50x SVS5.5-6 48A 4-6mm2 InnerDia6,5 B9.0 L25.2 7.5 AWG12-10 Yellow Terminal Cable Wire Connector Insulated 0,99€
Step-Up Boost 20A 1200W 8-60Vin 20Ai 15mA 0,5-15Aout 20A+Fan 12-83Vout 150kHz 116x52x15mm 300g Fuse 2x15A 4x 470uF 63Vin (3x 470uF 100Vout) 10,26€
Step-Up Boost 400W 15Ain 8,5-50Vi zu 10-60Vo 7Aout 0,2-12Aout+Fan>65°C 67x43x28mm 86g TL494AW SO16 10mA 150kHz (UC3524) Fuse 15A 4x 220uF 63V LowESR 2,95€
Step-Up Boost 10-32Vin max.10Ain 12-35Vo 6Aout 100W max.150W+Fan 65x56,5x23mm, UC3843A SO8, 78L09 SOT89 max30V 2x 1000uF 25mA 049-01 2,87€
M4 U-Chrimpschuh 50pcs SV1.25-4 0,5-1,5qmm I4,3mm
50pcs SV3.5-4 2,5-4mm2 37A iDia4,3mm 24,8x8mm 1,26 Euro

Oese1-2_12V
LiFePo4 4s4p 13,2V 3,3V 2,3Ah 70A 120Apk 8mR A123 26650 16Zellen +Holder
+13,8V M1 Pressure Water Pump FL-40 12V 9,2A 110W 17L/Min 1020l/h ThermalProtection, InOut1/2" 12,7mm Port3/4" 19mm 4 Chambres, Self-priming2m, max.40PSI 2,76bar RunDry 54,63€
Step-Up Adj13,8Vout 6Ao 150W
PCB4_DC-DC1_Fan1_049-01
Lüfter Fan 50x50x10mm 12V 0,12A 1,44W
Fan1_DC-DC1
ncLuefter 12V 0,092A 1,1W Fan40x40x20
Geh2_THC15A
HT5way 110x150x90mm ABS IP65 6,60Euro
HT8way 192x145x90mm ABS IP65 9,15Euro
Netzteil 12V 33,3A 400W Adj13,8V
PS1_IP65
X0 S1 SW-1EIN PE
L N PE Schuckostecker mit Schalter
LiFePo4 12,8V 9,2Ah
Bat1_LiFePo4
+12,8V
T21_PumpOn
MBR2045 Diode switch Akku Bat1 or Netzteil PS1
PCB3_Timer1_4060
NC
NO
COM
Timer 8-20min 12V 4-34mA 16A 1xUm Relais -OK-out
4s 14.4V LiFePo4 2.0-3.75V 50A, protection 200A, Short 500A, 30uA, balanced 3.65V 55mA, 54x80mm Gartenpumpe 12x RU30120L 10A@9,6mV FET C405BA R5432V405BA 14,71€
15V / 16k=0,94V
14V / 15k=0,93mA
IRLB3034pbf alt IRF1405 55V 169A 5,3mR 5480pF
IRLB3034pbf 40V 195A 1,4-2mR 10nF Vgsth1-2,5V 0,49K/W N-Ch 0,35€
Zeitschaltuhr THC15A TP8A16 12V 16A 1,63mA 15mA 17on/off
THC-15A Zeitschaltuhr 12V 1,63mA 15mA (TA6586 DIL8 TimerValve_S05_THC15A.pdf 049-27 (16))
Timer THC15A TP8A16 35mm DIN Rail 86x36x65mm, Akku 1,2 V 40mA 15day
S21b Mechanische Zeitschalter 0-30min 10A 86x86mm 3,67€
M2 Mutter DIN934 vz SW4
Funk4Kanal 5/12V 433MHz
FB1+RemoteControll
Empfänger+ Fernbedienung
L2mA H4mA@5V
Schr7-8_DVM1
+BP Akku 12V 10,8-13,8V 14,4Vmax 60Ah 720Wh VRLA Gel 222x120x174mm
LiFePo4 4s4p 13,2V 3,3V 2,3Ah 70A 120Apk 8mR A123 26650 16Zellen +Holder
M2x8 Zyl DIN84 vz
Mut11-14_DVM1
LiFePo4-Bat1b
PCB2
PCM 12,8V 10-14,4Vmax use100A 4s LiFePo4 Balance
4s LiPo
BMS/PCM 12x RU30120L FET
FB1b_016-07+18_049-23
16-07+18_049-23
13_GND
14+12V
1_-1no
2_1com
3_+1nc
4_-2no
5_2com
6_+2nc
7_-3no
8_3com
9_+3nc
10_-4no
11_4com
12_+4nc
Rel10,8-0,6=10,2Voff
1,13€ RXC6 3,3-5,5V 4mA@5V 28x12.5x5mm JMP1+2 PT2262 Code 2.4K Manchester 1,13€, 2,99+0,99US$=2,99€ IC2262/2272 L2mA H4mA@5V Remote Wireless Control Transceiver Module 4-way Integrated Fashion, exrell ebay, Antenne T25cm R32cm ID4mm Single Core
Relais 12VDC 270R 45mA 2um 250V~ 2x5A V23037-A0002-A401 RP420012 30G6803 2,19€/100 Schrack 29x12x25mm
12VDC 2x8A 360R 30G6260 2,18€/100 (29G8682 2,90€/100) 3042012
Relais Schracka.AT RT424012 12Vdc 8,4/1,2V 360R 33mA 400mW 2xUm 2x8A 250Vac tyco 29x12x16mm
Switch 1um 2A Mitte 2xTaster li/re
DVM 4-30V 20mA 100V 25x15x7mm
DVM1_Ri100k
100V Ri100k
4-30V 20mA 99,9V
GND
S2_DVM1
A123 ANR26650M1B 3,3V 2500mAh 76g 8,10€/80 Z-Loetfahne uwe.weishaupt@reva-energy.de
LP2950CZ5.0 30V 100mA 75uA 41S6145 0,46€/100 TO92 Mark KY5050 3,3uF
LM2936ZEP-5,0 TO92 40V 50mA@0,2V 20uA >17,3V@18mA HV=60V, LE50ABZ TO92 SGS
HT7350-1 30V 2,5-5uA 5V 250mA TO92 SOT89 Ali
HT7550-1 100mA
MTS-123 on/off/on momentary 250Vac 2A M6 1€ Ali
4,5-30V 8mA 99,9V 1% Ri100k 200ms -10/65°C 0,78€ Red LED Display Mini 0.36 inch DC 0-100V Digital Voltmeter 100V Volt Panel Indicator Monitor Voltage Meter
LL4148 100V 100mA Ir=25nA@20V 50uA@150°C SOD80C Vishay.com
Relais 1UM 5Pin 12V Drop-Out Voltage-10% 30mA 400R 0,36W SRD-12VDC-SL-C (37,5mA 320R 0,45W)
Funk4Kanal_REL 12V 6mA 433MHz Rel 250Vac 3/10A
100u16V D6x12mm RM2,5 1,42€/50
4060_30s-24h_Timer_C3_non_polarized_D1-Stop.png
CD4060BE HCF MC1 3-16V 5-20uA L0,36H1,15mA DIP16, 14-Stage Ripple Carry Binary Counter/Divider and Oscillator, (HCF4536BE Conrad Langtimer or CD4541BE)
15EDG 2,54mm
IC2 uA78L08
0R/LP2950ACZ5.0
10u50V D5x11mm RM2,5 85°C 1,56€/50
470u16V D10x16mm RM5
10u50V D5x11mm RM2,5 85°C 1,56€/50
30W von 3x0,56A=1,68A 17,85Vmpp 10W+3% Solarmodul Mono 21,73V 0,61A 12V 310x280x23mm 1,4kg; AW4-Dach->Pumpe
Usolar hochdrehen bis Umpp rote CR-LED geht aus bei 17Vmpp, dann Adj 50k Trimmer drehen bis 13,8V war 14,4V ohne Last
9V/18V Solar 7-25Vi MPPT-Trimmer 7-30Vi 1,2-25Vo 4Ao 59x30x15mm MPPT Disable: Solder J1 6,69€
CN3795 6,6-30Vin 33Vmax 51uA 1,205-25Vout 3A@120mV 310kHz PWM94% SSOP10 RM1 SD30CRMA multicell consonance-elec.com, PCB 45x20x15mm SI4435 2,89€/1 2,63€/5 (LED.XLS 018-04)
modify R5=34k parallel 330k-1,5V R6=2k49, 1,2-25Vo R1=Adj=50k R2=2k49, 1Ao Rcs=0,12R/0,036R@120mV 3Ao
Solar 18V Adj16,9Vmpp Adj13,8Vout 51uA 1A/3Ao CN3795 PCB4520_15 SD30CRMA Step Down Buck 3,30€
SR5200 0,85V@5A 200V DO-201AD/DO-27
PCB5_018-04 KK 3Ao U-Alu 25x25x2 L30mm+DS-Klebeband
6,6-30Vi 1,2-25Vo 1-3A
IN+ MPPT OUT+
IN- 018-04 OUT-
Schr9-11_PCB5
Mut15-17_PCB5
M2 Mutter DIN934 vz SW4
M2x12 Zyl DIN84 vz
X11_049-06
049-06
Bat1b_BP
+BP Akku 12V 10,8-13,8V 14,4Vmax 60Ah 720Wh VRLA Gel 222x120x174mm
Solarladeregler 12/24V 1,5mA 4A 18122 68x57x28mm
2x FET-SW getauscht IRLB3034pbf
IRLB3034pbf 40V 195A 1,4-2mR 10nF Vgsth1-2,5V 0,49K/W N-Ch 0,35€
4/34mA
LL4148
D5
100u16V
X1
+12V-
C1
KF2510-2P 3A 10mR 0,08€/10
use T1b or T1r close other
T1b
PDTA143ZT,215
12V 360R 33mA
2x8A 250Vac
K1
D2
X2
1xUm 16A
T1r
BC847B
hfe110-220
R6 22k
R7 4k7
2EDG 5.08 300V 15/10A AWG28-12
3pol AK130/3 Klemme+STL130/3 250V 7-10A RM5
X3
-OKout
Pumpe-Off=0V
KF2510-2P 3A 10mR AWG22 0,34qmm 0,08€/10
15EDG 2,54mm
T2
BCR148
IC2
IN GND OUT
10uF
20uA CHT7350-1
LM2936ZEP-5,0
nc2k2
R11
LL4148
D4
R9 1k
22kGND
D3
nc1N4148
R8 12uA
restart 30min
D1
LL4148
R5 4M7
R4 470k
R3 150k
C3 10u 16V
R2 4k7
2mA
D7
gn2mA
blinkt
alt10u16V antiparallel
Reset
Taster
C2 10u16V
alt470u16V
R10 560R
22mA
C4 100n/10u50V
IC1
HCF4060BE
VDD
3-16V 5-20uA
L1,5V H3,5V
RST
L0,36 H1,15mA
RS
RT
Ct
GND
Q4 Q5 Q6 Q7 Q8 Q9 Q10 Q12 Q13 Q14
L10,44mA@5V
LH1,1mAo@10V
JP1
SL2x10+JP
Jumper RM2,54 40F4244
2mA
R1 4k7
D6 ye2mA
Pin7 30-90s
Pin5 1-3min
Pin4 2-6min
Pin6 4-12min
Pin14 8-20min
Pin13 15-45min
Pin15 30-90min
Pin1 2-6h
Pin2 4-12h
Pin3 8-24h
Sol1
Solar17,85Vmpp 0,56/1,68A 30W
P-0,42%/°C V-0,31%/°C I-0,05%/°C
ABS1-3_PCB5
M3x5 Rolle PA AD5,5mm
Schr5-6_X12
M3x16 Zyl DIN84 vz
Mut9-10_X12
M3 Mutter DIN934 vz SW55
Plastic terminal block Wire connector 20A Dual Row 12 Positions Screw terminal block 1,50€/12
X12
Luesterklemme 1,5-6qmm X3-2012 20A RM11,5 122x19x14mm 27g
Solarladeregler 18122 2x IRFZ24N.pdf min10,5V Reset12,5V max13,8V 4A Conrad 200013 9€, Solar Panel Battery Regulator Charge Controller 12V 24V Auto Switch, up-memory88
PDTA115ET 2x100k 50V 20mA hfe80 1,6-3Von 0nsemi PNP
FJV4101RMTF MMUN2132LT1 2x4k7 SOT23 3,73€/50 Ali PNP
PDTA143ZT,215 4k7+47k 50V 0,1A hfe100 0,9Von 0,6Voff 250mW Ali 2,74€/50 Nexperia PNP, Mark *19
BCR555 2k2+10k 50V 500mA hfe70 1,4Von 0,4Voff SOT23 12S6640 0,06€/100 SOT23 Inf PNP
Reset=Start=L=0,07V, nach Zeitablauf H=11,3V
FJV3114RMTF 3,55€/50 4k7+47k 50V 100mA hfe=68 SOT23 NPN
FJV3101RMTF NPN
BCR112 2x4k7 12S6600 SOT23 Infineon NPN
BCR148 2x47k 50V 70mA hfe70 0,8-1,5Voff 1-3Von RS 287-730 NPN
BCR133 2x10k 12S6604(287-695 RS) SOT23 Infineon NPN
DTC114EKA 2x10k 246-1693 RS Rohm NPN
PDTC114ET NPN
PCB1
PCB70_50_PAD24_18, PCB60_40_PAD20_14
TimerPumpe01
TimerPumpe01
Mut5-8_PCB1-4x6cm
M2,5_MUTTER_DIN934_SW5
Polyamid PA
Mut1-4_PCB1
M2,5_MUTTER_DIN934_SW5 PA
Schr1-4_Geh1_PCB1
M2,5x10 Senk DIN963 vz
Blechschraube 2,9x6,5mm Reichelt.de SBL 29065-100 DIN7981-Z 2,40€/100 Self Tapping
Schr5-8_PCB1-5x7cm
Ble2,9x6,5mm DIN7981-Z
D6_D7
A K LED3_THT_GEH
T1_T2
B E
SOT23_BEC_OBEN
BL1
PG7_MBF12_BL125
Kabellitze 2x0,75qmm D5,5mm (300/300V leichte PVC Schlauchleitung H03VV F275W 10M Reichelt.de
BL2
PG7_MBF12_BL125
Kabellitze 2x0,75qmm D5,5mm (300/300V leichte PVC Schlauchleitung H03VV F275W 10M Reichelt.de
PG7 MBF12 KD3-7mm SW15 +Mutter SW17 Reichelt
Geh1 PCB 4x6cm 1,6mm Pad20x14 FR4 1,69€/5
GEH85_58_33_I77_52_28, PCB 5x7cm einseitig FR4 2,01€/5 2,91€/10
Geh 100x68x50mm I92x61x38mm 3,18€, PCB5x7cm or 6x8cm FR4

Terminal Plug Set 15EDG 2,54mm 90° 4A 125V AWG26-18 0,129-0,823qmm PA66 -40/105°C 10x7x8,1mm Curved 2,83€/5
0,5-2,5qmm Senkrecht oder waagerecht PTR.eu

Title	*Timer Pumpenlaufzeit 30s-24h max.20min dann 300l Tonne voll (CD4060BE)*		
Size: A4	Number: 049-29	Revision: 01	*elektroniker2* *www.mikrocontroller.net* *Tel , Fax*
Date: 4-Aug-2024	Time: 07:29:24	Sheet 1 of 2	
File: Z:\ANW\DWG\Solarpumpe\Elektronik\Solarpumpe.ddb - Timer_Pumpe01\TimerPumpe_S01.Sch			

WB