PORT ADDR

R1 — 1
R5 — 0

C3

U2

VCC (3U3 or 5V)

C2 R12

C6 U4

R13 C1

LCD <-> I2C

1 16

POT ADDR

R3 R2 X1 X0
R7 R6
1X 0X

C4 R10

C5

R14 C7

U3

U5

R11

C8

+5V SCL VCC

I2C R4 R8

IN*
SDA
GND

C9 R9

A

U1 — LDC

Pin		Pin	
1	GND	16	GND
2	VCC	15	K / A
3	V0 (CONTRAST)	14	D7 / DATA7
4	RS (REG_SEL)	13	D6 / DATA6
5	RW (RD_WR)	12	D5 / DATA5
6	E (ENABLE)	11	D4 / DATA4
7	D0 (DATA0)	10	D3 / DATA3
8	D1 (DATA1)	9	D2 / DATA2

VCC_LCD
LED
GND

C1 0603 100nF
GND

I2C_SDA — R4 0603 10K — VCC_I2C
I2C_SCL — R8 0603 10K — VCC_I2C

VCC_I2C
R1 0603 EMPTY
PORT_ADDR
R5 0603 0R
GND

VCC_I2C
R2 0603 0R
POT_ADDR0
R6 0603 EMPTY
GND

VCC_I2C
R3 0603 0R
POT_ADDR1
R7 0603 EMPTY
GND

B

U2 — PCAL6416A

Pin		Pin	
1	INT*	24	VDDP
2	VDDI2C	23	SDA (I2C_SDA)
3	RESET*	22	SCL (I2C_SCL)
4	P0_0 (DATA0)	21	ADDR (PORT_ADDR)
5	P0_1 (DATA1)	20	P1_7
6	P0_2 (DATA2)	19	P1_6
7	P0_3 (DATA3)	18	P1_5
8	P0_4 (DATA4)	17	P1_4 (LCD_ON)
9	P0_5 (DATA5)	16	P1_3 (LED_ON)
10	P0_6 (DATA6)	15	P1_2 (REG_SEL)
11	P0_7 (DATA7)	14	P1_1 (RD_WR)
12	VSS	13	P1_0 (ENABLE)

C2 0603 100nF — VCC_I2C
R9 0603 10k
C3 0603 100nF — +5V
GND
INTERRUPT*
VCC_I2C
R12 0603 10k — VCC_I2C
GND

U3 — AD5282 20K

Pin		Pin	
1	O1	16	A2
2	A1	15	W2 (LED_SW)
3	W1 (CONTRAST)	14	B2 (LED)
4	B1	13	VL (VCC_I2C)
5	VDD (+5V)	12	VSS
6	SHDN*	11	GND
7	SCL (I2C_SCL)	10	AD1 (POT_ADDR1)
8	SDA (I2C_SDA)	9	AD0 (POT_ADDR0)

R10 0603 10k
R11 0603 100R — LED_SW
C4 0603 100nF
C5 0603 100nF
GND

+5V
C8 0805 10uF
VCC_I2C
C9 0805 10uF
GND

C

U4 — TPS22860

Pin		Pin	
1	VOUT	6	ON (LCD_ON)
2	GND	5	VBIAS
3	NC	4	VIN (+5V)

VCC_LCD
GND
C6 0603 100nF
R13 0603 10k
GND

U5 — TPS22860

Pin		Pin	
1	VOUT	6	ON (LED_ON)
2	GND	5	VBIAS
3	NC	4	VIN (+5V)

LED_SW
GND
C7 0603 100nF
R14 0603 10k
GND

P1 — LCD I2C

Pin		Pin	
6	+5V	5	IRQ* (INTERRUPT*)
4	SCL (I2C_SCL)	3	SDA (I2C_SDA)
2	VCC (VCC_I2C)	1	GND

D

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Size A4	Number
	Revision
Date: 22.7.2018	Sheet of
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VCC
(3V3 or 5V)

PORT ADDR

R1 [+] 1
R5 [+] 0

C3 [+]

U2 [+]

C2 [+]

R12 [+]

C6 [+]
U4 [+]
R13 [+]
C1 [+]

1

LCD <-> I2C

POT ADDR

R3 R2 X1
1X 0X X0

R7 R6

C4 [+] R10 [+]

U3 [+]

R14 C7

R11 [+]

C5 [+]

C8 [+]

+5V
SCL
VCC

C9 [+]

R4 [+]
I2C
R8 [+]

IN*

SDA

GND

R9 [+]

U5 [+]

16

Comment	Description	Designator	Footprint	Library Reference	Pins	Quantity	Value
0603	Capacitor	C1, C2, C3, C4, C5, C6, C7	0603_HandSoldering	Capacitor	2	7	100nF
0805	Capacitor	C8, C9	0805	Capacitor	2	2	10uF
LCD I2C	LCD I2C interface	P1	IDC6	LCD_I2C	6	1	
0603	Resistor	R1, R6, R7	0603_HandSoldering	Resistor	2	3	EMPTY
0603	Resistor	R2, R3, R5	0603_HandSoldering	Resistor	2	3	0R
0603	Resistor	R4, R8, R9, R10, R12, R13, R14	0603_HandSoldering	Resistor	2	7	10K
0603	Resistor	R11	0603_HandSoldering	Resistor	2	1	100R
LDC	2x16 LCD PCB	U1	LCD_2x16_Board	LCD_2x16_Board	16	1	
PCAL6416A	I2C to parallel converter	U2	PCAL6416A_TSOP24	PCAL6416A	24	1	
AD5282	Dual digital potentiometer	U3	AD5282_TSSOP16	AD5282	16	1	20K
TPS22860	Power switch	U4, U5	TPS22860_SOT23_6	TPS22860	6	2	