

Title		DeLaval International AB		Component Id	Version
Bill of Material - PBA-300071 ATT		Henrik Jonhed		PBA-300071	1.1.1
Author		Product		Document Id	Date
Erik Björkman				bom_001_300071_en	1/27/2016

Item	Qty.	Position	Alt	Description	Part name	Data	Case	Size	Manufacturer	Data sheet	Generic comp.	RoHS	Mounting Case	Rev	Note
1	1			Printed circuit board	PCB-300072 1.1.1*	THT mounting on layer 1 (top), SMD mounting on layer 4 (bottom)	4-layer	70.0mm x 104.6mm	Tritech		No	Yes		1.1.1	*PCB design is equivalent to PCB-300072 1.1.0, only incomplete production documentation has been updated.
2	1	IC1		LCD Display with LED backlight	NHD-C0216CIZ-FSW-FBW-3V3	I2C bus, VLCD = 2.7V-3.3V, ILCD ≤ 0.5mA, VLED = 3.0V, ILED ≤ 20mA 25MHz MCU 8051 uC core, S4431	THT		Newhaven Display	D-C0216CIZ-FSW-FBW-3V3.pdf	No	Yes		1.0.0	
3	1	IC2		Ultra low power RF 8051 MCU	SI1012-C-GM2	RFIC transceiver	LGA-42		Silabs	ments/TechnicalDocs/Si1010.pdf	No	Yes		1.0.0	
4	1	IC3		3-state quad buffer	74HC125D	74HC00 series	SOIC-14		NXP	s/data_sheet/74HC_HCT125.pdf	Yes	Yes		1.0.0	
5	1	IC4		Single 2-input AND gate	74HC1G08GW	74HC00 series	SOT-353		NXP	data_sheet/74HC_HCT1G08.pdf	Yes	Yes		1.0.0	
6	1	IC5	Alt1	Single 2-input NAND gate	74HC1G00GW	74HC00 series	SOT-353		NXP	data_sheet/74HC_HCT1G00.pdf	Yes	Yes		1.0.0	
6-Alt2			Alt2	Single 2-input XOR gate	74HC1G86GW	74HC00 series	SOT-353		NXP	data_sheet/74HC_HCT1G86.pdf	Yes	Yes		1.0.1	
7	1	IC6		Low-noise charge-pump DC/DC converter	TPS60101PWP	3.3Vout, 100mAout Fmin = 10kHz, Fmax = 1MHz, Is = 0.1mA	TSSOP-20-PWP		Texas Instruments	com/lit/ds/symlink/tps60101.pdf	No	Yes		1.0.0	
8	0	IC7		Micropower resistor set oscillator	LTC6906HS6#TRPBF	32.768kHz, 9pF, -40 to 85 Tolerance: 20ppm, stability: 32.768kHz, 9pF, -40 to 85	TSOT-23		Linear Technology	m/docs/en/datasheet/6906fc.pdf	No	Yes	NoMount	1.0.0	
9	1	XTAL1	Alt1	Crystal oscillator 32.768kHz	NX3215SA-32.768K-STD-MUA-9	32.768kHz, 9pF, -40 to 85 Tolerance: 20ppm, stability: 0.04ppm/(°C)MAX	2-SMD (1206)	3.20x1.50	NDK	NX3215SA-STD-MUA-14_e.pdf	No	Yes		1.0.0	
9-Alt2			Alt2		CM315D32768DZCT	32.768kHz, 9pF, -40 to 85 Tolerance: 20ppm, stability: 0.04ppm/(°C)MAX	2-SMD (1206)	3.20x1.50	Citizen Finetech Miyota	pd-tech/product/pdf/CM315D.pdf				1.0.0	
9-Alt3			Alt3		9HT10-32.768KDZC-T	30MHz, 10pF, -20/+70 Tolerance: 20ppm, stability: 0.04ppm/(°C)MAX	2-SMD (1206)	3.20x1.50	TXC	ystal.com/images/pdf/9ht10.pdf				1.0.0	
10	1	XTAL2		Crystal oscillator 30MHz	ABM-10-30.000-10-R-3-E20-T	30MHz, 10pF, -20/+70 Tolerance: 20ppm, stability: 0.04ppm/(°C)MAX	4-SMD	2.50x2.00	ABRACON	con.com/Resonators/ABM10.pdf	No	Yes		1.0.0	
11	1	L1		RFID transponder coil	5315TC-725XGL	7.2mH, 165Ωmax, Qmin = 17 @125kHz	2-SMD	13.6mm x 3.81mm	Coilcraft	ww.coilcraft.com/pdfs/5315tc.pdf	No	Yes		1.0.0	
12	1	SW1		1-pole momentary switch	1.14.001.501/0000	SPST-NO	4-THT	12mm x 12mm	Rafi	0000-Rafi-datasheet-503294.pdf	No	Yes		1.0.0	
13	0	H5	Alt1	Two-piece shield box	BMI-S-207-F, BMI-S-207-C	Separate frame (-F) and cover (-C) parts	SMD	44.4mm x 9.75mm	Laird Technologies	ts%20Catalog%20Download.pdf	No	Yes	NoMount	1.0.0	
13-Alt2			Alt2	One-piece shield box	BMI-S-107	Single piece	SMD	44.4mm x 9.75mm	Laird Technologies	ts%20Catalog%20Download.pdf	No	Yes	NoMount	1.0.0	
14	2	T1, T4		Single P-channel MOSFET	PMV32UP	-0.95VGSth(max), 0.036RDSon(max)	SOT-23		NXP	ments/data_sheet/PMV32UP.pdf	Yes	Yes		1.0.0	
15	2	T2, T3		Single N-channel MOSFET	BSS138P	1.5VGSth(max), 1.6RDSon(max)	SOT-23		NXP	ments/data_sheet/BSS138P.pdf	Yes	Yes		1.0.2	
16	3	D1, D2, D3		Dual serial Schottky diode	BAT721S	0.2Af(max), 40Vr(max), 0.55Vf(max) ±15kV(air), ±8kV(contact), 0.1uA(leak)	SOT-23		NXP	v1PS76SB21_BAT721_SER.pdf	Yes	Yes		1.0.0	
17	1	D4		Bidirectional TVS diode	SP1007-01ETG		SOD-882 (0402)		Littelfuse	array_sp1007_datasheet.pdf	Yes	Yes		1.0.0	
18	1	S1		10-way pinheader	TSM-105-01-T-DV-M	Lead height: 5.84mm	SMD-2.54mm	2x5	Samtec	Samtec-datasheet-11542650.pdf	Yes	Yes		1.0.0	
19	1	S2	Alt1	8-way pinheader	TSM-104-01-T-DV-M	Lead height: 5.84mm	SMD-2.54mm	2x4	Samtec	Samtec-datasheet-11542650.pdf	Yes	Yes		1.0.0	
19-Alt2			Alt2	10-way pinheader*	TSM-105-01-T-DV-M	Lead height: 5.84mm	SMD-2.54mm	2x5*	Samtec	Samtec-datasheet-11542650.pdf	Yes	Yes		1.0.1	*Cut to 2x8.
20	0	P1*		Unspecified connector	N/A	N/A	2-THT	1x2	N/A	N/A	Yes	Yes	NoMount	1.0.0	*Footprint for battery wires.
21	5	R35, R36, R48, R50, R51		Zero-ohm chip resistor	CRCW04020000Z0ED	0R, 50V, 63mW	0402		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes		1.0.0	
22	0	R12		Thick-film chip resistor	CRCW040268R0FKED	68R, 1%, 63mW	0402		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes	NoMount	1.1.0	
23	2	R11, R13	Alt1	Thick-film chip resistor	CRCW0402470FKED	4.7k, 1%, 63mW	0402		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes		1.0.0	
23-Alt2			Alt2		MCWR04X4701FTL	4.7k, 1%, 63mW	0402		Multicomp	ell.com/datasheets/1849611.pdf				1.0.1	
24	3	R7, R8, R53		Thick-film chip resistor	CRCW0402100FKED	10k, 1%, 63mW	0402		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes		1.0.0	
25	1	R25		Thick-film chip resistor	CRCW0402470FKED	47k, 1%, 63mW	0402		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes		1.0.0	
26	1	R61		Thick-film chip resistor	CRCW040268K0FKED	68k, 1%, 63mW	0402		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes		1.0.0	
27	9	R14, R15, R16, R17, R29, R30, R31, R58, R60	Alt1	Thick-film chip resistor	CRCW0402100FKED	100k, 1%, 63mW	0402		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes		1.0.0	
27-Alt2			Alt2		MCWR04X1003FTL	100k, 1%, 63mW	0402		Multicomp	ell.com/datasheets/1849611.pdf	Yes	Yes		1.0.1	
28	1	C22		Ceramic chip capacitor	GRM1555C1H3R0CA01	3pF, ±0.25pF, 50V, COG	0402		Murata	JGRM1555C1H3R0CA01-01.pdf	Yes	Yes		1.0.0	
29	1	C21		Ceramic chip capacitor	GRM1555C1H8R2CA01	8.2pF, ±0.25pF, 50V, COG	0402		Murata	JGRM1555C1H8R2CA01-01.pdf	Yes	Yes		1.0.0	
30	1	C26		Ceramic chip capacitor	GRM1555C1H120JA01	12pF, 5%, 50V, COG	0402		Murata	JGRM1555C1H120JA01-01.pdf	Yes	Yes		1.0.0	
31	2	C23, C24	Alt1	Ceramic chip capacitor	GRM1555C1H150JA01	15pF, 5%, 50V, COG	0402		Murata	JGRM1555C1H150JA01-01.pdf	Yes	Yes		1.0.0	
31-Alt2			Alt2		C0402C150C5GAC	15pF, ±0.25pF, 50V, COG	0402		KEMET	J46KEM_C1003_C0G_SMD.pdf				1.0.1	
32	3	C12, C16, C19	Alt1	Ceramic chip capacitor	GRM1555C1H101JA01	100pF, 5%, 50V, COG	0402		Murata	JGRM1555C1H101JA01-01.pdf	Yes	Yes		1.0.0	
32-Alt2			Alt2		MC0402N101K500CT	100pF, 10%, 50V, COG	0402		Multicomp	ell.com/datasheets/1901289.pdf	Yes	Yes		1.0.1	
33	1	C31		Ceramic chip capacitor	GRM1555C1H271JA01	270pF, 5%, 50V, COG	0402		Murata	JGRM1555C1H271JA01-01.pdf	Yes	Yes		1.0.0	
34	2	C3, C4	Alt1	Ceramic chip capacitor	GRM1885C2A391JA01	390pF, 5%, 100V, COG	0603		Murata	JGRM1885C2A391JA01-01.pdf	Yes	Yes		1.0.0	
34-Alt2			Alt2		C0603C391J1GACTU	390pF, 5%, 100V, COG	0603		KEMET	J46KEM_C1003_C0G_SMD.pdf				1.0.2	
34-Alt3			Alt3		CGA3E2C0G2A391J080AA	390pF, 5%, 100V, COG	0603		TDK	JCGA3E2C0G2A391J080AA.pdf				1.1.1	
35	1	C6		Ceramic chip capacitor	GRM188R71E333KA01	33nF, 10%, 25V, X7R	0603		Murata	JGRM188R71E333KA01-01.pdf	Yes	Yes		1.0.0	
36	3	C13, C15, C18	Alt1	Ceramic chip capacitor	GRM155R71C104KA88	100nF, 10%, 16V, X7R	0402		Murata	JGRM155R71C104KA88-01.pdf	Yes	Yes		1.0.0	
36-Alt2			Alt2		CGA2B3X7R1H104K050BB	100nF, 10%, 50V, X7R	0402		TDK	JCGA2B3X7R1H104K050BB.pdf				1.0.1	
37	5	C9, C29, C35, C36, C37	Alt1	Ceramic chip capacitor	GRM188R71C104KA01	100nF, 10%, 16V, X7R	0603		Murata	JGRM188R71C104KA01-01.pdf	Yes	Yes		1.0.0	
37-Alt2			Alt2		CC0603KRX7R7BB104	100nF, 10%, 16V, X7R	0603		Yageo Phycamp	JPHCX7R_6.3V-to-50V_13.pdf				1.0.2	
38	1	C11		Ceramic chip capacitor	GRM188R71C105KA12	1uF, 10%, 16V, X7R	0603		Murata	JGRM188R71C105KA12-01.pdf	Yes	Yes		1.0.0	
39	3	C30, C33, C34	Alt1	Ceramic chip capacitor	GRM21BR71C105KA01	1uF, 10%, 16V, X7R	0805		Murata	JGRM21BR71C105KA01-01.pdf	Yes	Yes		1.0.0	
39-Alt2			Alt2		0805C2105KAT2A	1uF, 10%, 10V, X7R	0805		AVX	logs.avx.com/SurfaceMount.pdf	Yes	Yes		1.0.2	
39-Alt3			Alt3		LMK212BJ105KG-T	1uF, 10%, 10V, X5R	0805		Taiyo Yuden	_MK212BJ105KD-T&dataUnit=M	Yes	Yes		1.0.2	
40	1	C14		Ceramic chip capacitor	GRM188R71A225KE15	2.2uF, 10%, 10V, X7R	0603		Murata	JGRM188R71A225KE15-01.pdf	Yes	Yes		1.0.0	
41	1	C27	Alt1	Ceramic chip capacitor	GRM31MR71C225KA35	2.2uF, 10%, 16V, X7R	1206		Murata	JGRM31MR71C225KA35-01.pdf	Yes	Yes		1.0.0	

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Item	Qty.	Position	Alt	Description	Part name	Data	Case	Size	Manufacturer	Data sheet	Generic comp.	RoHS	Mounting Case	Rev	Note
41-Alt2			Alt2	Ceramic chip capacitor	1206ZC225KAT2A	2.2uF, 10%, 10V, X7R	1206		AVX	blogs.avx.com/SurfaceMount.pdf	Yes	Yes		1.0.2	
42	2	C8, C25	Alt1	Ceramic chip capacitor	GRM31CR71C106KAC7	10uF, 10%, 16V, X7R	1206		Murata	/GRM31CR71C106KAC7-01.pdf	Yes	Yes		1.0.0	
42-Alt2			Alt2	Ceramic chip capacitor	JMK316BJ106ML-T	10uF, 20%, 6.3V, X7R	1206		Taiyo Yuden	JMK316BJ106ML-T&dataUnit=M	Yes	Yes		1.0.2	
42-Alt3			Alt3	Ceramic chip capacitor	C1206C106K4RACTU	10uF, 10%, 16V, X7R	1206		KEMET	/53/KEM_C1002_X7R_SMD.pdf	Yes	Yes		1.0.2	
43	1	L7	Alt1	Wire-wound chip inductor	LQW15AN18NJ80D	18nH, 5%, 1050mA	0402		Murata	ge/img/P02/JELF243A-0100.pdf	No	Yes		1.0.0	
43-Alt2			Alt2	Wire-wound chip inductor	0402HP-18NXJLU	18nH, 5%, 800mA	0402		Coilcraft	w.coilcraft.com/pdfs/0402hp.pdf	No	Yes		1.0.0	
44	2	L4, L5	Alt1	Wire-wound chip inductor	LQW15AN33NJ80D	33nH, 5%, 620mA	0402		Murata	ge/img/P02/JELF243A-0100.pdf	No	Yes		1.0.0	
44-Alt2			Alt2	Wire-wound chip inductor	0402HP-33NXJLU	33nH, 5%, 490mA	0402		Coilcraft	w.coilcraft.com/pdfs/0402hp.pdf	No	Yes		1.0.0	
45	1	L6	Alt1	Wire-wound chip inductor	LQW15AN22NJ80D	22nH, 5%, 780mA	0402		Murata	ge/img/P02/JELF243A-0100.pdf	No	Yes		1.0.0	
45-Alt2			Alt2	Wire-wound chip inductor	0402HP-22NXJLU	22nH, 5%, 800mA	0402		Coilcraft	w.coilcraft.com/pdfs/0402hp.pdf	No	Yes		1.0.0	
46	0	L3	Alt1	Wire-wound chip inductor	LQW15AN39NJ80D	39nH, 5%, 530mA	0402		Murata	ge/img/P02/JELF243A-0100.pdf	No	Yes	NoMount	1.1.0	
46-Alt2			Alt2	Wire-wound chip inductor	0402HP-39NXJLU	39nH, 5%, 450mA	0402		Coilcraft	w.coilcraft.com/pdfs/0402hp.pdf	No	Yes	NoMount	1.1.0	
47	0	L2	Alt1	Wire-wound chip inductor	LQW15CNR22J10D	220nH, 5%, 450mA	0402		Murata	ge/img/P02/JELF243A-0096.pdf	No	Yes	NoMount	1.1.0	
47-Alt2			Alt2	Wire-wound chip inductor	0402HPH-R22XJLU	220nH, 5%, 160mA	0402		Coilcraft	w.coilcraft.com/pdfs/0402hp.pdf	No	Yes	NoMount	1.1.0	
48	1	R6		Thick-film chip resistor	CRCW04028K20FKED	8.2k, 1%, 63mW	0402		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes		1.1.0	
49	1	C28*		Unspecified capacitor (*Zero-ohm chip resistor)	CRCW04020000Z0EA	0R, 50V, 63mW	0402		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes		1.0.0	*Bypass with zero-ohm resistor (0402)
50	2	C32*, C42*		Unspecified capacitor (*Zero-ohm chip resistor)	CRCW06030000Z0EA	0R, 75V, 100mW	0603		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes		1.0.0	*Bypass with zero-ohm resistor (0603)
51	1	L8		Wire-wound chip inductor	LQW15AN12NJ80D	12nH, 5%, 1240mA	0402		Murata		No	Yes		1.1.0	
52	2	L10*, L11*		Unspecified inductor (*Zero-ohm chip resistor)	CRCW06030000Z0EA	0R, 75V, 100mW	0603		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes		1.0.0	*Bypass with zero-ohm resistor (0603)
53	0	R32, R37, R38, R44, R47, R49, R52, R64, R66		Zero-ohm chip resistor	CRCW04020000Z0EA	0R, 50V, 63mW	0402		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes	NoMount	1.0.0	
54	0	R42, R43, R46		Zero-ohm chip resistor	CRCW06030000Z0EA	0R, 75V, 100mW	0603		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes	NoMount	1.0.0	
55	0	R63		Thick-film chip resistor	CRCW040210K0FKED	10k, 1%, 63mW	0402		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes	NoMount	1.0.0	
56	0	R18, R19		Thick-film chip resistor	CRCW040210K0FKED	100k, 1%, 63mW	0402		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes	NoMount	1.0.0	
57	0	R45		Unspecified resistor	N/A	N/A	0402		N/A	N/A	Yes	Yes	NoMount	1.0.0	
58	0	R15		Unspecified resistor	N/A	N/A	0603		N/A	N/A	Yes	Yes	NoMount	1.0.0	
59	0	R40, R41		Unspecified resistor	N/A	N/A	1206		N/A	N/A	Yes	Yes	NoMount	1.0.0	
60	0	C10, C43, C44		Unspecified capacitor	N/A	N/A	0402		N/A	N/A	Yes	Yes	NoMount	1.0.0	
61	0	C45		Unspecified capacitor	N/A	N/A	0603		N/A	N/A	Yes	Yes	NoMount	1.0.0	
62	0	L12, L13		Unspecified inductor	N/A	N/A	0402		N/A	N/A	Yes	Yes	NoMount	1.0.0	
63	2	R20, R21		Thick-film chip resistor	CRCW040256R0FKED	56R, 1%, 63mW	0402		Vishay	ay.com/docs/20035/dcrwe3.pdf	Yes	Yes		1.1.0	
64	1	C41		Ceramic chip capacitor	GRM1555C1H100JA01	10pF, 5%, 50V, COG	0402		Murata	3/GRM1555C1H100JA01-01.pdf	Yes	Yes		1.1.0	
65	1	C40		Ceramic chip capacitor	GRM1555C1H180JA01	18pF, 5%, 50V, COG	0402		Murata	3/GRM1555C1H180JA01-01.pdf	Yes	Yes		1.1.0	
66	1	L9		Wire-wound chip inductor	LQW15AN36NJ80D	36nH, 5%, 540mA	0402		Murata	ge/img/P02/JELF243A-0100.pdf	No	Yes		1.1.0	
67	0	C20		Ceramic chip capacitor	GRM1555C1H8R2CA01	8.2pF, ±0.25pF, 50V, COG	0402		Murata	3/GRM1555C1H8R2CA01-01.pdf	Yes	Yes	NoMount	1.1.0	

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D2, D5, D9

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Changes in parts of cells are marked with red text

Explanations

- **Item** - number/position in this document
- **Qty** - Quantity
- **Position** - Position according to drawing
- **Alt** - Alternative components. Quantity an position are the same as for alternative 1.
- **Description** - Description of the component
- **Part name** - Order number (manufacturer part number)
- **Data** - Clarifying information
- **Case** - Type of case
- **Size** - Size (only specified if the information is necessary)
- **Manufacturer** - Manufacturer
- **Data sheet** - Reference to data sheet
- **Generic component** - State if the component can (Yes) or can not (No) be replaced by another component with the same specification.
- **Mounting Case** - Conditions for mounting of a component. "Empty box" means "always mount".
- **Available qty.** - Available quantity already purchased by Titech.
- **Rev** - States in which version of this document that the content in this row has been changed. I.e. this is not the revision of this component
- **Note** - Clarifying information