UAVCAN cables and related accessories

This page contains the documentation pertaining to manufacturing and stocking of UAVCAN cables and related accessories. For the background information, please refer to the **UAVCAN Hardware Design Recommendations**.

UAVCAN D-Sub connectors

UAVCAN Micro connectors

UAVCAN M8 connector

Contents

UAVCAN Micro patch cable

A twisted-pair cable with standard UAVCAN Micro plugs (JST GH, 4 circuits) on both ends.

The following table documents the pinout of UAVCAN Micro patch cable.

Function	Side A pin number	Wires	Side B pin number
Bus power	1	Flat or twisted with Ground	1
CAN High	2	Twisted with CAN Low	2
CAN Low	3	Twisted with CAN High	3
Ground	4	Flat or twisted with Bus power	4

Manufacturing instructions

Parts needed

Part Name	Manufacturer	Part Number	Quantity
JST GH plug housing, 4 circuits	JST	GHR-04V-S	2
JST GH crimp terminal	JST	SSHL-002T-P0.2	8
Twisted pair cable (see requirements below)	Not specified	Not specified	N/A

Cable requirements:

- Type: two twisted pairs, or one twisted pair plus one straight pair.
- Twisting pitch: 0.3–1 twists per centimeter.
- Wire gauge: #26–30 AWG.
- Wire strands: 7 or more.
- Wire insulation outer diameter: 0.8 to 1 mm.
- Conductor material: copper.

Optional tools

Part Name	Manufacturer	Part Number	Notes
JST GH hand crimping tool	JST	YRS-1590	Can be purchased from DigiKey (and other suppliers as well).
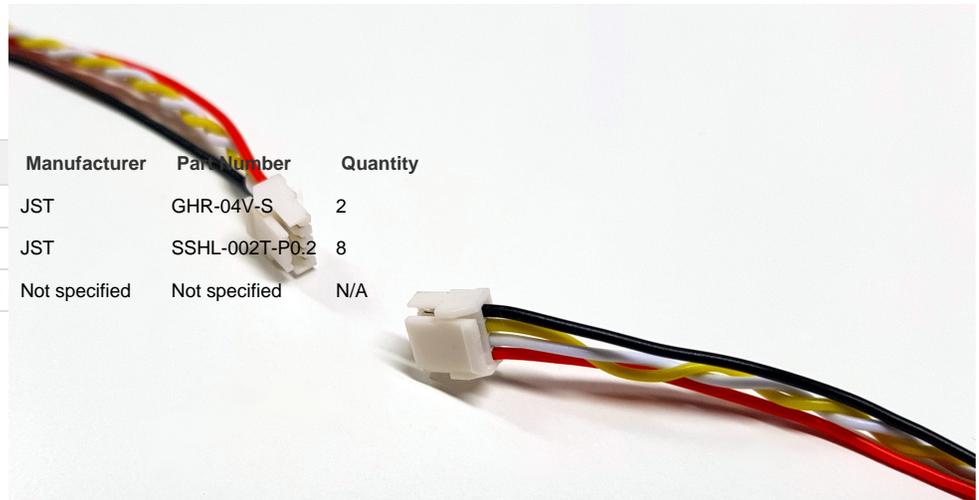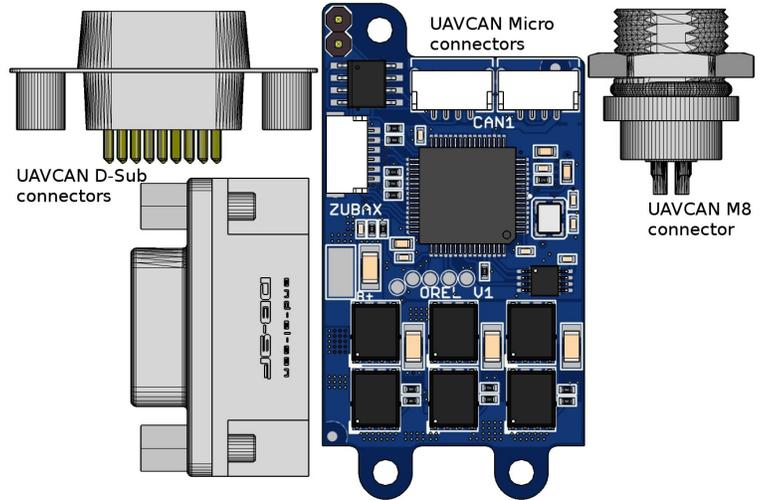
Manual assembly instructions

Wire strip requirements:

- Outer insulation strip length (if any): 10 to 20 mm.
- Wire insulation strip length: 1.5 mm.

Perform the following steps:

1. Cut the cable.
2. Strip the insulation on both ends of the cable as described above.
3. Crimp the terminals using the hand crimp tool.
4. Insert the terminals into plug housings following the pinout specification above.

UAVCAN Micro termination plug

A UAVCAN Micro plug with a 120 resistor between the pins CAN High and CAN Low.

Function	UAVCAN Micro	Resistor
(Not used)	1	
CAN High	2	Any pin
CAN Low	3	Any pin
(Not used)	4	

Manufacturing instructions

Parts needed

Part Name	Manufacturer	Part Number	Quantity	Notes
JST GH plug housing, 4 circuits	JST	GHR-04V-S	1	
JST GH crimp terminal	JST	SSHL-002T-P0.2	2	
Wire (see requirements below)	Not specified	Not specified	2	
Termination resistor, 120 (see requirements below)	Vishay BC Components	MBA02040C1200FCT00	1	Can be replaced with an alternative.
Heat shrink tube (recovered inner diameter: 0.5–0.8 mm)	TE Connectivity	PD-CAP-1/8-0	20–30 mm	Can be replaced with an alternative.
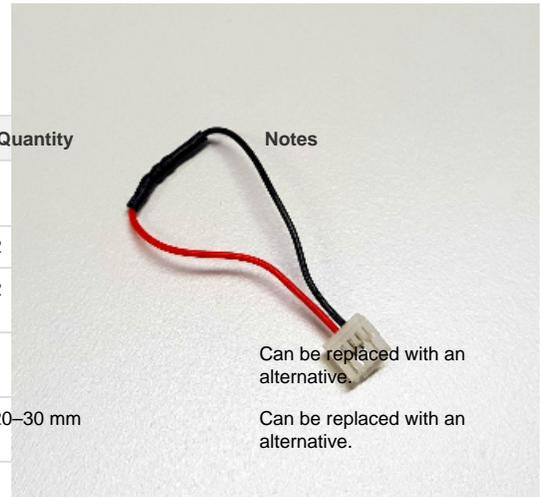
Termination resistor requirements:

- Resistance: 120 .
- Package: axial, body length less than 7 mm.
- Power: 0.25 W or higher.
- Tolerance: ±5% or better.
- Operating temperature: -40–105 °C or wider.
- Temperature coefficient: ±100 ppm/°C or lower.
- Qualifications: AEC-Q200.

Wire requirements:

- Wire gauge: #26–30 AWG.
- Wire strands: 7 or more.
- Wire insulation outer diameter: 0.8 to 1 mm.
- Conductor material: copper.
- Length: 25±10 mm each.

Refer to the UAVCAN Micro Patch Cable assembly specification.

Manual assembly instructions

Wire strip requirements:

- Outer insulation strip length (if any): 10 to 20 mm.
- Wire insulation strip length: 1.5 mm.

Perform the following steps:

1. Cut the leads of the resistor so that each lead is approximately 5 mm long.
2. Solder two short wires directly to the leads of the resistor.
3. Cover the resistor, its leads with the wire soldering joints, and at least 3 mm of each wire past the end of the lead with a single piece of heat shrink tube.
4. If necessary, bend both leads of the resistor so that they point in the same direction.
5. Apply heat to recover (shrink) the insulating heat shrink tube. This step can be performed later if necessary.
6. Crimp JST GH terminals onto the free ends of both wires.
7. Insert the crimped terminals (wires) into a JST GH plug according to the specified pinout.
8. Using an ohmmeter ensure that the resistance between the pins 2 and 3 of the plug is within 120±10 .

UAVCAN Micro to UAVCAN D-Sub adapter cable

A twisted-pair adapter cable with UAVCAN Micro plug (JST GH, 4 circuits) on one end and UAVCAN D-Sub socket (D-Sub DE-9F) on the other end. This cable serves as an adapter between different types of UAVCAN connectors.

Function	UAVCAN Micro pin number	Wire	D-Sub DE-9F pin number
Bus power	1	Flat or twisted with Ground	9
CAN High	2	Twisted with CAN Low	7
CAN Low	3	Twisted with CAN High	2
Ground	4	Flat or twisted with Bus power	6

Cable requirements: same as for the UAVCAN Micro patch cable.

DE-09P (Male Plug Front View)

DE-09S (Female Socket Front View)