

BILL OF MATERIALS P41591JK V.1.0			XAMK	25.6.2018					
			Haja-asutus Jouko - Kytkinlaite V1.0						
Qty	Installed	Ref	Description	Value	Package	Mfg	Vendor	Vendor Code	Group
1	Yes	pcb	Piirikorttipohja	P4159100	FR4	Glocom			
2	Yes	D7-8	1.0A SMD RECTIFIER BRIDGE	ABS10A-13	SOPA-4	Diodes Inc.	Mouser	621-ABS10A-13	a
1	Yes	IC5	8-channel 10-bit A/D Converter with SPI	MCP3008I/SL	SO16	Microchip	Mouser	579-MCP3008-I/SL	a
2	Yes	U9-10	Adjustable regulator	LM317DCYR	SOT223		Mouser	595-LM317DCYR	a
1	Yes	U11	Hex Schmitt Inverter	74HC14D,653	SO14	Nexperia	EBV		a
3	Yes	U1, U3-4	High Isolation, Linear Current Sensor IC	ACS717KMATR-20-T2	SO16W	Allegro			a
1	Yes	MOD2	LoRa/Bluetooth Low Energy (BLE) Module	RM186-SM	SMD	Laird	Mouser	814-RM186-SM-01	a
2	Yes	U2 U5	Low Power Quad Operational Amplifier	TL064IDR	SO14	National Semiconductor	Arrow, EBV		a
1	Yes	U6	Negative Adjustable Regulator	LM337T	TO220	On Semiconductor	Mouser	512-LM337T	a
1	Yes	U8	Voltage Regulator	LM7812CT/NOPB	TO220	Texas	Mouser	926-LM7812CT/NOPB	a
1	Yes	D14	Diode Array	HN2D01FU(TE85L,F)	SOT363-6	Toshiba	Mouser	757-HN2D01FUTE85LF	b
1	Yes	U7	Dual Transient Current Suppressors	TCS-DL004-750-WH	SMD	Bourns	Mouser	652-TCS-DL004-750-WH	b
2	Yes	D9-10	ESD Prodection Diode	MMBZ30VALT116	SOT23		DigiKey	MMBZ30VALT116CT-ND	b
2	Yes	Q14, Q16	GENERAL PURPOSE NPN SILICON TRANSISTOR	BC817-40LT1	SOT23				b
3	Yes	Q6, Q9, Q12	GENERAL PURPOSE PNP SILICON TRANSISTOR	BC807-40LT1	SOT23				b
1	Yes	Q15	Nch MOSFET	FDN337N	SOT23	Fairchild			b
8	Yes	Q3-5, Q7-8, Q10-11, Q13	Nch MOSFET PIENSIGNAALITRANSISTORI	2N7002	SOT23	National Semiconductor			b
1	Yes	D3	smd right angle mount led, Green	APA3010CGCK	SMD	KingBright			b
1	Yes	D2	smd right angle mount led, Red	APA3010SRCPRV	SMD	KingBright			b
1	Yes	D1	smd right angle mount led, Yellow	APA3010SYCK	SMD	KingBright			b
3	Yes	D4-6	ZENER 15V	BZV55-C15	SOD80C				b
1	Yes	MOD1a	2.54mm Dual Socket Header, 40-pin	613 040 218 21	TH	WE	WE	613 040 218 21	c
2	Yes	J1-2	PCB Terminal Block	MKDSN 2,5/4-5,08	TH	Phoenix Contact	Phoenix Contact	1888700	c
1	Yes	J3	Ruuvattava PE-riviliitin	KDS10-PE	TH	Phoenix Contact	Phoenix Contact	1704033	c
7	Yes	J4-5, J9, J11-14	Wire to Board Terminal	1-928776-5	TH	TE	Mouser	571-1-928776-5	c
1	Yes	C33	ELKO 3,5/8mm	100uF/50V	TH	Panasonic	Mouser	667-EEU-FM1H101	d
1	Yes	C34	ELKO 5/12.5mm	680uF/50V	TH	Panasonic	Mouser	667-EEU-FM1H681L	d
1	Yes	C54	ELKO 7.5/18mm	10000uF/16V	TH	Panasonic	Mouser	667-ECA-1CM103 667-ECA-1CM103	d
1	Yes	C19	Pintaliitoskerko NPO	1.8pF/50V	SMD0603				d
6	Yes	C7 C22 C26-27 C29-30	Pintaliitoskerko NPO	15nF/50V	SMD0603				d
2	Yes	C20-21	Pintaliitoskerko NPO	2.2pF/50V	SMD0603				d
4	Yes	C11, C17-18, C55	Pintaliitoskerko NPO	3.3pF/50V	SMD0603				d
1	Yes	C49	Pintaliitoskerko X5R	3.3uF/10V	SMD0805				d
14	Yes	C1, C6, C10, C12, C16, C23-25, C28, C31-32, C46-47, C50	Pintaliitoskerko X7R	100nF/50V	SMD0603				d
1	Yes	C48	Pintaliitoskerko X7R	10uF/6V3	SMD0805				d
3	Yes	C8-9, C45	Pintaliitostantaali	10uF/6V3	A-case				d
9	Yes	C35-38, C41-44, C53	Pintaliitoskerko X7R	1uF/50V	SMD0805				d
3	Yes	C13-15	Pintaliitoskerko X7R	2.2nF/50V	SMD0603				d
2	Yes	R102-103	Pintaliitosvastus	0.1R	SMD1206				e
7	Yes	R23, R85-88, R120-121	Pintaliitosvastus	0R	SMD0603				e
1	Yes	R91	Pintaliitosvastus	1.02K 0.5%	SMD0603		Mouser	603-RT0603DRE071K02L	e
4	Yes	R21, R43, R49, R100	Pintaliitosvastus	100k	SMD0603				e
3	Yes	R12-14	Pintaliitosvastus	100R	SMD0603				e
13	Yes	R10, R36-37, R40, R46, R52, R57-59, R93, R106-108	Pintaliitosvastus	10k	SMD0603				e
1	Yes	R90	Pintaliitosvastus	121R 0.5%	SMD0603		Mouser	603-RT0603DRE07121RL	e
3	Yes	R41, R47, R53	Pintaliitosvastus	127k	SMD0603				e
1	Yes	R109	Pintaliitosvastus	12k	SMD0603				e
10	Yes	R16-17, R24-31	Pintaliitosvastus	12k7	SMD0603				e
1	Yes	R69	Pintaliitosvastus	154k	SMD0603				e
1	Yes	R68	Pintaliitosvastus	15k4	SMD0603				e
1	Yes	R70	Pintaliitosvastus	16k9	SMD0603				e
2	Yes	R33, R89	Pintaliitosvastus	1k	SMD0603				e
2	Yes	R61-62	Pintaliitosvastus	1M	SMD0603				e
7	Yes	R2-5, R60, R63, R65	Pintaliitosvastus	221R	SMD0603				e
2	Yes	R95-96	Pintaliitosvastus	243R 0.5%	SMD0603		Mouser	603-RT0603DRE07243RL	e
3	Yes	R39, R45, R51	Pintaliitosvastus	33k	SMD0603				e
1	Yes	R97	Pintaliitosvastus	392R 0.5%	SMD0603		Mouser	603-RT0603DRE07392RL	e
1	Yes	R92	Pintaliitosvastus	39k2	SMD0603				e
1	Yes	R67	Pintaliitosvastus	3k48	SMD0603				e
1	Yes	R94	Pintaliitosvastus	430R, 1%, 1W	SMD2512	Yageo	Mouser	603-RC2512FK-07430RL	e
3	Yes	R38, R44, R50	Pintaliitosvastus	47k	SMD0603				e
1	Yes	R15	Pintaliitosvastus	51k1	SMD0603				e
2	Yes	R34-35	Pintaliitosvastus	562R	SMD0603				e
14	Yes	R11, R32, R64, R66, R110-119	Pintaliitosvastus	56k	SMD0603				e
3	Yes	R42, R48, R54	Pintaliitosvastus	698k	SMD0603				e
1	Yes	R98	Pintaliitosvastus	750R 0.5%	SMD0603		Mouser	603-RT0603DRE07750RL	e
2	Yes	L1-2	Ceramic Inductor	15nH	SMD0402	TDK	Mouser	810-MLG1005S15NHT000	f
3	Yes	RLY1-3	Miniature High Power Relay	HF14FW-012-ZST tai HF158F/012-ZS3T	TH	Hongfa	Perel		f
1	Yes	TR1	Power Transformer	VPP36-280	TH	Triad			f
1	Yes	F1	Resettable Fuse 2A 8V	MF-MSMF200-2	SMD1812	Bourns	Mouser	652-MF-MSMF200-2	f
1	Yes	S1	Toggle Switch, SPDT, Sub-Miniature	2MS1T2B2M6RE	TH	Multicomp	Farnell	9473017	f
1	No	MOD1b	Computer Board	Raspberry Pi A+	TH	Raspberry-Pi			a
1	No	MOD3b	Computer Board	Raspberry Pi Zero	TH	Raspberry-Pi			a
3	No	C39-40, C64	Pintaliitostantaali	220uF/6V3	D/E-case				d
1	No	R1	Pintaliitosvastus	12k7	SMD0603				e

12	No	R22, R55-56, R75-82, R101	Pintaliitosvastus	0R	SMD0603				e
3	No	D12-13, D15	Power Schottky Rectifier 1A 60V	STPS160A	DO-214AC	ST Microelectronics			b
1	No	XIC1	3A Fast-Response LDO Regulator	MIC29302AWD	TO-252	Microchip	Mouser	998-MIC29302AWD	a
2	No	J6-7	Wire to Board Terminal	1-928776-5	TH	TE	Mouser	571-1-928776-5	c
8	No	C3-4, C51-52, C56, C58-59, C63	Pintaliitoskerko X7R	100nF/50V	SMD0603				d
1	No	C5	Pintaliitostantaali	10uF/6V3	A-case				d
1	No	R18	Pintaliitosvastus	100k	SMD0603				e
1	No	R20	Pintaliitosvastus	43k2	SMD0603				e
1	No	R19	Pintaliitosvastus	470R	SMD0603				e
1	No	MOD5	GSM/GPRS Module	SIM800F	SMD	SIMCom			a
2	No	Q1-2	GENERAL PURPOSE NPN SILICON TRANSISTOR	BC817-40LT1	SOT23				b
1	No	J10	micro SIM card Connector	SF56S006V4BR2000	SMD	JAE	Mouser	656-SF56S006V4BR2000	c
1	No	J8	Ultra Small Surface Mount Coaxial Connectors	U.FL-R-SMT-1(01)	SMD	Hirose	DigiKey	H11891CT-ND	c
1	No	C60	Pintaliitoskerko NPO	22pF/50V	SMD0603				d
4	No	C65-68	Pintaliitoskerko NPO	2.2pF/50V	SMD0603				
3	No	C57, C61-62	Pintaliitoskerko NPO	3.3pF/50V	SMD0603				d
1	No	C2	Pintaliitoskerko X7R	10uF/6V3	SMD0805				d
2	No	R6, R8	Pintaliitosvastus	12k	SMD0603				e
1	No	R99	Pintaliitosvastus	187R	SMD0603				e
2	No	R7, R9	Pintaliitosvastus	56k	SMD0603				e
1	No	D11	ESD Suppressor	LXES15AAA1-153	SMD0402	Murata	Mouser	81-LXES15AAA1-153	f
1	No	U14	Dual 4-channel analog Multiplexer/demultiplexer	74HC4052D,653	SO16	Nexperia	EBV		a
1	No	U15	QUAD TRI-STATE BUFFER	74HC125D,653	SO14	Nexperia			a
4	No	R73-74, R104-105	Pintaliitosvastus	10k	SMD0603				e
2	No	R71, R83	Pintaliitosvastus	1k	SMD0603				e
2	No	R72, R84	Pintaliitosvastus	4k7	SMD0603				e
1	No	MOD3a	2.54mm Dual Socket Header, 40-pin	613 040 218 21	TH	WE	WE	613 040 218 21	c

Historia	Päiväys	Versio
Osalista luotu	25.6.2018 OIva	v.1.0