



USB Type C interface utilizing the rugged Hercules Connector System embedded in the MIL-DTL-38999 shell, provides both durable and high-bandwidth interconnect scheme suitable for Military, Aerospace and ruggedized commercial applications.

FEATURES / BENEFITS

- Features the 24 pin USB Type C reversible plug connector.
- Support USB 3.1 and USB Power Delivery
- For rugged applications use MIL-DTL-38999 shells with the embedded Hercules connector.
- Supports multi USB protocols through one Hercules Connector
- Supports data rates in excess of 10Gbs and differential-pair signaling with low-skew pairs & shielding for EMI/RFI protection.
- Available in IP-67 Rating
- Matched impedance design of 100 Ohm
- Cable types available in 26, 28, 30 AWG
- Jacket types available: LSZH, PVC, FEP and Halar Expando
- Custom length cable assemblies available

SPECIFICATIONS

ELECTRICAL FOR HERCULES:

- For USB Type C refer to USB Implementers Forum released specification
- Impedance: 100 Ohms differential at 100 ps rise time
- Cross talk (NEXT): <-30 dB up to 5 GHz from multiple aggressors
- Insertion loss:< 1 dB up to 5 GHz
- Power per contact: 1.5 amp
- DWV: No defect for 1 min at 300 VDC

MECHANICAL FOR HERCULES:

- For USB Type C refer to USB Implementers Forum released specification
- Contact material: Copper Alloy
- Standard contact finish: 50 μ inch Au over 100 μ inch min. Ni
- Durability 500 cycles
- Shell Material - Aluminum Alloy/Zinc Alloy

ENVIRONMENTAL:

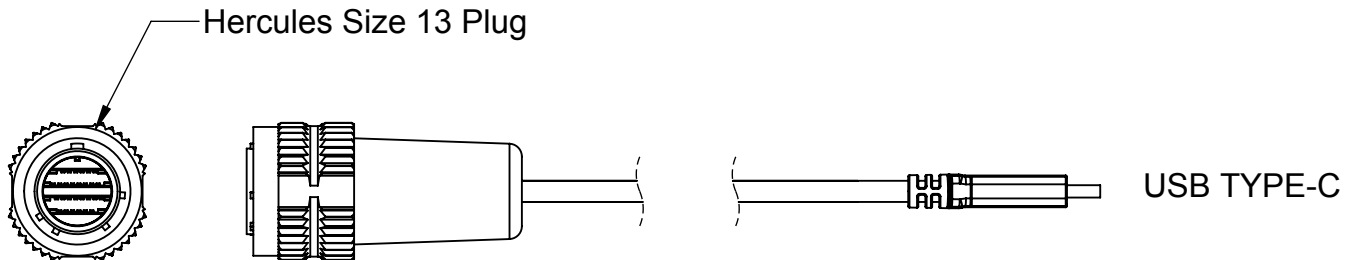
- -40 °C to +125 °C

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HERCULES® TO USB TYPE-C



MERITEC P/N: 985013SNU1W1.0

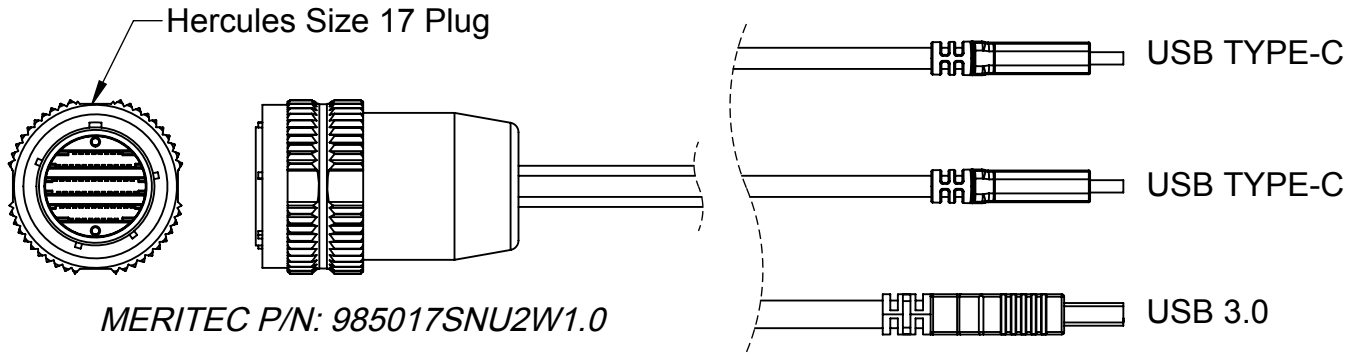
HERCULES SIZE 13 TO USB TYPE-C CONNECTOR							
HERCULES	USB PIN	NAME	DESCRIPTION	HERCULES	USB PIN	NAME	DESCRIPTION
A4	A1	GND	Ground return	C2	B12	GND	Ground return
A5	A2	SSTXp1	SuperSpeed diff. l pr #1 TX, pos.	C3	B11	SSRXp1	SuperSpeed diff. l pr #1 RX, pos.
A6	A3	SSTXn1	SuperSpeed diff. l pr #1 TX, neg.	C4	B10	SSRXn1	SuperSpeed diff. l pr #1 RX, neg.
B8	A4	VBUS	Bus power	D6	B9	Vbus	Bus power
A2	A5	CC1	Configuration Channel	C7	B8	SBU2	Sideband use (SBU)
B2	A6	Dp1	USB 2.0 diff. pr. Position 1, pos.		B7		
B3	A7	Dn1	USB 2.0 diff. pr. Position 1, neg.		B6		
B1	A8	SBU1	Sideband use (SBU)	A3	B5	CC2	Configuration channel
C6	A9	VBUS	Bus power	D7	B4	Vbus	Bus power
B5	A10	SSRXn2	SuperSpeed diff. l pr #2 RX, neg.	D4	B3	SSTXn2	SuperSpeed diff. l pr #2 TX, neg.
B6	A11	SSRXp2	SuperSpeed diff. l pr #2 RX, pos.	D3	B2	SSTXp2	SuperSpeed diff. l pr #2 TX, pos.
B7	A12	GND	Ground return	D5	D5	GND	Ground return

USB 2.0 differential pair connects only in one position; position 2 is not physically present in the plug

NOTE: MERITEC STANDARD PART NUMBERS IN THIS DATA SHEET ARE 1.0 METERS IN LENGTH. FOR OTHER LENGTHS PLEASE CONSULT THE FACTORY.

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HERCULES® TO USB TYPE-C



HERCULES SIZE 17 TO (2) USB TYPE-C and (1) USB 3.0							
USB TYPE-C							
HERCULES	USB PIN	NAME	DESCRIPTION	HERCULES	USB PIN	NAME	DESCRIPTION
A5	A1	GND	Ground return	B8	B1	GND	Ground return
A6	A2	SSTXp1	SuperSpeed diff. l pr #1 TX, pos.	B6	B2	SSRXp1	SuperSpeed diff. l pr #1 RX, pos.
A7	A3	SSTXn1	SuperSpeed diff. l pr #1 TX, neg.	B7	B3	SSRXn1	SuperSpeed diff. l pr #1 RX, neg.
A4	A4	Vbus	Bus power	C5	B4	Vbus	Bus power
B12	A5	CC1	Configuration Channel	C6	B5	SBU2	Sideband use (SBU)
A9	A6	Dp1	USB 2.0 diff. pr. Position 1, pos.		B6		
A10	A7	Dn1	USB 2.0 diff. pr. Position 1, neg.		B7		
B13	A8	SBU1	Sideband use (SBU)	C7	B8	CC2	Configuration channel*
C2	A9	Vbus	Bus power	C3	B9	Vbus	Bus power
B4	A10	SSRXn2	SuperSpeed diff. l pr #2 RX, neg.	B10	B10	SSTXn2	SuperSpeed diff. l pr #2 TX, neg.
B3	A11	SSRXp1	SuperSpeed diff. l pr #2 TX, pos.	B9	B11	SSTXp2	SuperSpeed diff. l pr #2 TX, pos.
B5	A12	GND	Ground return	B11	B12	GND	Ground return

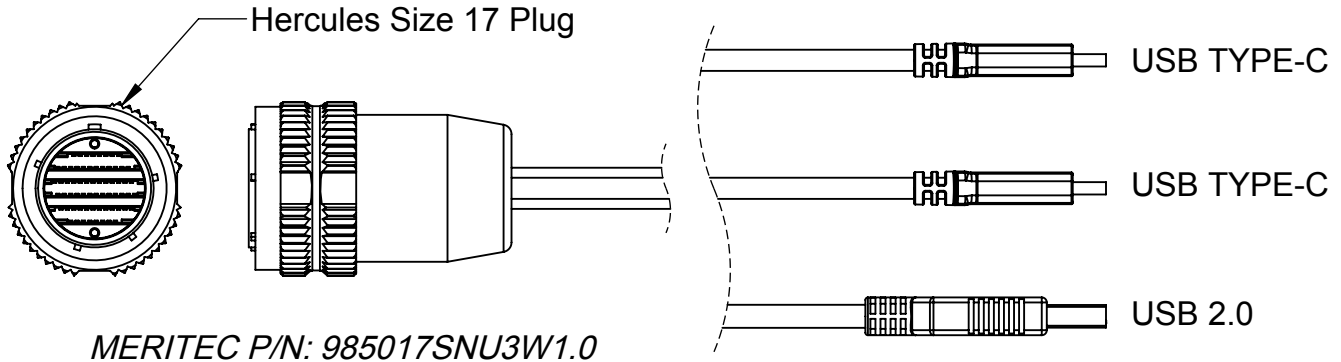
USB TYPE-C							
HERCULES	USB PIN	NAME	DESCRIPTION	HERCULES	USB PIN	NAME	DESCRIPTION
C10	A1	GND	Ground return	E4	B1	GND	Ground return
C8	A2	SSTXp1	SuperSpeed diff. l pr #1 TX, pos.	E5	B2	SSRXp1	SuperSpeed diff. l pr #1 RX, pos.
C9	A3	SSTXn1	SuperSpeed diff. l pr #1 TX, neg.	E6	B3	SSRXn1	SuperSpeed diff. l pr #1 RX, neg.
C11	A4	Vbus	Bus power	E3	B4	Vbus	Bus power
D2	A5	CC1	Configuration Channel	D9	B5	SBU2	Sideband use (SBU)
D5	A6	Dp1	USB 2.0 diff. pr. Position 1, pos.		B6		
D6	A7	Dn1	USB 2.0 diff. pr. Position 1, neg.		B7		
D8	A8	SBU1	Sideband use (SBU)	D3	B8	CC2	Configuration channel
E2	A9	Vbus	Bus power	C12	B9	Vbus	Bus power
D12	A10	SSRXn2	SuperSpeed diff. l pr #2 RX, neg.	E9	B10	SSTXn2	SuperSpeed diff. l pr #2 TX, neg.
D11	A11	SSRXp1	SuperSpeed diff. l pr #2 TX, pos.	E8	B11	SSTXp2	SuperSpeed diff. l pr #2 TX, pos.
D10	A12	GND	Ground return	E7	B12	GND	Ground return

USB 3.0			
HERCULES	USB PIN	NAME	DESCRIPTION
F11	1	Vbus	Power
E12	2	D-	USB 2.0 diff. pr.
E11	3	D+	USB 2.0 diff. pr.
D13	4	GND	Ground for Power Return*
F6	5	StdA_SSRX-	Super Speed receiver diff. pr.
F5	6	StdA_SSRX+	Super Speed receiver diff. pr.
F7	7	GND Drain	Ground for Signal Return
F9	8	StdA_SSTX-	Super Speed transmitter diff. pr.
F8	9	StdA_SSTX+	Super Speed transmitter diff. pr.

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HERCULES® TO USB TYPE-C

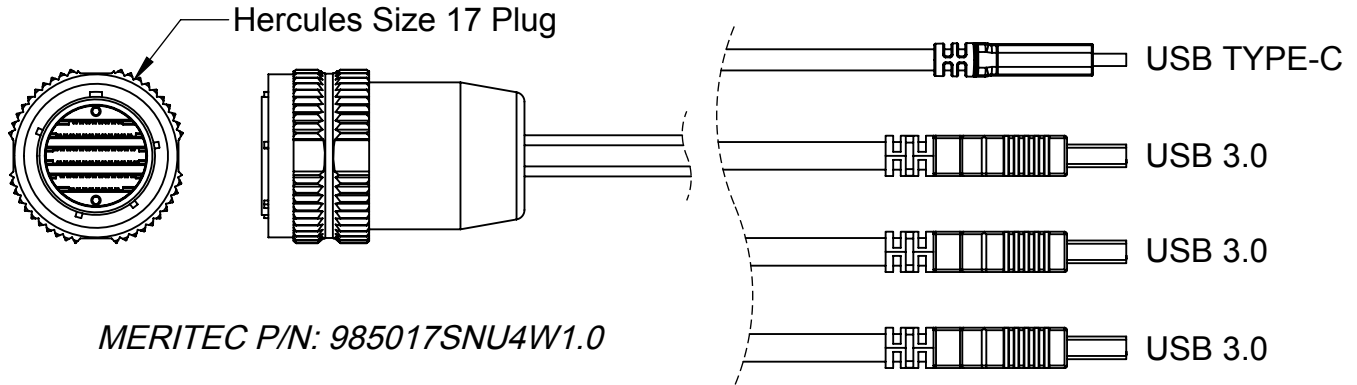


HERCULES SIZE 17 TO (2) USB TYPE-C and (1) USB 2.0							
USB TYPE-C							
HERCULES	USB PIN	NAME	DESCRIPTION	HERCULES	USB PIN	NAME	DESCRIPTION
A5	A1	GND	Ground return	B8	B1	GND	Ground return
A6	A2	SSTXp1	SuperSpeed diff.I pr #1 TX, pos.	B6	B2	SSRXp1	SuperSpeed diff.I pr #1 RX, pos.
A7	A3	SSTXn1	SuperSpeed diff.I pr #1 TX, neg.	B7	B3	SSRXn1	SuperSpeed diff.I pr #1 RX, neg.
A4	A4	Vbus	Bus power	C5	B4	Vbus	Bus power
B12	A5	CC1	Configuration Channel	C6	B5	SBU2	Sideband use (SBU)
A9	A6	Dp1	USB 2.0 diff. pr. Position 1, pos.		B6		
A10	A7	Dn1	USB 2.0 diff. pr. Position 1, neg.		B7		
B13	A8	SBU1	Sideband use (SBU)	C7	B8	CC2	Configuration channel*
C2	A9	Vbus	Bus power	C3	B9	Vbus	Bus power
B4	A10	SSRXn2	SuperSpeed diff.I pr #2 RX, neg.	B10	B10	SSTXn2	SuperSpeed diff.I pr #2 TX, neg.
B3	A11	SSRXp1	SuperSpeed diff.I pr #2 TX, pos.	B9	B11	SSTXp2	SuperSpeed diff.I pr #2 TX, pos.
B5	A12	GND	Ground return	B11	B12	GND	Ground return
USB TYPE-C							
HERCULES	USB PIN	NAME	DESCRIPTION	HERCULES	USB PIN	NAME	DESCRIPTION
C10	A1	GND	Ground return	E4	B1	GND	Ground return
C8	A2	SSTXp1	SuperSpeed diff.I pr #1 TX, pos.	E5	B2	SSRXp1	SuperSpeed diff.I pr #1 RX, pos.
C9	A3	SSTXn1	SuperSpeed diff.I pr #1 TX, neg.	E6	B3	SSRXn1	SuperSpeed diff.I pr #1 RX, neg.
C11	A4	Vbus	Bus power	E3	B4	Vbus	Bus power
D2	A5	CC1	Configuration Channel	D9	B5	SBU2	Sideband use (SBU)
D5	A6	Dp1	USB 2.0 diff. pr. Position 1, pos.		B6		
D6	A7	Dn1	USB 2.0 diff. pr. Position 1, neg.		B7		
D8	A8	SBU1	Sideband use (SBU)	D3	B8	CC2	Configuration channel
E2	A9	Vbus	Bus power	C12	B9	Vbus	Bus power
D12	A10	SSRXn2	SuperSpeed diff.I pr #2 RX, neg.	E9	B10	SSTXn2	SuperSpeed diff.I pr #2 TX, neg.
D11	A11	SSRXp1	SuperSpeed diff.I pr #2 TX, pos.	E8	B11	SSTXp2	SuperSpeed diff.I pr #2 TX, pos.
D10	A12	GND	Ground return	E7	B12	GND	Ground return
USB 2.0							
HERCULES	USB PIN	NAME	DESCRIPTION				
F11	1	Vbus	Power				
E12	2	D-	USB 2.0 diff. pr.				
E11	3	D+	USB 2.0 diff. pr.				
F5	4	GND	Ground for Power Return				

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HERCULES® TO USB TYPE-C



HERCULES 17 TO (1) USB TYPE-C and (3) USB 3.0							
USB Type C							
HERCULES	USB PIN	NAME	DESCRIPTION	HERCULES	USB PIN	NAME	DESCRIPTION
A5	A1	GND	Ground return	B8	B1	GND	Ground return
A6	A2	SSTXp1	SuperSpeed diff. l pr #1 TX, pos.	B6	B2	SSRXp1	SuperSpeed diff. l pr #1 RX, pos.
A7	A3	SSTXn1	SuperSpeed diff. l pr #1 TX, neg.	B7	B3	SSRXn1	SuperSpeed diff. l pr #1 RX, neg.
A4	A4	Vbus	Bus power	C5	B4	Vbus	Bus power
B12	A5	CC1	Configuration Channel	C6	B5	SBU2	Sideband use (SBU)
A9	A6	Dp1	USB 2.0 diff. pr. Position 1, pos.		B6		
A10	A7	Dn1	USB 2.0 diff. pr. Position 1, neg.		B7		
B13	A8	SBU1	Sideband use (SBU)	C7	B8	CC2	Configuration channel*
C2	A9	Vbus	Bus power	C3	B9	Vbus	Bus power
B4	A10	SSRXn2	SuperSpeed diff. l pr #2 RX, neg.	B10	B10	SSTXn2	SuperSpeed diff. l pr #2 TX, neg.
B3	A11	SSRXp1	SuperSpeed diff. l pr #2 TX, pos.	B9	B11	SSTXp2	SuperSpeed diff. l pr #2 TX, pos.
B5	A12	GND	Ground return	B11	B12	GND	Ground return

USB 3.0			
HERCULES	USB PIN	NAME	DESCRIPTION
C8	1	Vbus	Power
C12	2	D-	USB 2.0 diff. pr.
C11	3	D+	USB 2.0 diff. pr.
C4	4	GND	Ground for Power Return*
D3	5	StdA_SSRX-	Super Speed receiver diff. pr.
D2	6	StdA_SSRX+	Super Speed receiver diff. pr.
D4	7	GND Drain	Ground for Signal Return
D9	8	StdA_SSTX-	Super Speed transmitter diff. pr.
D8	9	StdA_SSTX+	Super Speed transmitter diff. pr.

USB 3.0			
HERCULES	USB PIN	NAME	DESCRIPTION
E2	1	Vbus	Power
D12	2	D-	USB 2.0 diff. pr.
D11	3	D+	USB 2.0 diff. pr.
C9	4	GND	Ground for Power Return
E6	5	StdA_SSRX-	Super Speed receiver diff. pr.
E5	6	StdA_SSRX+	Super Speed receiver diff. pr.
E7	7	GND Drain	Ground for Signal Return
E9	8	StdA_SSTX-	Super Speed transmitter diff. pr.
E8	9	StdA_SSTX+	Super Speed transmitter diff. pr.

USB 3.0			
HERCULES	USB PIN	NAME	DESCRIPTION
F11	1	Vbus	Power
E12	2	D-	USB 2.0 diff. pr.
E11	3	D+	USB 2.0 diff. pr.
E3	4	GND	Ground for Power Return
F6	5	StdA_SSRX-	Super Speed receiver diff. pr.
F5	6	StdA_SSRX+	Super Speed receiver diff. pr.
F7	7	GND Drain	Ground for Signal Return
F9	8	StdA_SSTX-	Super Speed transmitter diff. pr.
F8	9	StdA_SSTX+	Super Speed transmitter diff. pr.

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