2020 VERTIV GROUP CORPORATION CONFIDENTIAL AND PROPRIETARY. AL RIGHTS RESERVED.VERTIV AND THE VERTIVAL TO COMPARIANCE OF CARTON CITING CONFIGURATION CONFIDENTIAL RECOMPLICATION CONFIDENTIAL RECEIVED.VERTIVAL FOR THE REPERT OF VERTIVAL RECHTAL TIMO YONG PROSECOSION, YOU AGREE THAT YOU MILLER THIS DOCUMENT AND THE ATHIS DOCUMENT AND THE REPERT OF ATHIC ATHIS DOCUMENT AND THE ATHIS DOCUMENT AND THE REPERT OF ATHIC ATHIS DOCUMENT AND THE ATHIS DOCUMENT AND THE REPERT OF ATHIC ATHIS DOCUMENT AND THE ATHIS DOCUMENT AND THE REPERT OF ATHIC ATHIS DOCUMENT AND THE REPERT OF ATHIC ATHI DATE (LATEST REV.) 02.04.2025 W301 W301 W216 W215 ļ REVISION: **CRV1 CRV1** NO COM -Door Switch F-Door Switch W219 W217 LED & Micro Switch -SR2 for 20K (5\*ITRack) W300 W300 Front Tricolor Door LED Rear Tricolor Door LED Vertiv<sup>TM</sup> SmartRow<sup>TM</sup> 2: 5x IT Rack 20kW With Fire Suppression System NO COM O R-Door LED Switch F-Door LED Switch Rack2 Rack2 W401-L W301 W301 Rack3 W300 W300 Front Tricolor Door LED Rear Tricolor Door LED Rear View No com o No. F-Door LED Switch **R-Door LED Switch** Rack3 نې ۲۱ W301 W301 Ð W216 W215 **CRV2 CRV2** NC COM -Door Switch F-Door Switch W217 W219 TITLE / DESCRIPTION: W300 W300 Front Tricolor Door LED Rear Tricolor Door LED Line Line No com R-Door LED Switch F-Door LED Switch Rack4 Rack4 W301 W301



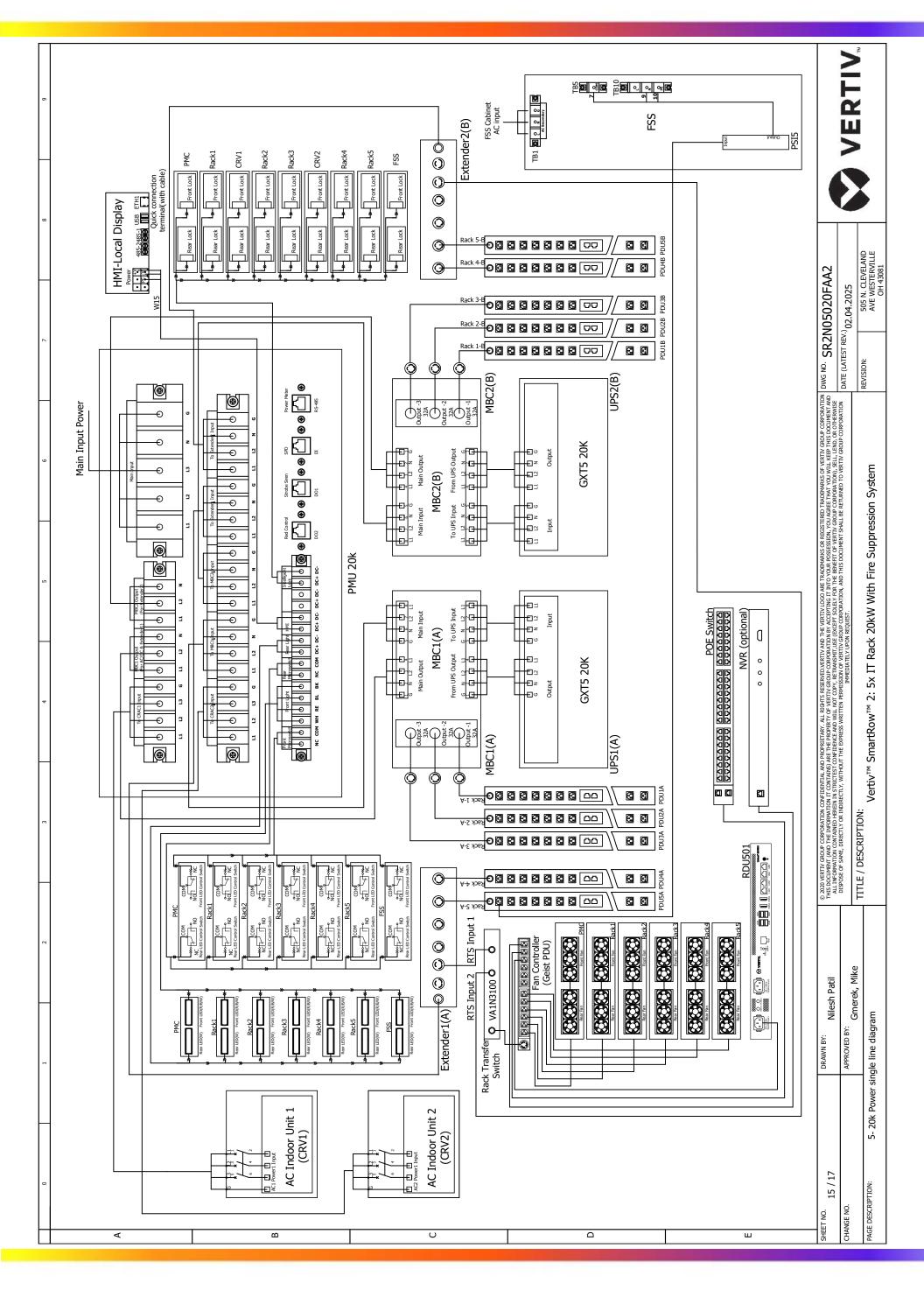


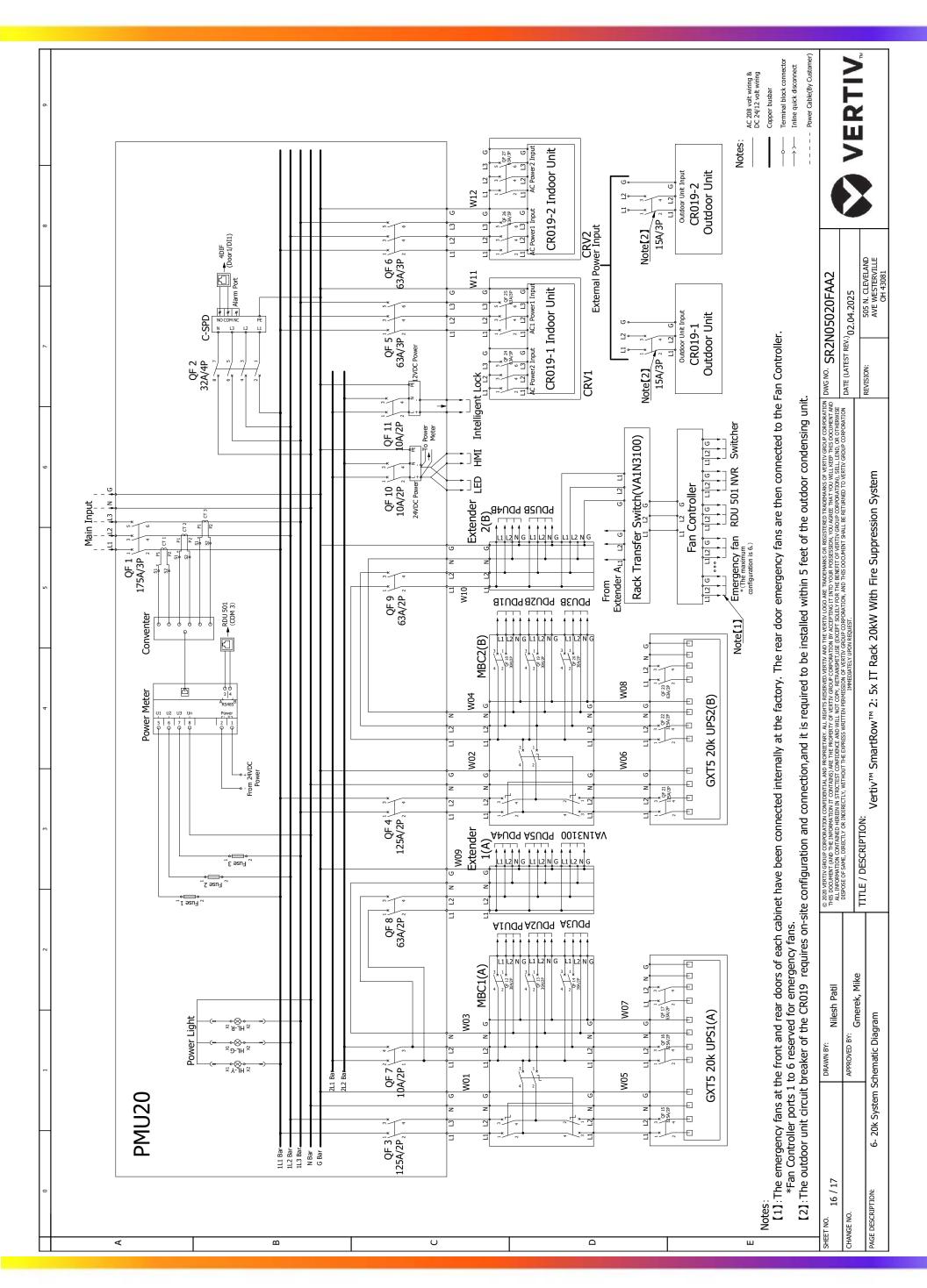
Date: 4/7/2025 Cables connected at assembly VERTIV NVR \*Fan Controller (Geist PDU) Switch RDU501 Factory connected cables 60TM Sensor 1, RDU501 PMC20 PMC20 **M**201 Fan Unit (Rear Door) UPS1(A)-EPO UPS2(B)-EPO C N NO **RDU-THD** THD-RJ2 THD F-Door Switch **R-Door Switch** W229 Sensor 2 0 7/8 -07/8 8 W208 707M KDU-THD RDU-THD Add.=10 Fan Unit (Rear Door) Rack1 Rack1 W213 505 N. CLEVELAND AVE WESTERVILLE OH 43081 F-Door Switch **R-Door Switch** ATION CONFIDENTIAL AND PROPRIETARY. ALL RIGHTS RESERVED.VIRTIX AND THE VERTIV LOGO ARE TRADEMARKS OR REGISTERED TRADEMARKS OF VERTIV GROUP CORPORATION AND IN CONTAINS OF THE REPORTIS OF VERTIVE OF AND ON OUR DO YOUR POSICION, YOU AGREE THAT YOU MILE THE PHYSICAD OR ONEWENT AND D HERRIN IN CONTAINS ARE THE REPORTIS OF VERTIVE AND YOUR DO YOUR POSICION, YOU AGREE THAT YOU MILE THAT BOARD D HERRIN IN CONTAINS AND AND THE REVENT SOLED FOR THE BREET OR INDIRECTLY, MITHOUT THE EXPRESS WAITTEN REMINISTIVE GROUP CORPORATION AND THIS DOCUMENT AND OR INDIRECTLY, MITHOUT THE EXPRESS WAITTEN REMINISTIVE GROUP CORPORATION AND THIS DOCUMENT AND THE RETURNED FOR DOCUMENT AND AND DATE (LATEST FOR YOUR CORPORATION AND THIS DOCUMENT SHALL BE RETURNED TO VERTIV GROUP CORPORATION DATE (LATEST REV.) 02.04.2025 702M W212 -037/38 CRV1- Remote Shut-Down **CRV1 CRV1** REVISION: **(110** V208 Fans & THDs -SR2 FSS for 20K (5\*ITRack) 102M Vertiv<sup>TM</sup> SmartRow<sup>TM</sup> 2: 5x IT Rack 20kW With Fire Suppression System Fan Unit (Rear Door) Rack2 Rack2 Add.=20 F-Door Switch W213 **R-Door Switch** 702M RDU-THD 102M Rear View Fan Unit (Rear Door) Rack3 Rack3 Add.=30 F-Door Switch W214 R-Door Switch 707M -037/38 CRV2- Remote Shut-Down **CRV2 CRV2** for emergency fans. per remove to deactivate. TITLE / DESCRIPTION: © 2020 VERTIV GROUP CORPORATI THIS DOCUMENT (AND THE INFORM ALL INFORMATION CONTAINED H DISPOSE OF SAME, DIRECTLY OR RDU-THD 102W Fan Unit (Rear Door) Rack4 Rack4 W214 Add.=40 F-Door Switch R-Door Switch W208 702W



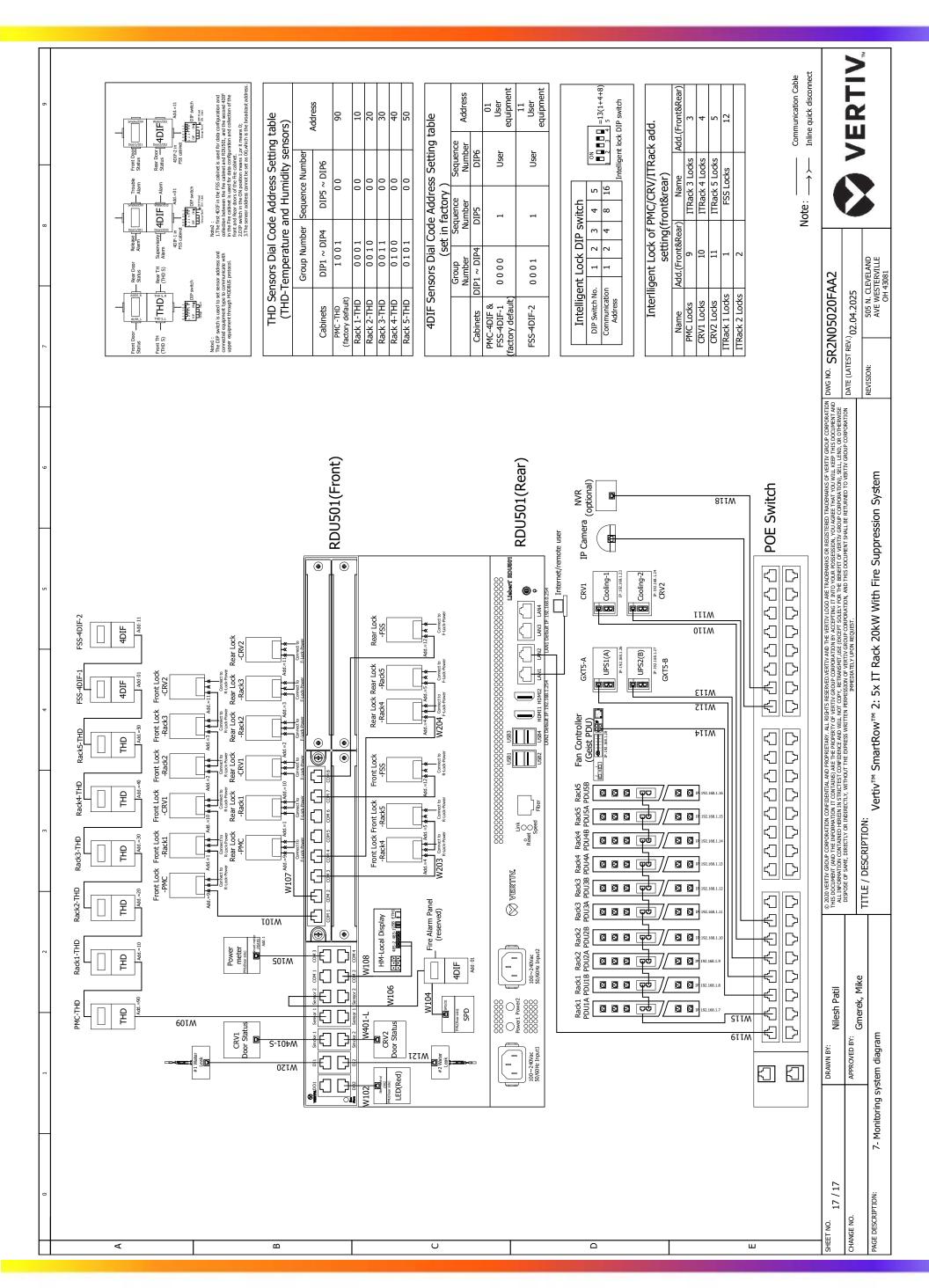








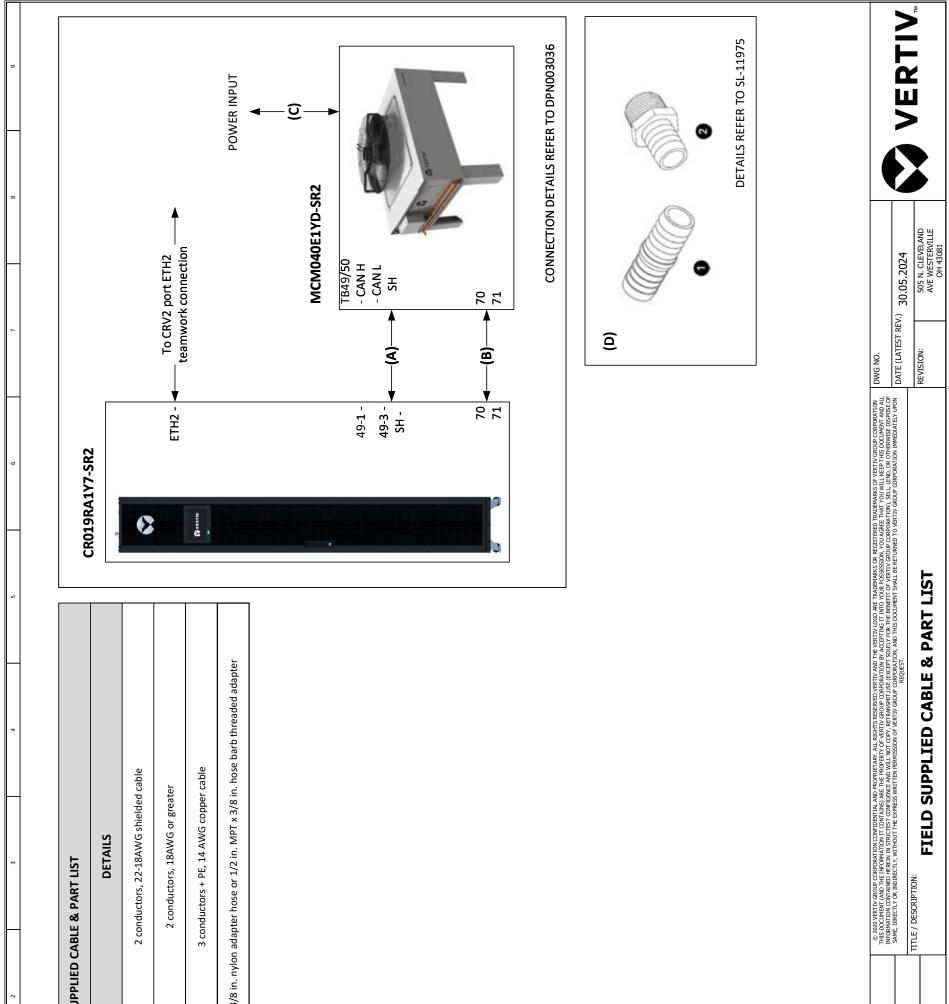








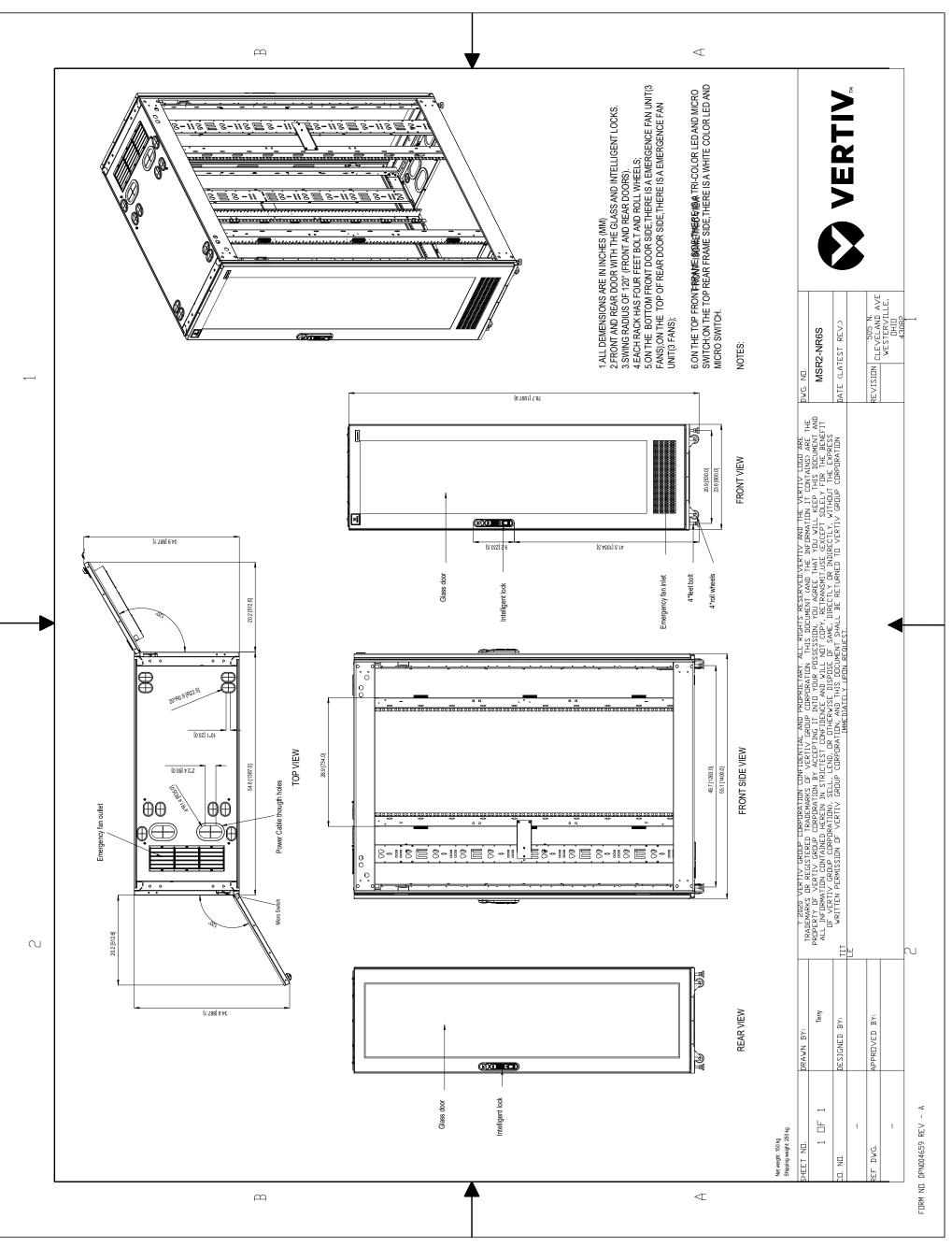
## 4. Field Supplied Cable & Part List



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~		FIELD SU
۲	PART	
	CAN bus cable (A)	
	HEAT REJECTION INTERLOCK (B)	
	CONDENSER INPUT POWER CABLE (C)	(C)
	CONDENSATE PUMP TUBE (D)	Used with 3
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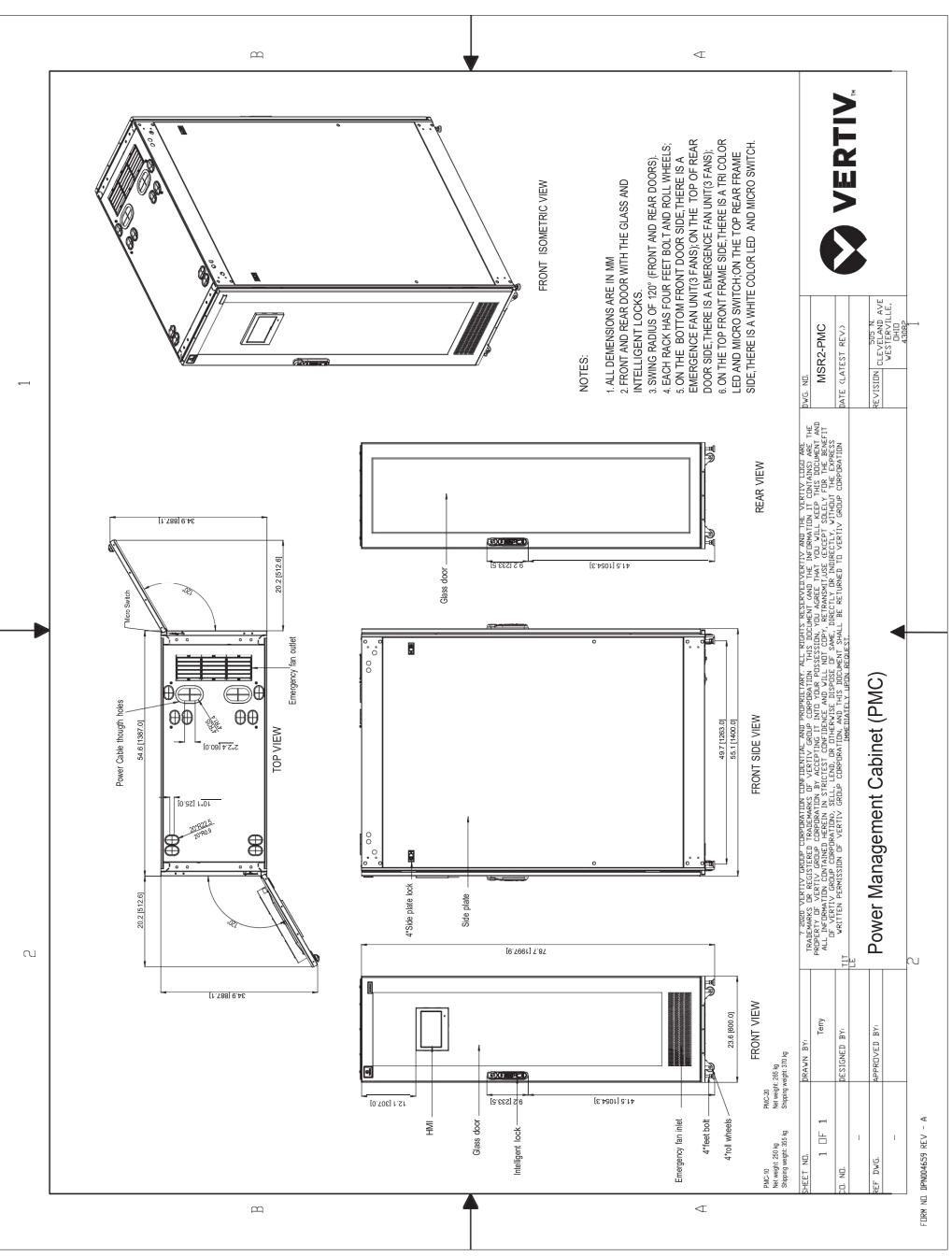


## 5. Vertiv MSR2 600mm IT Rack



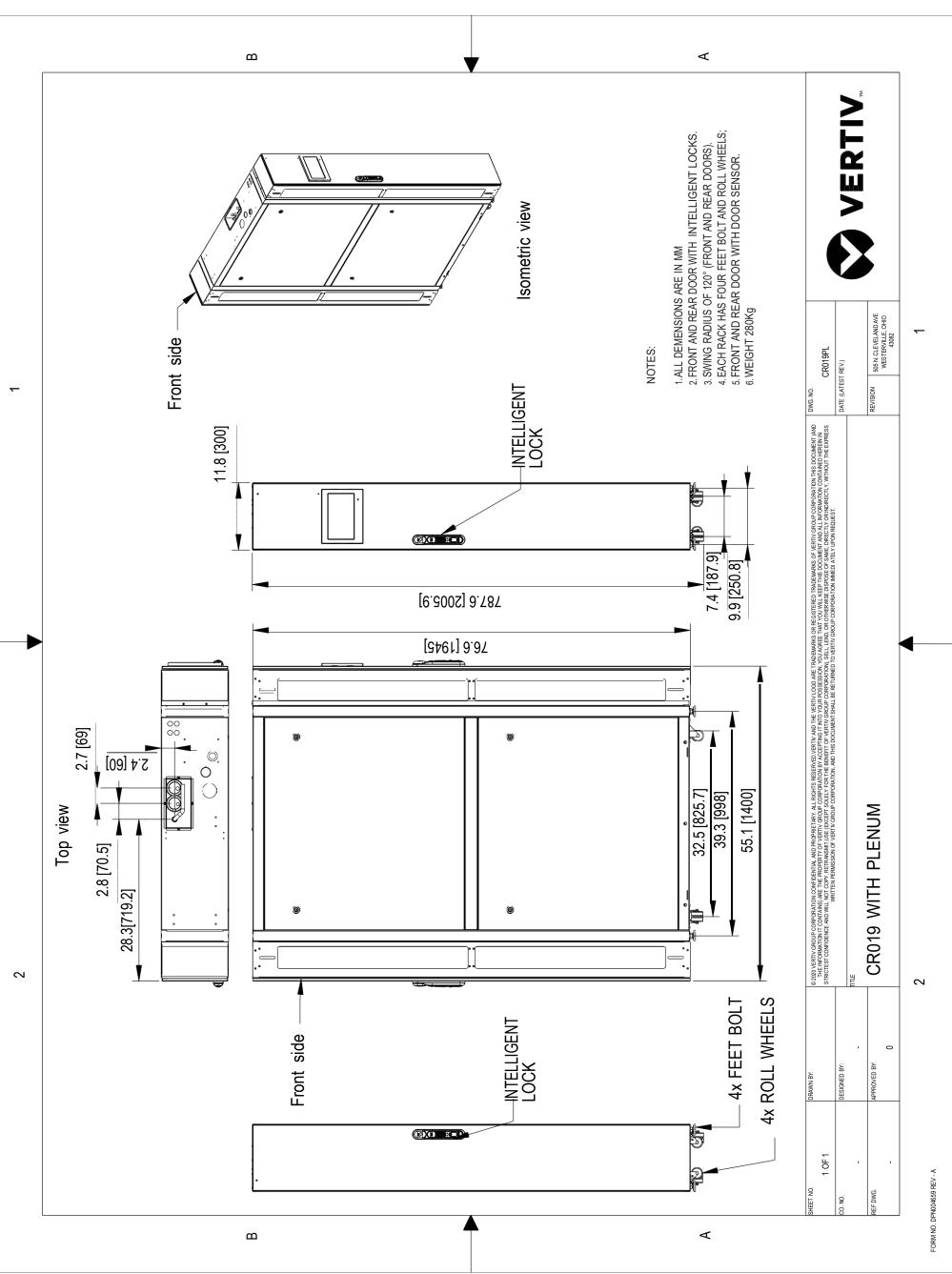


## 6. Vertiv MSR2 Power Management Cabinet (PMC)





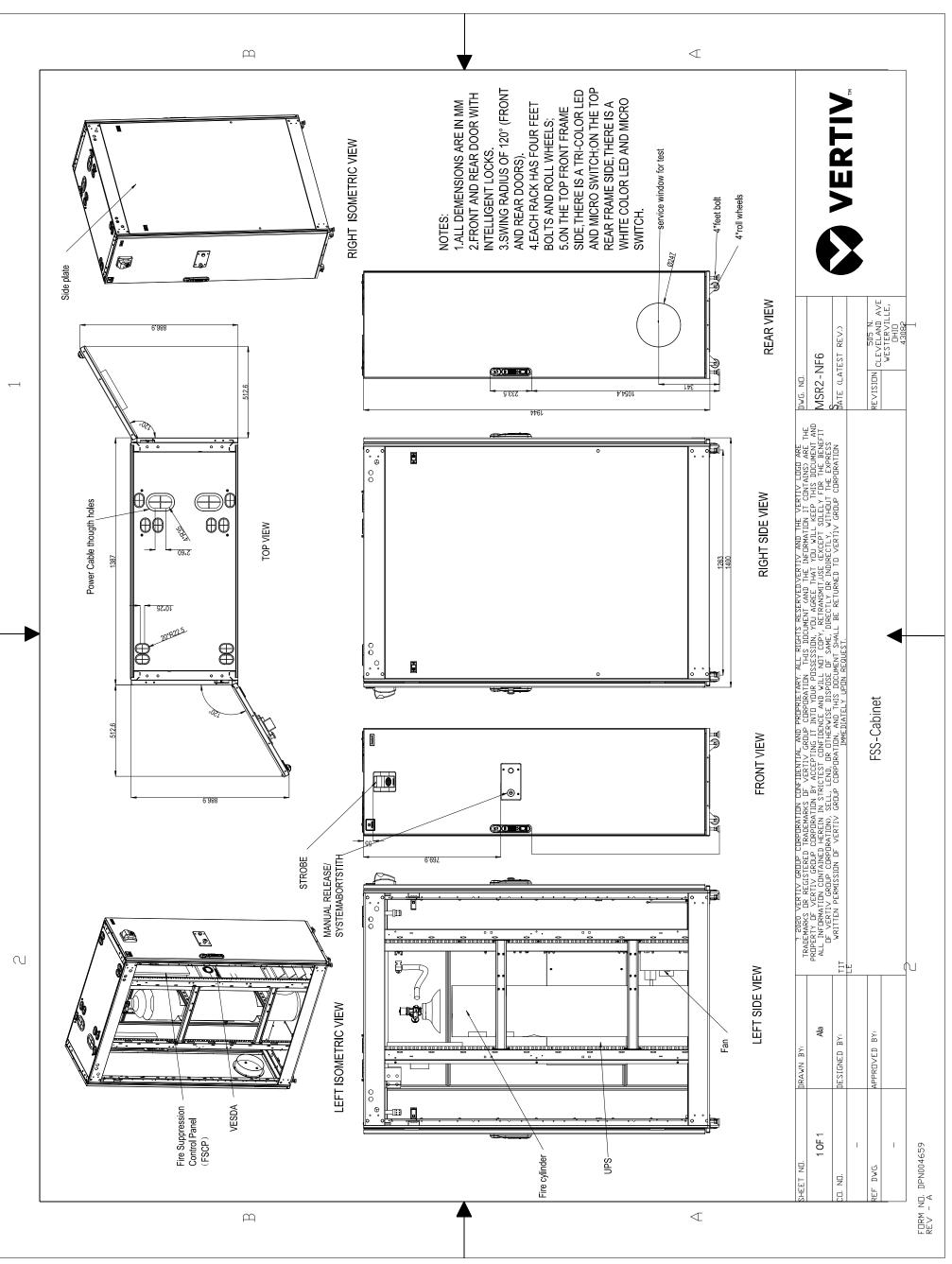
#### Vertiv Liebert CR019 with Plenums 7.





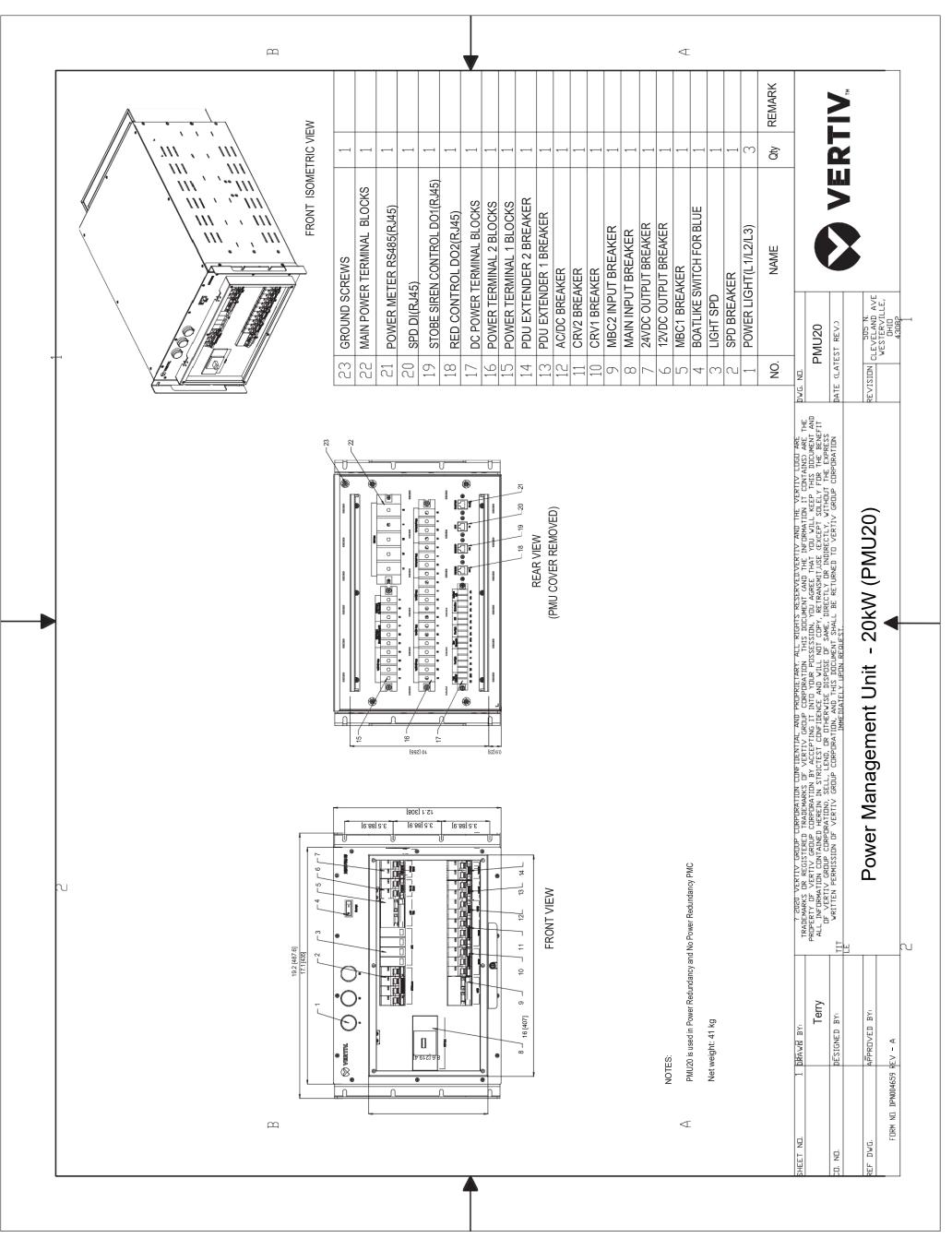


## 8. Vertiv MSR2 Fire Suppression System (FSS)



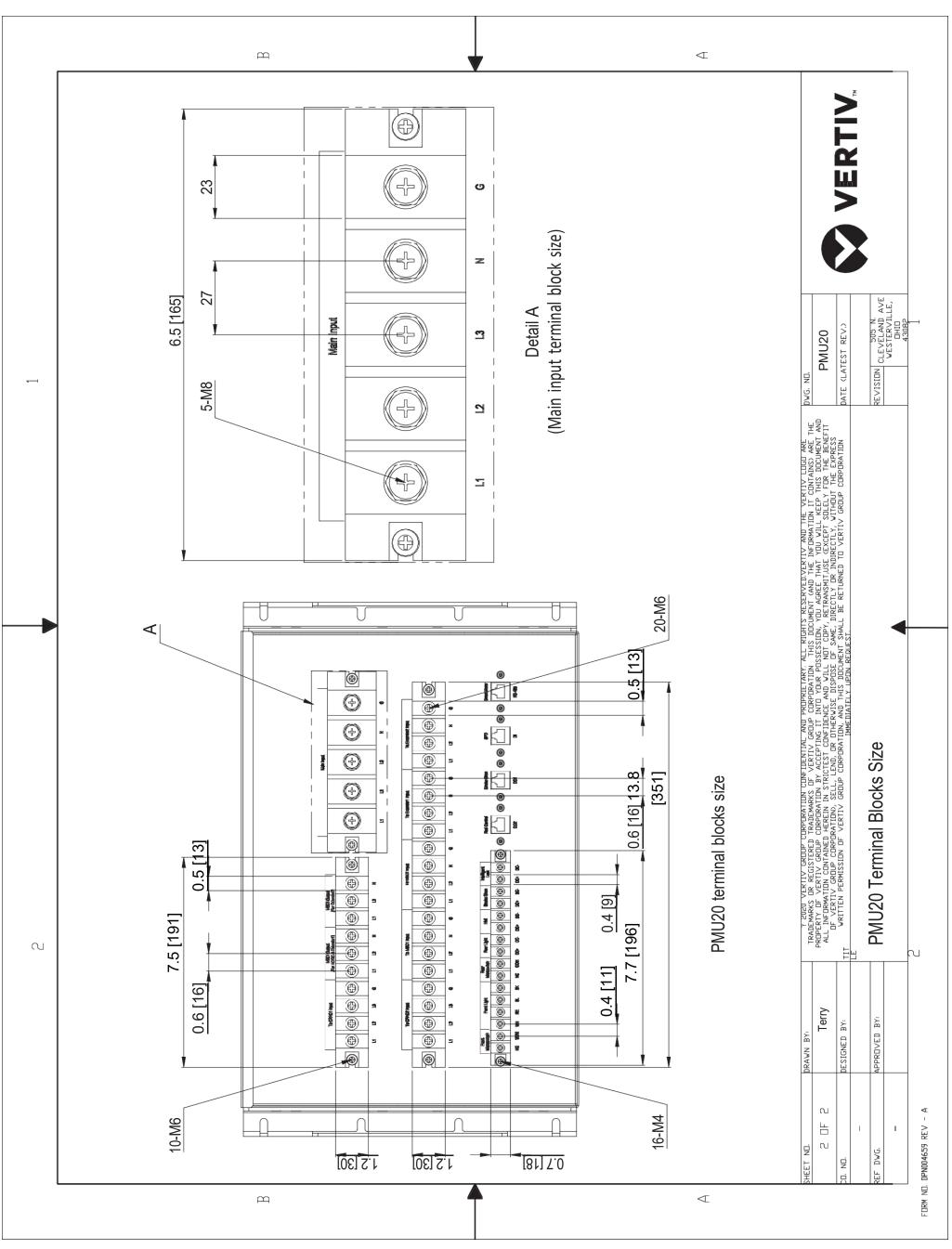


## 9. Power Management Unit - 20kW (PMU20)



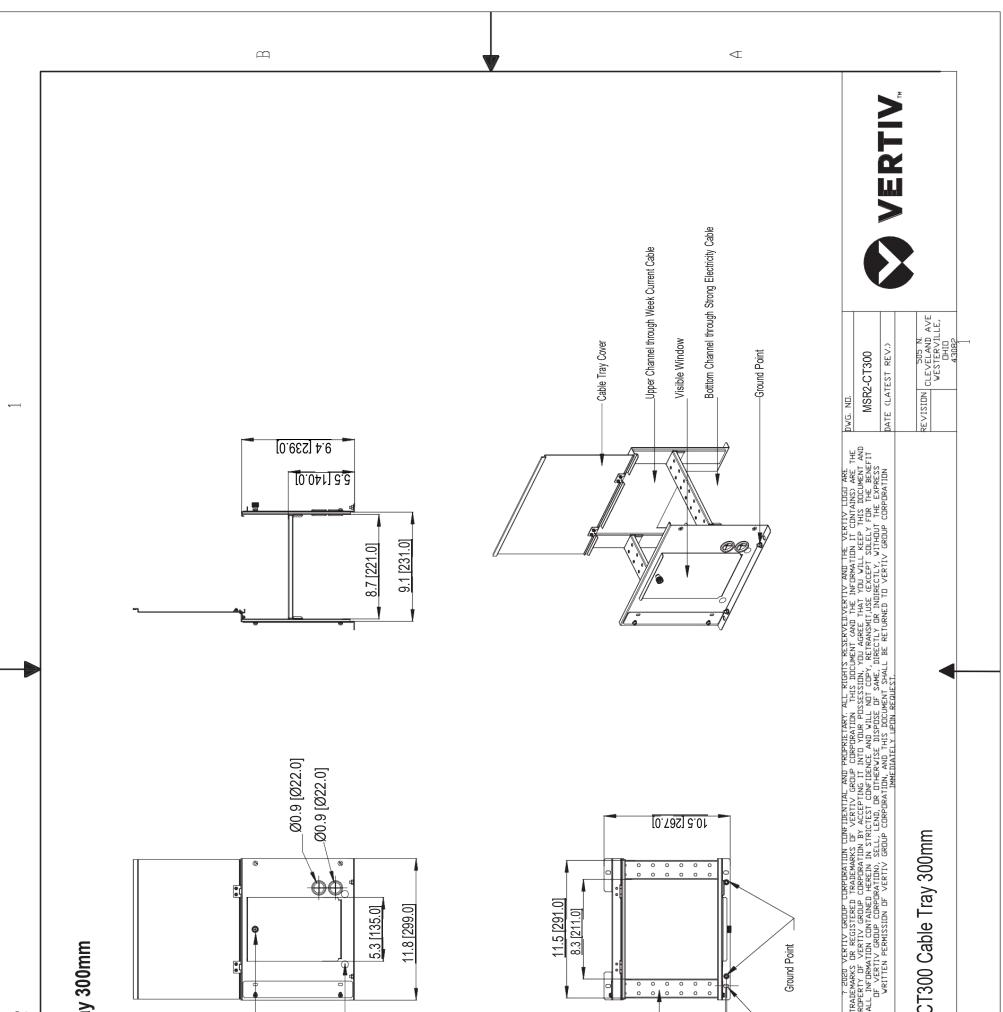


## 10. PMU20 Terminal Blocks Size





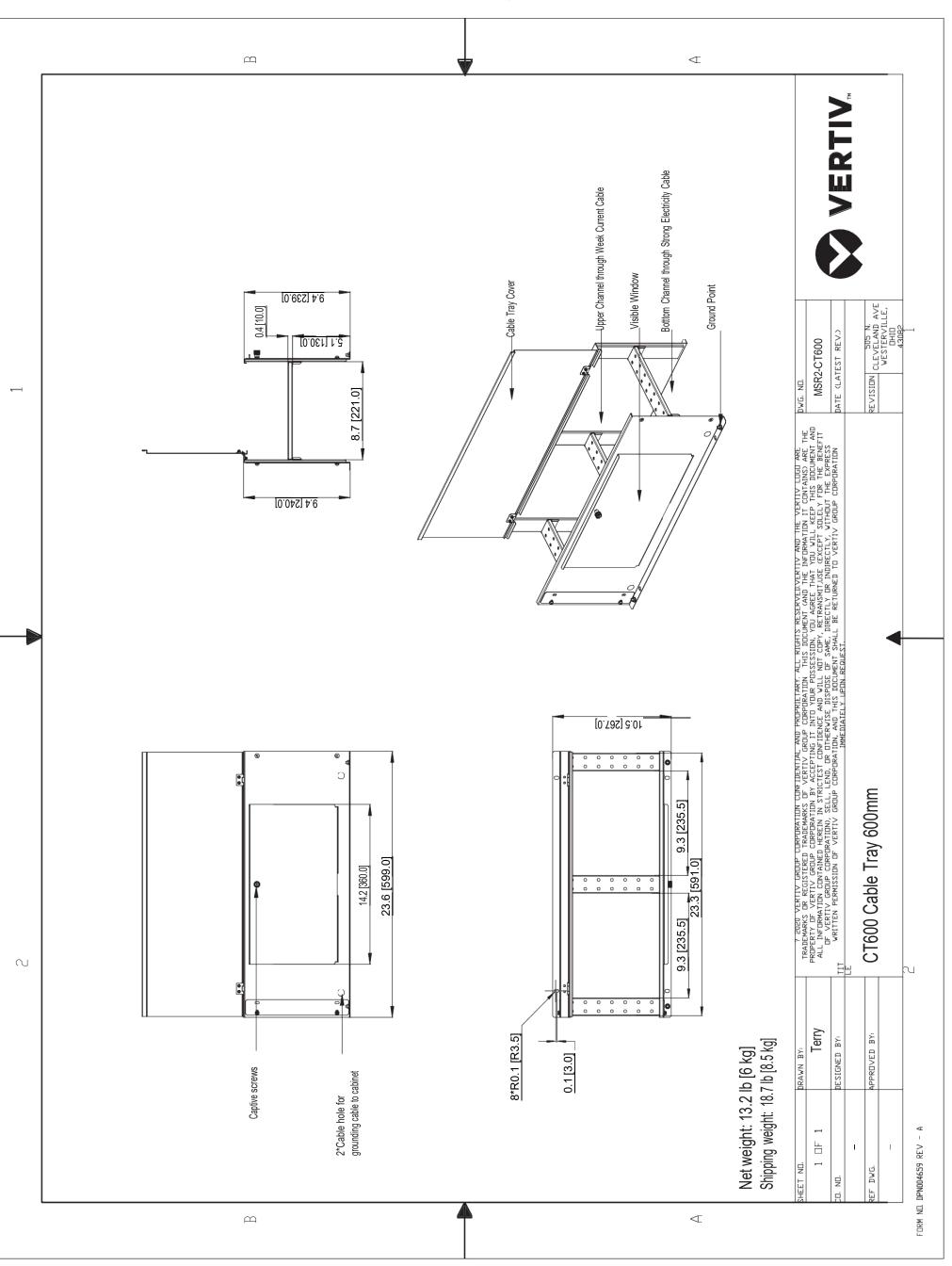
# 11. Vertiv MSR2 – CT300 Cable Tray 300mm



Vertiv MSR2 - CT300 Cable	Captive screws	2*Cable hole for grounding cable to cabinet	0 1 [3.0] Bracket	8*R0.1 [R3.5] Net weight: 6.6 lb [3 kg] Shipping weight: 9.5 lb [4.3 kg]	REF DWG, APPROVED BY:	FDRM ND. DPN004659 REV - A
						FOR



## 12. Vertiv MSR2 - CT600 Cable Tray 600mm





## **13. 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 inwarehouse 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<sup>®</sup> 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<sup>®</sup> 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 3<sup>rd</sup> 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.

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## **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 24hours 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.

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## SmartRow 2 Scope of Work Checklist

Customer Name:	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,							
lectrical, and/or General Contractors as needed :							
roject Management:							
ssembly Team Lead:							
Consolidator:							
/ertiv Warranty Inspection Tech:							
/ertiv 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 1,03		X X						Assess whether the building has enough power available to support the SmartRow 2 and heat rejection. Advise if a floor loading analysis should be conducted.	
1,04		x						nsure the customer understands and adheres to the minimum and maximum SmartRow 2 heat load and ack 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		Χ	Χ					Ensure all trades receive a current and accurate manual and set of submittals.	
2,04		Χ						Acknowledge all tasks listed in the Trade SOW Checklist are completed by all the resposibile parties.	
2,05	Χ	Χ						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						<ul> <li>Ensure indoor space meets all SmartRow 2 requirements (see SmartRow 2 manual); identify any issues and resolve:</li> <li>(1) Floor surface must be level and continuous (expansion joints sealed, raised floor tile gaps sealed, no floor drains, etc).</li> <li>(2) Mezzanine/roof can support outdoor heat rejection (if applicable)</li> <li>(3) Adequate service, egress and electrical clearances (see submittal packet)</li> <li>(4) Room containing SmartRow 2 maintained year-round within 0°C – 40°C.</li> <li>(5) The room and floor must be clean and free of debris.</li> <li>(6) Ensure there is at least 24 inches clearance above the rack top plates</li> <li>(7) Ensure no part of the SmartRow 2 will be closer than 18 inches to a sprinkler head (per NFPA 13)</li> </ul>	
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. <sup>(1)</sup> Condenser is bolted, mounted and leveled <sup>(2)</sup> 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. <sup>(3)</sup> 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) <sup>(4)</sup> Refrigerant lines charged with freon <sup>(5)</sup> 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						Provide and install utility over-current protection and circuit for each outdoor condenser/drycooler when applicable.	
2,12	Χ	Χ						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		Χ	Χ					Schedule Vertiv Cooling System Warranty Inspection.	
2,15		Χ	Χ					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				Χ				Assemble, gasket and level PMC unit per submittal package.
3 <i>,</i> 05				Χ				Assemble, gasket and level indoor cooling unit(s) per submittal package.
3 <i>,</i> 06				Χ				Assemble, gasket and level racks per submittal package.
3 <i>,</i> 07				Χ				Assemble and attach rubber cable grommets.
3 <i>,</i> 08				Χ				Connect door switch wire and rack lighting wire harnesses.
3,09				Χ				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				Χ				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				Х				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	Χ							Provide and connect condensate drain line to each indoor cooling unit.
4,05	Χ							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				Χ				Ensure all rubber cable grommets are installed
5,02							X	Cooling system Warranty Inspection.
5 <i>,</i> 03							X	UPS system Warranty Inspection.
5 <i>,</i> 04							X	Configure RDU501 Controller
5 <i>,</i> 05				Χ				Close breakers on rack-PDUs.
5 <i>,</i> 06				Χ				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 <i>,</i> 08				Χ				Ensure the SmartRow 2 Startup Form has been completed.
6								Fire Suppression System Start up
6,01	Χ	Χ		Χ		Χ		Ensure all the required parties are present on site for the installation of the Fire Suppression System.
6,02				Χ				Position, level and bolt together the Fire suppression cabinet to the rest of the row.
6 <i>,</i> 03				Χ				Ensure all the wiring is connected, according to the information available in the submittals.
6,04				Χ				Install the piping in all the other cabinets.

6,05	Χ	Χ		Χ	Ensure the Punch list items are completed and signed by the responsible parties.
6,06	Χ	Χ		Χ	Review the closeout document with the information about the pre-test conducted at Flagship.
6,07				Χ	Validate the warranty of the Fire supression system.
6,08				Χ	Verify that all components are functioning as intended.
6,09	Χ			X	Provide training to the customer on the system.
7					Optional - Fire Suppression System Integrity Test (upon customer request)
7,01				Χ	Conduct a door fan test with the standardized Fan test system.
7,02				Χ	Measure the pressure retention rate and calculate the amount of air flowing through the Door fan.
7,03				Χ	Determine the total size of the air leaks.
7,04				Χ	Provide the customer with the pressure test report.
7,05				Χ	Replace the system cylinder with the Proinert test cylinder provided by the manufacturer.
7,06				Χ	Conduct a discharge test on the system.
7,07				Χ	Ensure that the oxygen level falls below 15% and maintains that level for a minimum of 10 minutes.
7,08				Χ	Place the system cylinder back into place and arm the system.
7,09				X	Provide the customer with a discharge test report.