

Stückliste/Partlist		OpenDCC Throttle MFT 1.0 / 1.1					
History	03.11.2008	First release					
	18.11.2008	Update, some details added					
	27.12.2008	R22, R23, R24 changed to 100 Ohm					
	07.01.2009	R14, R19, R20, R21 changed					
	02.02.2009	R48 added					
	12.02.2009	C3 added					
ID	Bauteil/ Component	Wert / Value	Package	Description / Order Code	Option	Power Option	IO Option
C1	Capacitor	100n	C0805K	Capacitor, SMD (all 0805 may be 0603 as well)			
C2	Capacitor	100n	C0805K	Capacitor, SMD			Xpressnet
C3	Capacitor	100n	C0805K	Capacitor, SMD	ADC		
C4	Capacitor	100n	C0805K	Capacitor, SMD			CAN
C5	Capacitor	100n	C0805K	Capacitor, SMD			
C6	Capacitor	100n	C0603K	Capacitor, SMD			
C7	Capacitor	10u	C1206	Capacitor, SMD			
C8	Capacitor	18pF	C0805	Capacitor, SMD			
C9	Capacitor	18pF	C0805	Capacitor, SMD			
C10	Capacitor	100n	C0805	Capacitor, SMD			
C12	Capacitor	100n	C0805K	Capacitor, SMD			
C13	Capacitor	10u	C1206	Capacitor, SMD, > 16V			
C19	Capacitor	100u	PANASONIC_C	Capacitor, SMD, polarized			
C27	Capacitor	10u	C1206	Capacitor, SMD, > 16V			
C30	Capacitor	100n	C0603K	Capacitor, SMD		Li-Ion	
C31	Capacitor	1u	C1206	Capacitor, SMD		Li-Ion	
C32	Capacitor	1u	C1206	Capacitor, SMD		Li-Ion	
C33	Capacitor	100n	C0603K	Capacitor, SMD		Li-Ion	
C34	Capacitor	10u	C1206	Capacitor, SMD, > 16V		Li-Ion	
C35	Capacitor	100n	C0603K	Capacitor, SMD		Li-Ion	
C36	Capacitor	1u	C0603K	Capacitor, SMD	remove Bat	Li-Ion	
C40	Capacitor	10u	C1206	Capacitor, SMD, > 16V		Li-Ion	
C41	Capacitor	100n	C0805K	Capacitor, SMD	PowerLogic	Li-Ion	
C42	Capacitor	10u	C1206	Capacitor, SMD, > 16V		Li-Ion	
C50	Capacitor	2u2	C1206	Capacitor, SMD	spec. Disp.		
C60	Capacitor	2u2	C1206	Capacitor, SMD	spec. Disp.		
C80	Capacitor	220n	C0805K	Capacitor, SMD	LED BL		
C81	Capacitor	1u	C1206	Capacitor, SMD	LED BL		
C90	Capacitor	100n	C1206K	Capacitor, SMD			USB
C91	Capacitor	100n	C0805K	Capacitor, SMD			USB
C92	Capacitor	100n	C0805K	Capacitor, SMD	not fitted		USB
C93	Capacitor	100n	C1206K	Capacitor, SMD			USB
C94	Capacitor	10u	CT3216	Capacitor, SMD, polarized (may be replaced by ceramic)			USB
C95	Capacitor	100n	C0603K	Capacitor, SMD			USB
D1	DIODE	SS24	SMB	Schottky Diode, SMD			
D2	DIODE	BAS70-05	SOT23	Schottky Diodes, common cathode		Li-Ion	
D3	DIODE	SS24	SMB	Schottky Diode, SMD			CAN
D4	LED	orange	LED3	LED, through hole, 3mm, 2mA	see text		
D5	DIODE	SS24	SMB	Schottky Diode, SMD			
D7	DIODE	SS24	SMB	Schottky Diode, SMD		Li-Ion	
D8	DIODE	SS24	SMB	Schottky Diode, SMD			Xpressnet
D9	DIODE	BAS70-02	MICROMELF-W	Diode, Micromelf or SC70		Li-Ion	
D10	LED	red/green	MULTIMEC	LED, through hole, 3mm, 2mA, dual color			
D11	LED	red/green	MULTIMEC	LED, through hole, 3mm, 2mA, dual color			
D12	LED	red/green	MULTIMEC	LED, through hole, 3mm, 2mA, dual color			
D13	LED	red/green	MULTIMEC	LED, through hole, 3mm, 2mA, dual color			
D14	LED	red/green	MULTIMEC	LED, through hole, 3mm, 2mA, dual color			
IC1	IC	LT1117	SOT223	Linear Regulator, LDO, 15V, 800mA; adjustable	see text		
IC2	IC	LT1117	SOT223	Linear Regulator, LDO, 15V, 800mA; adjustable	see text		
IC3	IC	LTC4089	DFN22-M	USB Power Manager with HV Li-Ion Charger	see text	Li-Ion	
IC4	IC	LTC3522	QFN16-MR	LTC3522 - Synchronous 400mA Buck-Boost	see text	Li-Ion	
IC5	IC	LT1761_BYF	SOT23-5	Linear Regulator, LDO, 20V, 100mA; adj (only f. spec. Dis)	not fitted		
IC6	IC	LT1761_BYF	SOT23-5	Linear Regulator, LDO, 20V, 100mA; adj (only f. spec. Dis)	not fitted		
IC8	IC	LT3465	SOT23-6	LT3465A - 2.4MHz White LED Step-Up Converter	LED BL		
IC9	IC	FT232RL	SSOP28DB	USB UART FTDI			USB
IC10	IC	AT90CAN128A	TOFP64	Atmel Microcontroller			
IC11	IC	Max3485	SOIC8	Low Power RS485 Interface Transceiver			Xpressnet
IC12	IC	SN65HVD231	SO08	CAN Transceiver Texas Instruments			CAN
IC13	IC	M25P	SO8W	M25P32, Serial Flash from numonyx	optional		
IC14	IC	74LVX125D	SO14	Quad bus BUFFER, 3-state	Wireless		
J1	Header Pins	J-16-2MM-2X08D08	HDR-2MM-2X08_D08	Header Jack Pins, 2mm, angled	LCD162		
J2	Header Pins	J-10-2MM-2X05D08	HDR-2MM-2X05_D08	Header Jack Pins, 2mm, angled			
J3	Header Pins	J-06-2MM-2X03_D08	HDR-2MM-2X03_D08	Header Jack Pins, 2mm, angled	SD-Card		
J4	Plug	RJ12KYCON	KYCONGMX-SMT2-N-66-	RJ12 Plug, SMD			Xpressnet
J5	Plug	RJ10KYCON	KYCONGMX-SMT2-N-44-	RJ10 Plug, SMD			CAN
J6	USB Plug	USB-MB-H	USB-MB-H	USB Conn. mini B, Through Hole, Assmann A-USB-B-M5			USB
JP2	Header Pins	3 x 2	JP3Q	Header Jack Pins, 2.54mm, straight	ISP		
L2	Ferrit	Ferrit	WE-CBF_0805	SMD EMI Suppression Ferrite Beads, Würth			CAN
L3	Ferrit	Ferrit	WE-CBF_0805	SMD EMI Suppression Ferrite Beads, Würth			Xpressnet
L30	Inductor	10uH	L4532P	Inductor, shielded, Sumida CDRH3D28		Li-Ion	
L40	Inductor	4u7	L4532P	Inductor, shielded, Sumida CDRH3D28		Li-Ion	
L80	Inductor	22u	L1210	Inductor, SMD, Epcos SIMID 1210	LED BL		
L90	Ferrit	Ferrit	WE-CBF_0805	SMD EMI Suppression Ferrite Beads, Würth			USB
M1	Module	XBEE-PRO	XBEE-PRO	Wireless Module	Wireless		
M2	Module	DIP204B-4NLW	DIP204B-4NLW	Display 20 x 4 chars, yellow-green or blue-white. SPI			
M3	Module	162A	162A	DisplayTech LED 162 w. Backlight Controller. KS0070B	not fitted		
P1	Poti	10k	POT_LI	10k or 2k5 (2k5 for DIP204B-4NLW)			
Q1	Quartz	10MHz	HC49UP	SMD Package			
Q2	NFET	NTR4501	SOT23	N-CHANNEL MOS FET	LED std		
Q4	PFET	BSS84	SOT23	P-CHANNEL MOS FET	PowerLogic		
Q5	NFET	BSS123	SOT23	N-CHANNEL MOS FET	PowerLogic		
R1	Resistor	120	R0603	Resistor, SMD			Xpressnet

R2	Resistor	10k	R0603	Resistor, SMD			
R3	Resistor	4k7	R0603	Resistor, SMD			Xpressnet
R4	Resistor	4k7	R0603	Resistor, SMD			Xpressnet
R5	Resistor	5R6	R1206	Resistor, SMD	LED std		
R6	Resistor	1k	R0603_SJ	Resistor, SMD			CAN
R7	Resistor	270	R0603	Resistor, SMD (270 or 100)	Note 1)		
R8	Resistor	100	R0603	Resistor, SMD			
R9	Resistor	100	R0603	Resistor, SMD			
R10	Resistor	470	R0603	Resistor, SMD (470 or 180)	Note 1)		
R11	Resistor	470	R0603	Resistor, SMD (470 or 180)	Note 1)		
R12	Resistor	470	R0603	Resistor, SMD (470 or 180)	Note 1)		
R13	Resistor	470	R0603	Resistor, SMD (470 or 180)	Note 1)		
R14	Resistor	365	R0603	Resistor, SMD		linear	
R15	Resistor	10k	R0603	Resistor, SMD			
R16	Resistor	1R	R1206	Resistor, SMD			
R17	Resistor	270	R0603	Resistor, SMD			
R18	Resistor	120	R0603	Resistor, SMD			
R19	Resistor	121	R0603	Resistor, SMD		linear	
R20	Resistor	121	R0603	Resistor, SMD		linear	
R21	Resistor	200	R0603	Resistor, SMD		linear	
R22	Resistor	100	R0603_SJ	Resistor, SMD			
R23	Resistor	100	R0603_SJ	Resistor, SMD			
R24	Resistor	100	R0603_SJ	Resistor, SMD			
R30	Resistor	1k	R0603	Resistor, SMD			Li-Ion
R32	Resistor	10k	R0603	Resistor, SMD			Li-Ion
R33	Resistor	2k2	R0603	Resistor, SMD			Li-Ion
R34	Resistor	220k	R0603	Resistor, SMD			Li-Ion
R35	Resistor	100k	R0603	Resistor, SMD			Li-Ion
R40	Resistor	100k	R0603	Resistor, SMD	PowerLogic		Li-Ion
R42	Resistor	1M	R0603	Resistor, SMD			Li-Ion
R43	Resistor	432k	R0603	Resistor, SMD			Li-Ion
R44	Resistor	0R	R0603_SJ	Resistor, SMD (see text)	Version 1.1		Li-Ion
R45	Resistor	10k	R0603	Resistor, SMD	PowerLogic		Li-Ion
R46	Resistor	1M	R0603	Resistor, SMD	PowerLogic		Li-Ion
R47	Resistor	10k	R0603	Resistor, SMD			Li-Ion
R48	Resistor	1M	R0603	Resistor, SMD	PowerLogic		Li-Ion
R50	Resistor	100k	R0603	Resistor, SMD			Li-Ion
R51	Resistor	100k	R0603	Resistor, SMD			Li-Ion
R52	Resistor	47k	R0603	Resistor, SMD	spec. Disp.		
R54	Resistor	82k	R0603	Resistor, SMD	spec. Disp.		
R60	Resistor	47k	R0603	Resistor, SMD	spec. Disp.		
R61	Resistor	82k	R0603	Resistor, SMD	spec. Disp.		
R80	Resistor	5R6	R0603	Resistor, SMD	LED BL		
R90	Resistor	100	R0603_SJ	Resistor, SMD			USB
R91	Resistor	100	R0603_SJ	Resistor, SMD			USB
R92	Resistor	4k7	R0603	Resistor, SMD			USB
R93	Resistor	10k	R0603	Resistor, SMD			USB
R100	Resistor	0R	R0603_SJ	Resistor, SMD	not fitted		
R101	Resistor	0R	R0603_SJ	Resistor, SMD	not fitted		
R102	Resistor	0R	R0603_SJ	Resistor, SMD	not fitted		
R103	Resistor	0R	R0603_SJ	Resistor, SMD	not fitted		
R110	Resistor	4k7	R0603_SJ	Resistor, SMD	not fitted		
R111	Resistor	4k7	R0603_SJ	Resistor, SMD	not fitted		
R112	Resistor	4k7	R0603_SJ	Resistor, SMD	not fitted		
R113	Resistor	0R	R0603_SJ	Resistor, SMD	not fitted		
R114	Resistor	0R	R0603_SJ	Resistor, SMD	not fitted		
R118	Resistor	0R	R0603_SJ	Resistor, SMD (see text)	not fitted		
R130	Resistor	0R	R0603_SJ	Resistor, SMD	not fitted		
R130	Diode	PMEG2010AEB	SOD523	Schottky, 20V, 1A (see Text!)	for LTC4089		
R140	Resistor	2k2	R0603_SJ	Resistor, SMD	not fitted		
R141	Resistor	0R	R0603_SJ	Resistor, SMD	not fitted		
R150	Resistor	10k	R0603_SJ	Resistor, SMD	not fitted		
R160	Resistor	10k	R0603_SJ	Resistor, SMD	not fitted		
S1	Rotary Encoder	ALP-EC11	ALP-EC11	Alps Rotary Encoder Type EC11, SMD 30/15, 1.2Ncm			
S2	Switch	MULTIMEC_DUAL_LEDC	MULTIMEC_COMB_LED	multimec switch (SMD or TH)			
S3	Switch	MULTIMECTH_COMB	MULTIMEC_COMB	multimec switch			
S4	Switch	MULTIMEC	MULTIMEC_COMB_LED	multimec switch (tuned with LED)			
S5	Switch	MULTIMEC	MULTIMEC_COMB_LED	multimec switch (tuned with LED)			
S6	Switch	MULTIMEC	MULTIMEC_COMB_LED	multimec switch (tuned with LED)			
S7	Switch	MULTIMEC	MULTIMEC_COMB_LED	multimec switch (tuned with LED)			
S8	Switch	NAVIMEC	MULTIMEC_COMB	navimec switch			
S9	Switch	NAVIMEC	MULTIMEC_COMB	navimec switch			
S10	Switch	NAVIMEC	MULTIMEC_COMB	navimec switch			
S11	Switch	NAVIMEC	MULTIMEC_COMB	navimec switch			
S12	Switch	NAVIMEC_Center	MULTIMEC_COMB	navimec switch, center			

Note 1: R7 depends on processor voltage: 5V 270Ohm, 3V3 100Ohm