

## 4D-Joystick - BOM - Remoteunit

Reference	Pcs.	Manufacturer	Partnumber	Description	Farnell Order#	RS Order#	Comment
PCB	1			PCB for Joystickunit			
VD1, VD2	2	Littlefuse	PGB102ST23WR	ESD Supressordiode	1757241	760-6762	
U1	1	Microchip	MCP23018-E/S	GPIO Expander	1854490	770-9729	
U2	1	STMicroelectronics	STM32F410RBT6	Microcontroller	2518136	914-8158	
J1	1	TE Connectivity	5555165-1	RJ25 Connector	2778793	782-0826	
J2	1	Samtec	FTSH-105-01-F-DV-K	JTAG Header	2856430	159-2372	
IC1	1	Texas Instruments	DAC124S085C1MM	DAC, 4 Channel	3118597	651-2026	
IC2	1	ON Semiconductor	MC33269DR2-3.3G	LDO, 3V3	2534303	785-6894	
C1 - C9	9			Capacitor 0603, 100nF			
C10 - C13	4			Capacitor 0603, 1uF			
C15, C16	2			Capacitor 0603, 10uF			
C20	1			Capacitor 0603, 4.7uF			
R1 - R8	8			Resistor 0603, 10k			
R10	1			Resistor 0603, 150R			
LED1	1			LED 0603, grün			
Cabling	2	JST	B12B-PH-K-S	JST PH Connector 12-way	9492470	820-1425	
	2	JST	PHR-12	JST PH Connector 12-way		175-4836	
	1	Molex	15134-1403	Picoblade Connector 14-way with cables 30cm	2841009		
	2	Molex	53047-1411	Picoblade Connector 14 way	9732900		
	2	JST	B5B-PH-K-S	JST PH Connector 5-way		820-1438	
	2	JST	PHR-5	JST PH Connector 5-way		820-1472	
	29	JST	01SPHSPH-26L-300	Cable for JST-PH-series, 30cm		820-1412	
Mounting	2	Richco	HTSN-M3-6-6-1	Spacers, 6mm, M3		102-6356	
	2	Wurth Elektronik	963060042	Spacers, 6mm	2987770		
	2			Screw, M3, 5mm			<a href="#">Amazon</a>
	2			Tapping screw, M2.5, 16mm,			<a href="#">Amazon</a>

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PCB	1			PCB for Joystickunit			
VD1 - VD6	6	Littlefuse	PGB102ST23WR	ESD Supressordiode	1757241	760-6762	
U1	1	STMicroelectronics	STM32L476RET6	Microcontroller	2494459		
IC1	1	Microchip	24AA256-I/SN	EEPROM 256 Kbit	1331295	667-8246	
IC2	1	NXP	MPXV7007DP	Pressuresensor	2776036		
IC3	1	Texas Instruments	TPS211APW	PowerMux	3009619	665-8866	
IC4	1	ON Semiconductor	MC33269DR2-3.3G	LDO, 3V3	2534303	785-6894	
J1	1	TE Connectivity	5555165-1	RJ25 Connector	2778793	782-0826	
J2	1	Samtec	FTSH-105-01-F-DV-K	JTAG Header	2856430	159-2372	
J3, J4, J5, J6	4	Cliff Electronic	FC68125	Phone Jack, 3.5mm	2309468	805-1655	
J7	1	Molex	56579-0519	USB Connector	1125347	515-2011	
J8	1	JST	B12B-PH-K-S	Joystick Connector	9492470	820-1425	
P1, P4	2	Molex	53047-0610	Picoblade Connector 6 way	9733078	279-9235	
P2	1	Molex	53047-1210	Picoblade Connector 12 way	9732896	319-1070	
P3	1	Molex	53047-0310	Picoblade Connector 3 way	9732853	319-1064	
LED1	1			LED 0603, grün			
C1 - C9	9			Capacitor 0603, 100nF			
C15 - C18	4			Capacitor 0603, 1uF			
C20 - C24	5			Capacitor 0603, 10uF			
C30	1			Capacitor 0603, 470pF			
R1 - R5	5			Resistor 0603, 150R			
R6 - R9	4			Resistor 0603, 180R			
R10, R11	2			Resistor 0603, 1k			
R15	1			Resistor 0603, 4k7			
R20 - R25	6			Resistor 0603, 100k			
R30 - R40	11			Resistor 0603, 10k			

## 4D-Joystick - BOM - Joystickunit Peripherals, Cabling and Mechanics

Reference	Pcs.	Manufacturer	Partnumber	Description	Farnell Order#	RS Order#	Comment
Peripherals	1	FrSky	M9-R	Taranis X9D Plus M9-R Gimbal			<a href="http://modell-hubschrauber.de">modell-hubschrauber</a>
	1	Alps	402125	Alps Fader 10k 60mm			<a href="http://www.conrad.at">www.conrad.at</a>
	1	Bourns	PEC11R-4115F-S0018	Rotary Encoder		737-7736	
	1	Mentor	505.61	Knob for rotary encoder			<a href="http://www.conrad.at">www.conrad.at</a>
	1	Heltec	0.96 OLED	OLED Display, SPI, double colored			<a href="http://www.heltec.org">www.heltec.org</a>
	4	Broadcom Limited	HLMP-4000	LED 5mm, Red/Green	1003244		
	4	VCC	CLP127BLK	LED Clip	2293486		
	4	VCC	RNG 268	LED Sicherungsring	2293489		
Cabling	1	Molex	15134-0603	Picoblade Connector 6-way with cables 30cm	2671469		
	1	Molex	15134-0303	Picoblade Connector 3-way with cables 30cm	2913933		
	1	Molex	15134-1203	Picoblade Connector 12-way with cables 30cm	2841003		
Pneumatic	1	Norgren	PA0104025	Tube 2.5mm			<a href="http://www.conrad.at">www.conrad.at</a>
	1	Norgren	C00290400	Tube Connector, 4mm			<a href="http://www.conrad.at">www.conrad.at</a>
	1	Norgren	C02250405	Tube Connector, 4mm			<a href="http://www.conrad.at">www.conrad.at</a>
Mechanic	1			Aluminum Profil, 120x80x8mm			<a href="http://www.prokilo.at">www.prokilo.at</a>
	1	Hiwin	MGN09H	Carriage for guide rail			
	1	Hiwin	MGN09R	Guide rail, 120mm			
	2	Duratool	D01488	Spacer, M3, 8mm	1733419		
	1			Cardan joint			<a href="http://www.conrad.at">www.conrad.at</a>
	1			3D printed Mouthpice			
	1			3D printed Housing			
	1			3D printed Housing-Lid			
Mounting	4	Toolcraft	889761	Contersunk screw, M3, 10mm			<a href="http://www.conrad.at">www.conrad.at</a>
	2	Toolcraft	888673	Screw, M2.5, 5mm			<a href="http://www.conrad.at">www.conrad.at</a>
	4	Toolcraft	888738	Cylinder bolt, M3, 10mm			<a href="http://www.conrad.at">www.conrad.at</a>
	4	Toolcraft	888718	Hex nut, M3			<a href="http://www.conrad.at">www.conrad.at</a>
	6	Toolcraft	TO-5430903	Screw, M3, 10mm			<a href="http://www.conrad.at">www.conrad.at</a>
	4			Screw, M3, 5mm			<a href="http://Amazon.de">Amazon</a>
	8	RS PRO	278-534	Threaded insert, M3		278-534	
	4	Toolcraft	888674	Screw, M2, 10mm			<a href="http://www.conrad.at">www.conrad.at</a>
	4	Toolcraft	216364	Hex nut, M2			<a href="http://www.conrad.at">www.conrad.at</a>