9VDC OUT   5VDC OUT   3.3VDC OUT

C1 0.47mF   IC1   C2 10V 0.22mF   C3 10V 1µF   IC2   C4 0.1mF   C5 100nF   IC3   C6 1µF

12VDC IN
+ J1
-

J2

C8 1pF

C7 1pF

IC5
X1 - Crystal
X2 - Crystal
Vbat - Backup Supply
0V
DS1307
SWQ/OUT - Clock Output
SCL - I2C Clock
SDA - I2C Data

XTAL1 32 kHz

R1 150Ω   LED1 Green (570nm)   PWR
LED7 Red (633nm)   ARM

J10
SCL
SDA

Heartbeat
R11 330Ω
LED2 Red (633nm)

BAT1

MCP23017

NC SDA SCL NC Vss Vdd GPB7 GPB6 GPB5 GPB4 GPB3 GPB2 GPB1 GPB0

A0 A1 A2 RESET INTB INTA GPA0 GPA1 GPA2 GPA3 GPA4 GPA5 GPA6 GPA7   IC4

R2 3.3kΩ

J9

R10 10kΩ   REX4
R9 10kΩ   COM
           DC4
R8 10kΩ   REX3
R7 10kΩ   COM
           DC3
R6 10kΩ   REX2
           COM
           DC2
R5 10kΩ   REX1
R4 10kΩ   COM
R3 10kΩ   DC1
J3

Dry-Contact Zone Inputs

U1 U2 U3 U4 U5 U6 U7 U8

J11
A
B
MODBUS RS-485

J12
DI RE R0

J13
GND B A VCC

C9 1pF

ULN2803
GND I8 I7 I6 I5 I4 I3 I2 I1
COM O8 O7 O6 O5 O4 O3 O2 O1   IC6

R13 1kΩ R12 1kΩ R14 1kΩ R15 1kΩ R16 1kΩ R17 1kΩ R18 1kΩ R19 1kΩ

Z1+ Z1- Z2+ Z2- Z3+ Z3- Z4+ Z4- Z5+ Z5- Z6+ Z6- Z7+ Z7- Z8+ Z8-   J4

Opto-Isolated Zone Inputs

LED3 Red (633nm)   R20 150Ω
LED4 Red (633nm)   R21 150Ω
LED5 Red (633nm)   R22 150Ω
LED6 Red (633nm)   R23 150Ω

REL1 REL2 REL3 REL4

NO C   NO C   NO C   NO C
J5   J6   J7   J8

open hardware

4-door access and security controller

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fritzing