Top Section (24V+)

24V+

C11 10uF
GND

R6 1000K

R7 79k

D9 LED0

GND

Q2 BSS131

EN

D8

D10 ES3B

C13 470p

R8 39

SW

C12 1uF

LT2 LT8302

Pin	Signal	Pin	Signal
3	VIN	5	SW
1	EN/UVLO	6	Rfb
2	INTVcc	7	Rref
4	GND	8	Tc

Rfb2 200k

Rref2 10K

Rtc2 169k

GND

T2
PRI ~36V, 100KHz
SEC 5V, 4A
AUX 10V, 20mA
36V

7 6 3 2 9 10 1 5

D7

100uF C9
100uF C10
D6

L1 1uH
R46 1R

100uF C24

100uF C25
100uF C26
100uF C27

+LV

GNDout

Bottom Section (24V-)

24V-

C2 10uF
GND

R1 1000K

R2 79k

D3 LED0

GND

Q1 BSS131

EN

D4

D5 ES3B

C6 470p

R3 39

negSW

C5 1uF

LT1 LT8302

Pin	Signal	Pin	Signal
3	VIN	5	SW
1	EN/UVLO	6	Rfb
2	INTVcc	7	Rref
4	GND	8	Tc

Rfb1 220k

Rref1 10K

Rtc1 169k

GND

T1
PRI ~36V, 100KHz
SEC 5V, 4A
AUX 10V, 20mA
36V

5 7 6 3 2 9 10 1

D2

100uF C4
100uF C3
D1

100uF C20

R45 1R
L2 1uH

100uF C2
100uF C22
100uF C23

negGNDout

-LV

C30 4.7nF
GND   GNDout

C31 4.7nF
GND   negGNDout

J1 — D Connector 9

+LV

GNDout

negGNDout

-LV

	J1
1	
6	
2	11
7	
3	10
8	
4	
9	
5	

D Connector 9

U5 — SP3084EEN-L (RS-485 transceiver)
- VCC, RO, DI, GND / A, B, Z, Y
- C35 100nF, +5V, GND
- RX, TX
- R51 50R, R52 50R

J2 — CONNECTOR, RJ45, JACK, 8P8C, 1PORT, CAT5E
- pins 1–8, M1, M2
- +5V, GND

U3 — ATmega328P-AU
- VCC, VCC, AVCC, AREF
- ADC6 (A6), ADC7
- PC0 (ADC0/PCINT8) EN
- PC1 (ADC1/PCINT9) ADC1
- PC2 (ADC2/PCINT10) ADC2
- PC3 (ADC3/PCINT11) A3
- PC4 (ADC4/SDA/PCINT12) SDA
- PC5 (ADC5/SCL/PCINT13) SCL
- PC6 (RESET/PCINT14) RESET
- PD0 (RXD/PCINT16) RX
- PD1 (TXD/PCINT17) TX
- PD2 (INT0/PCINT18) D2
- PD3 (PCINT19/OC2B/INT1) D3
- PD4 (PCINT20/XCK/T0) D4
- PD5 (PCINT21/OC0B/T1) D5
- PD6 (PCINT22/OC0A/AIN0) D6
- PD7 (PCINT23/AIN1) D7
- PB0 (PCINT0/CLKO/ICP1)
- PB1 (PCINT1/OC1A)
- PB2 (PCINT2/SS/OC1B)
- PB3 (PCINT3/OC2A/MOSI) MOSI
- PB4 (PCINT4/MISO) MISO
- PB5 (SCK/PCINT5) SCK
- PB6 (PCINT6/XTAL1/TOSC1) XTAL1
- PB7 (PCINT7/XTAL2/TOSC2) XTAL2
- GND, GND, GND
- AC10 100nF, AC4 100nF, +5V, GND

R_pu2 pullup 4.7K, **R_pu3 pullup 4.7K**, +5V, GND

out1 — RX, TX, D2, D3, D6, D7, +5V, GND
out2 — SCL, SDA, EN, ADC1, ADC2, A3, A6, GND

ICSP1 — 3x2 M
- MISO, SCK, RESET / MOSI
- +5V, GND

RLED2 500, SCK, LED2 GREEN, GND
R_NTC 500, A3, NTC, 500, +5V, GND
R_pu4 pullup 10k, RESET1, RESET, GND
R_pu1 pullup 4.7K, +5V, EN

XTAL2 / XTAL1, AR2 1M, GND

24V, Rsense2 Rsense 50m, Isense_1, Isense_2, F2 MF-MSMF075-2 1.5A, 24V+
P1 WiretoBoard, GND
Rsense1 Rsense 50m, negIsense_1, negIsense_2, F1 MINISMDC050F-2 1A, 24V-

U2 — INA138
- VIN+, VIN-, OUT, GND
- Isense_1, Isense_2
- C8 100nF, +5V, GND
- R5 100k, ADC1, GND

U1 — INA138
- VIN+, VIN-, OUT, GND
- negIsense_1, negIsense_2
- C7 0.1uF, +5V, GND
- R4 100k, ADC2, GND

DTVS1, DTVS2, GND, 24V+, 24V-
C1 22uF, 24V
PC1 47uF, 24V
F3 MINISMDC050F-2 1A
AU1 — LM2940IMP-5.0/NOPB, IN, OUT
SMBJ DTVS3, PC2 47uF, +5V, AC1 100nF
RLED1 500R, GREEN LED1, +5V, GND

GND (multiple)

6C-2L-1550um.PcbDoc

Board S