

200G QSFP-DD to 2x 100G QSFP28 Duplex Breakout AOC

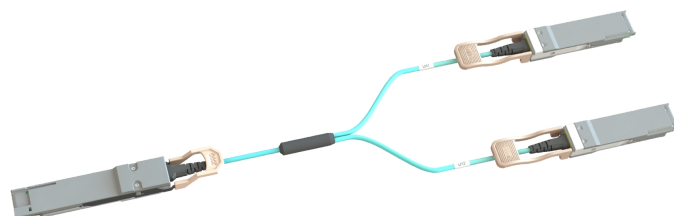
PN: V2C-D2QyyyC-AA

Product Overview

Vitex V2C-D2QyyyC-AA is a parallel 200G SR8 based 8-lane QSFP28-DD to 2x100G SR4. The use and replacement of breakout AOC is simple and straightforward as it adopts the standard QSFP28-DD form factor and complies to MSA specifications. The product provides an onboard MCU that allows access to full monitoring and configuration data via the 2-wire Management Interface.

Features

- 200G-SR8 QSFP28-DD to 2x 100G-SR4 QSFP28 breakout
- Full duplex 25.78 Gb/s per channel
- 10 Gb/s operation with CDR bypass
- Up to 100m with OM3/OM4 fiber
- Single 3.3V power supply
- Power consumption 4W QSFP28-DD side
 - 2.5W QSFP28 side
- Digital Diagnostic Monitoring (DDM) support
- Commercial operating temperature: 0°C to +70°C
- LSZH cable
- Hot Pluggable QSFP-DD form factor, QSFP-DD MSA CMIS 4.0 compliant
- Compliant with RoHS2.0



Applications

- IEEE 802.3bs 200G-SR8 and IEEE 802.3bm 100G-SR4
- Data centers (Servers, Switches, Storages)
- Cell site router and server connectivity
- Proprietary HPC interconnects

Ordering Information

Part Number	Description
V2C-D2QyyyC-AA	200G-SR8 QSFP-DD to 2x 100G-SR4 QSFP28 Breakout AOC, yyym, DDM, C-temp (yyy is cable length in meters)
V2C-D2Q003C-AA	200G-SR8 QSFP-DD to 2x 100G-SR4 QSFP28 Breakout AOC 3m, DDM, C-temp

General Specifications

Parameter		Symbol	Min	Typical	Max	Unit
Storage Temperature		T_s	-40		85	°C
Relative Humidity		R_H	5		85	%
Supply Voltage		V_s	0		4	V
Operating Case Temperature		T_c	0		70	°C
Operating Supply Voltage		V_{CC}	3.13	3.3	3.47	V
Power Consumption	QSFP28-DD	P			4	W
	QSFP28				2.5	
Data Rate		DR	25.78125±100ppm			Gb/s
Bit Error Rate ¹		BER			5E-5	

1. Pre-FEC Bit Error Ratio with a PRBS $2^{31}-1$ test pattern

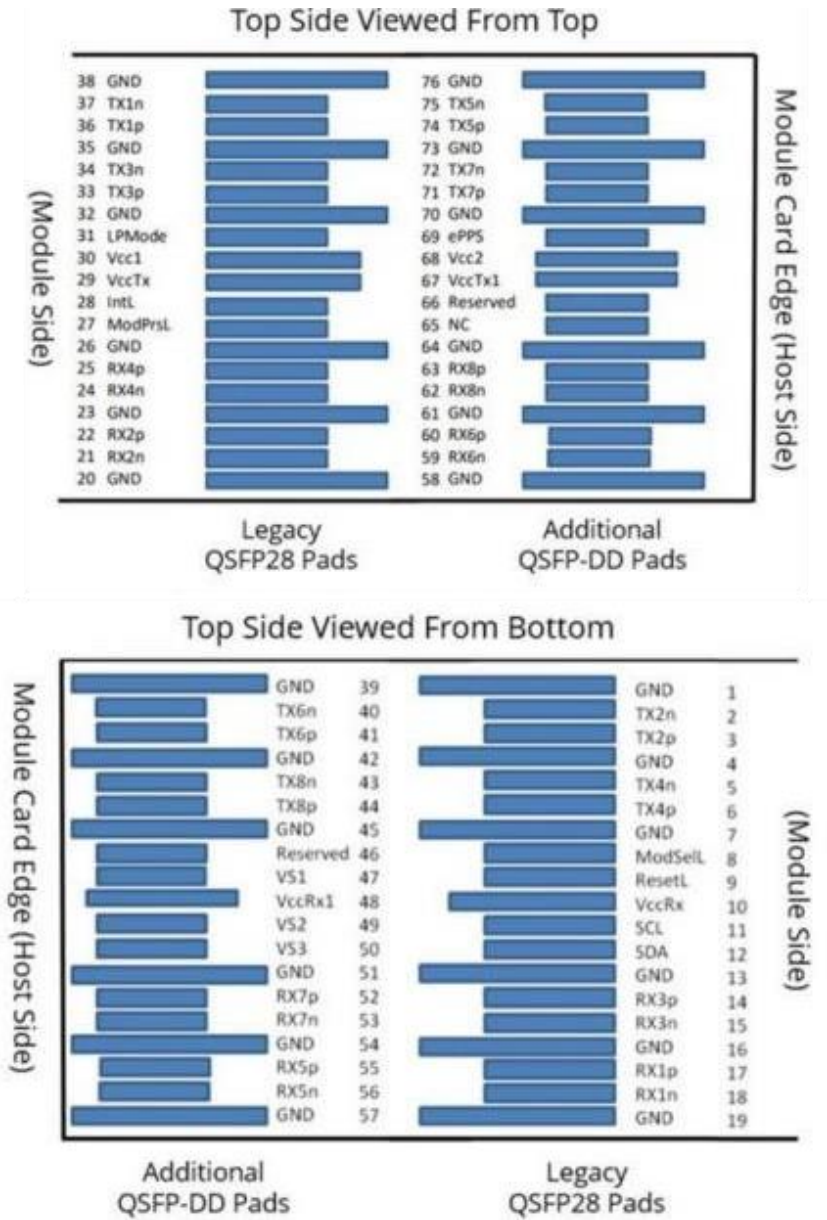
Electrical – Transmitter

Parameter	Symbol	Min	Typical	Max	Unit
Input Differential Impedance	R_{IN}	90	100	110	Ω
Differential Data Input Voltage	V_{INP-P}	200		900	mV
Modulation Format	NRZ				
Transmit Disable Voltage	V_{DIS}	2		V_{CCHOST}	V
Transmit Enable Voltage	V_{EN}	V_{EE}		$V_{EE}+0.8$	V
Transmit Fault Assert	V_{FA}	2		V_{CCHOST}	V
Transmit Fault De-Assert	V_{FDA}	V_{EE}		$V_{EE}+0.8$	V

Electrical – Receiver

Parameter	Symbol	Min	Typical	Max	Unit
Output Differential Impedance	R_{OUT}	90	100	110	Ω
Differential Data Input Voltage	V_{OUTP-P}	200		500	mV
LOS Fault	V_{LOSF}	2		V_{CCHOST}	V
LOS Normal	$V_{LOS N}$	V_{EE}		$V_{EE}+0.8$	V

Electrical Connector Layout



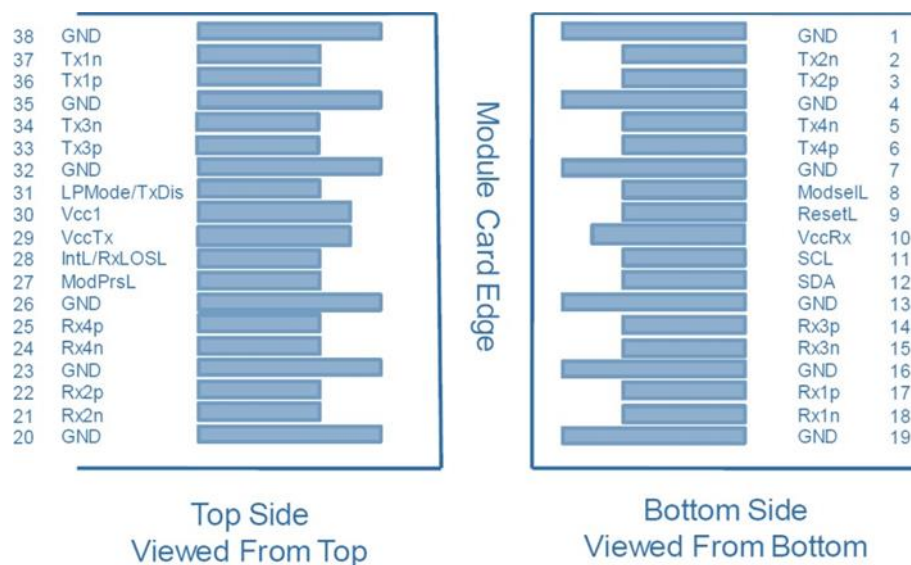
Electrical Pin Definition for QSFP-DD

PIN #	Symbol	Description	Notes
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	VccRx	3.3V Power Supply Receiver	2
11	SCL	2-wire Serial Interface Clock	
12	SDA	2-wire Serial Interface Data	
13	GND	Ground	1
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	1
17	Rxlp	Receiver Non-Inverted Data Output	
18	Rxln	Receiver Inverted Data Output	
19	GND	Ground	1
20	GND	Ground	1
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	VccTx	3.3V Power Supply Transmitter	2
30	Vcci	3.3V Power Supply	2
31	LPMode	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	1
36	Txlp	Transmitter Non-Inverted Data Input	
37	Txln	Transmitter Inverted Data Input	
38	GND	Ground	1
39	GND	Ground	1
40	Tx6n	Transmitter Inverted Data Input	
41	Tx6p	Transmitter Non-Inverted Data Input	
42	GND	Ground	1

43	Tx8n	Transmitter Inverted Data Input	
44	Tx8p	Transmitter Non-Inverted Data Input	
45	GND	Ground	1
46	Reserved	For Future Use	3
47	VSI	Module Vendor Specific 1	3
48	VccRx1	3.3V Power Supply Receiver	2
49	VS2	Module Vendor Specific 2	3
50	VS3	Module Vendor Specific 3	3
51	GND	Ground	1
52	Rx7p	Receiver Non-Inverted Data Output	
53	Rx7n	Receiver Inverted Data Output	
54	GND	Ground	1
55	Rx5p	Receiver Non-Inverted Data Output	
56	Rx5n	Receiver Inverted Data Output	
57	GND	Ground	1
58	GND	Ground	1
59	Rx6n	Receiver Inverted Data Output	
60	Rx6p	Receiver Non-Inverted Data Output	
61	GND	Ground	1
62	Rx8n	Receiver Inverted Data Output	
63	Rx8p	Receiver Non-Inverted Data Output	
64	GND	Ground	1
65	NC	No Connect	3
66	Reserved	For Future Use	3
67	VccTx1	3.3V Power Supply Transmitter	2
68	Vcc2	3.3V Power Supply	2
69	ePPS	Precision Time Protocol (PTP) reference clock input	3
70	GND	Ground	1
71	Tx7p	Transmitter Non-Inverted Data Input	
72	Tx7n	Transmitter Inverted Data Input	
73	GND	Ground	1
74	Tx5p	Transmitter Non-Inverted Data Input	
75	Tx5n	Transmitter Inverted Data Input	
76	GND	Ground	1

1. QSFP-DD uses common ground (GND) for all signals and supply (power). All are common within the QSFP-DD module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal- common ground plane.
2. VccRx, VccRx1, Vcc1, Vcc2, VccTx and VccTx1 shall be applied concurrently. Requirements defined for the host side of the Host Card Edge Connector are listed in Table 7. VccRx, VccRx1, Vcc1, Vcc2, VccTx and VccTx1 may be internally connected within the module in any combination. The connector Vcc pins are each rated for a maximum current of 1000mA.
3. All Vendor Specific, Reserved and No Connect pins may be terminated with 50 ohms to ground on the host. Pad 65 (No Connect) shall be left unconnected within the module.

Pin Description – QSFP28



Electrical Pin Definition – QSFP28

Pin	Symbol	Description	Unit
1	GND	Transmitter Ground (Common with Receiver Ground)	1
2	Tx2-	Transmitter Inverted Data Input	
3	Tx2+	Transmitter Non-Inverted Data Input	
4	GND	Transmitter Ground (Common with Receiver Ground)	1
5	Tx4-	Transmitter Inverted Data Input	
6	Tx4+	Transmitter Non-Inverted Data Input	
7	GND	Transmitter Ground (Common with Receiver Ground)	1
8	ModSeL	Module Select	2
9	ResetL	Module Reset	2
10	VccRx	3.3V Power Supply Receiver	
11	SCL	2-Wire serial Interface Clock	2
12	SDA	2-Wire serial Interface Data	2
13	GND	Transmitter Ground (Common with Receiver Ground)	1
14	Rx3+	Receiver Non-Inverted Data Output	
15	Rx3-	Receiver Inverted Data Output	
16	GND	Transmitter Ground (Common with Receiver Ground)	1
17	Rx1+	Receiver Non-Inverted Data Output	
18	Rx1-	Receiver Inverted Data Output	
19	GND	Transmitter Ground (Common with Receiver Ground)	1
20	GND	Transmitter Ground (Common with Receiver Ground)	1
21	Rx2-	Receiver Inverted Data Output	
22	Rx2+	Receiver Non-Inverted Data Output	
23	GND	Transmitter Ground (Common with Receiver Ground)	1

1. The module uses common ground (GND) for all signals and supply (power). All are common within the module and all module voltages are referenced to this potential unless otherwise noted. Connect these directly to the host board signal-common ground plane.
2. VccRx, VccI, and VccTx shall be applied concurrently, and may be internally connected within the module in any combination.

Technical drawing of a cable assembly, showing dimensions and labels. The drawing includes a side view and a top view.

Side View Dimensions:

- Overall length: 127.6 ± 1
- Distance from left end to first connector: 10.06 ± 0.15
- Distance from first connector to second connector: 93.2 ± 0.2
- Distance from second connector to third connector: 18.35 ± 0.10
- Distance from third connector to fourth connector: 121.4 ± 1
- Distance from fourth connector to fifth connector: 72.5 ± 0.2
- Distance from fifth connector to sixth connector: 4.2 ± 0.15
- Distance from sixth connector to seventh connector: 18.35 ± 0.10
- Distance from seventh connector to eighth connector: 1.45 ± 0.15
- Distance from eighth connector to ninth connector: 1.50 ± 0.20
- Distance from ninth connector to tenth connector: 29.6 ± 0.1
- Distance from tenth connector to eleventh connector: 1 ± 0.50
- Distance from eleventh connector to twelfth connector: 29.6 ± 0.1
- Distance from twelfth connector to thirteenth connector: 1 ± 0.50
- Distance from thirteenth connector to fourteenth connector: 29.6 ± 0.1
- Distance from fourteenth connector to fifteenth connector: 1 ± 0.50
- Distance from fifteenth connector to sixteenth connector: 29.6 ± 0.1
- Distance from sixteenth connector to seventeenth connector: 1 ± 0.50
- Distance from seventeenth connector to eighteenth connector: 29.6 ± 0.1
- Distance from eighteenth connector to nineteenth connector: 1 ± 0.50
- Distance from nineteenth connector to twentieth connector: 29.6 ± 0.1
- Distance from twentieth connector to twenty-first connector: 1 ± 0.50
- Distance from twenty-first connector to twenty-second connector: 29.6 ± 0.1
- Distance from twenty-second connector to twenty-third connector: 1 ± 0.50
- Distance from twenty-third connector to twenty-fourth connector: 29.6 ± 0.1
- Distance from twenty-fourth connector to twenty-fifth connector: 1 ± 0.50
- Distance from twenty-fifth connector to twenty-sixth connector: 29.6 ± 0.1
- Distance from twenty-sixth connector to twenty-seventh connector: 1 ± 0.50
- Distance from twenty-seventh connector to twenty-eighth connector: 29.6 ± 0.1
- Distance from twenty-eighth connector to twenty-ninth connector: 1 ± 0.50
- Distance from twenty-ninth connector to thirtieth connector: 29.6 ± 0.1
- Distance from thirtieth connector to thirty-first connector: 1 ± 0.50
- Distance from thirty-first connector to thirty-second connector: 29.6 ± 0.1
- Distance from thirty-second connector to thirty-third connector: 1 ± 0.50
- Distance from thirty-third connector to thirty-fourth connector: 29.6 ± 0.1
- Distance from thirty-fourth connector to thirty-fifth connector: 1 ± 0.50
- Distance from thirty-fifth connector to thirty-sixth connector: 29.6 ± 0.1
- Distance from thirty-sixth connector to thirty-seventh connector: 1 ± 0.50
- Distance from thirty-seventh connector to thirty-eighth connector: 29.6 ± 0.1
- Distance from thirty-eighth connector to thirty-ninth connector: 1 ± 0.50
- Distance from thirty-ninth connector to fortieth connector: 29.6 ± 0.1
- Distance from fortieth connector to forty-first connector: 1 ± 0.50
- Distance from forty-first connector to forty-second connector: 29.6 ± 0.1
- Distance from forty-second connector to forty-third connector: 1 ± 0.50
- Distance from forty-third connector to forty-fourth connector: 29.6 ± 0.1
- Distance from forty-fourth connector to forty-fifth connector: 1 ± 0.50
- Distance from forty-fifth connector to forty-sixth connector: 29.6 ± 0.1
- Distance from forty-sixth connector to forty-seventh connector: 1 ± 0.50
- Distance from forty-seventh connector to forty-eighth connector: 29.6 ± 0.1
- Distance from forty-eighth connector to forty-ninth connector: 1 ± 0.50
- Distance from forty-ninth connector to fiftieth connector: 29.6 ± 0.1
- Distance from fiftieth connector to fifty-first connector: 1 ± 0.50
- Distance from fifty-first connector to fifty-second connector: 29.6 ± 0.1
- Distance from fifty-second connector to fifty-third connector: 1 ± 0.50
- Distance from fifty-third connector to fifty-fourth connector: 29.6 ± 0.1
- Distance from fifty-fourth connector to fifty-fifth connector: 1 ± 0.50
- Distance from fifty-fifth connector to fifty-sixth connector: 29.6 ± 0.1
- Distance from fifty-sixth connector to fifty-seventh connector: 1 ± 0.50
- Distance from fifty-seventh connector to fifty-eighth connector: 29.6 ± 0.1
- Distance from fifty-eighth connector to fifty-ninth connector: 1 ± 0.50
- Distance from fifty-ninth connector to sixtieth connector: 29.6 ± 0.1
- Distance from sixtieth connector to sixty-first connector: 1 ± 0.50
- Distance from sixty-first connector to sixty-second connector: 29.6 ± 0.1
- Distance from sixty-second connector to sixty-third connector: 1 ± 0.50
- Distance from sixty-third connector to sixty-fourth connector: 29.6 ± 0.1
- Distance from sixty-fourth connector to sixty-fifth connector: 1 ± 0.50
- Distance from sixty-fifth connector to sixty-sixth connector: 29.6 ± 0.1
- Distance from sixty-sixth connector to sixty-seventh connector: 1 ± 0.50
- Distance from sixty-seventh connector to sixty-eighth connector: 29.6 ± 0.1
- Distance from sixty-eighth connector to sixty-ninth connector: 1 ± 0.50
- Distance from sixty-ninth connector to seventieth connector: 29.6 ± 0.1
- Distance from seventieth connector to seventy-first connector: 1 ± 0.50
- Distance from seventy-first connector to seventy-second connector: 29.6 ± 0.1
- Distance from seventy-second connector to seventy-third connector: 1 ± 0.50
- Distance from seventy-third connector to seventy-fourth connector: 29.6 ± 0.1
- Distance from seventy-fourth connector to seventy-fifth connector: 1 ± 0.50
- Distance from seventy-fifth connector to seventy-sixth connector: 29.6 ± 0.1
- Distance from seventy-sixth connector to seventy-seventh connector: 1 ± 0.50
- Distance from seventy-seventh connector to seventy-eighth connector: 29.6 ± 0.1
- Distance from seventy-eighth connector to seventy-ninth connector: 1 ± 0.50
- Distance from seventy-ninth connector to eightieth connector: 29.6 ± 0.1
- Distance from eightieth connector to eighty-first connector: 1 ± 0.50
- Distance from eighty-first connector to eighty-second connector: 29.6 ± 0.1
- Distance from eighty-second connector to eighty-third connector: 1 ± 0.50
- Distance from eighty-third connector to eighty-fourth connector: 29.6 ± 0.1
- Distance from eighty-fourth connector to eighty-fifth connector: 1 ± 0.50
- Distance from eighty-fifth connector to eighty-sixth connector: 29.6 ± 0.1
- Distance from eighty-sixth connector to eighty-seventh connector: 1 ± 0.50
- Distance from eighty-seventh connector to eighty-eighth connector: 29.6 ± 0.1
- Distance from eighty-eighth connector to eighty-ninth connector: 1 ± 0.50
- Distance from eighty-ninth connector to ninetieth connector: 29.6 ± 0.1
- Distance from ninetieth connector to one hundredth connector: 1 ± 0.50
- Distance from one hundredth connector to one hundred and first connector: 29.6 ± 0.1
- Distance from one hundred and first connector to one hundred and second connector: 1 ± 0.50
- Distance from one hundred and second connector to one hundred and third connector: 29.6 ± 0.1
- Distance from one hundred and third connector to one hundred and fourth connector: 1 ± 0.50
- Distance from one hundred and fourth connector to one hundred and fifth connector: 29.6 ± 0.1
- Distance from one hundred and fifth connector to one hundred and sixth connector: 1 ± 0.50
- Distance from one hundred and sixth connector to one hundred and seventh connector: 29.6 ± 0.1
- Distance from one hundred and seventh connector to one hundred and eighth connector: 1 ± 0.50
- Distance from one hundred and eighth connector to one hundred and ninth connector: 29.6 ± 0.1
- Distance from one hundred and ninth connector to one hundred and tenth connector: 1 ± 0.50
- Distance from one hundred and tenth connector to one hundred and eleventh connector: 29.6 ± 0.1
- Distance from one hundred and eleventh connector to one hundred and twelfth connector: 1 ± 0.50
- Distance from one hundred and twelfth connector to one hundred and thirteenth connector: 29.6 ± 0.1
- Distance from one hundred and thirteenth connector to one hundred and fourteenth connector: 1 ± 0.50
- Distance from one hundred and fourteenth connector to one hundred and fifteenth connector: 29.6 ± 0.1
- Distance from one hundred and fifteenth connector to one hundred and sixteenth connector: 1 ± 0.50
- Distance from one hundred and sixteenth connector to one hundred and seventeenth connector: 29.6 ± 0.1
- Distance from one hundred and seventeenth connector to one hundred and eighteenth connector: 1 ± 0.50
- Distance from one hundred and eighteenth connector to one hundred and nineteenth connector: 29.6 ± 0.1
- Distance from one hundred and nineteenth connector to one hundred and twentieth connector: 1 ± 0.50
- Distance from one hundred and twentieth connector to one hundred and twenty-first connector: 29.6 ± 0.1
- Distance from one hundred and twenty-first connector to one hundred and twenty-second connector: 1 ± 0.50
- Distance from one hundred and twenty-second connector to one hundred and twenty-third connector: 29.6 ± 0.1
- Distance from one hundred and twenty-third connector to one hundred and twenty-fourth connector: 1 ± 0.50
- Distance from one hundred and twenty-fourth connector to one hundred and twenty-fifth connector: 29.6 ± 0.1
- Distance from one hundred and twenty-fifth connector to one hundred and twenty-sixth connector: 1 ± 0.50
- Distance from one hundred and twenty-sixth connector to one hundred and twenty-seventh connector: 29.6 ± 0.1
- Distance from one hundred and twenty-seventh connector to one hundred and twenty-eighth connector: 1 ± 0.50
- Distance from one hundred and twenty-eighth connector to one hundred and twenty-ninth connector: 29.6 ± 0.1
- Distance from one hundred and twenty-ninth connector to one hundred and thirtieth connector: 1 ± 0.50
- Distance from one hundred and thirtieth connector to one hundred and thirty-first connector: 29.6 ± 0.1
- Distance from one hundred and thirty-first connector to one hundred and thirty-second connector: 1 ± 0.50
- Distance from one hundred and thirty-second connector to one hundred and thirty-third connector: 29.6 ± 0.1
- Distance from one hundred and thirty-third connector to one

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Revision History

Date	Rev	Description
09/23/2022	1.0	Initial Release
04/12/2023	2.0	Updated Logo and Formatting
07/06/2023	2.1	Minor Corrections to Logo and Formatting
08/02/2023	2.2	Updated Mechanical Diagrams
08/21/2023	2.3	Corrected Specifications.

For more information

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