

ASSEMBLY PCB NOTES: (Unless Otherwise Specified)

1. Assemble per current revision of PC-A-610, Class 2.
2. Reference Bill of Material for components installed.
3. After assembly individual assemblies are to be separated from panel and shipped as single pieces.
4. Bottom Assembly Drawing is visible from bottom of board (mirrored).
5. Assembled PCB should be RoHS compliant.
6. Substitution of components is allowed, if the replaced components have the parameters equal or better than those in Bill of Material.
7. Conformal coating should be applied on both sides of the assembled PCB.
8. Glue the SD Card connector CN12 on both sides near the edge of PCB with hot melt glue sticks.

DRAWINGS LIST - ASSEMBLY PCB:

1051.00020.00_1

B.2

Project: CBS-2100.Pr Variant: PCB			
Valve_Machine			
Number	Drawing Number	Description	Revision
1	1051.00020.00_2	Schematic; CBS-2100	B.2
2	1051.00020.00_0	PCB; CBS-2100	A.3
3	1051.00020.00_3	Stencil; CBS-2100	A.2
4	1051.00020.00_4	Software; CBS-2100	A.1
5			
6			
7			

PARTS LIST - ASSEMBLY PCB

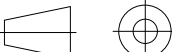
1051.00020.00_1

Project: CBS-2100.Pr			PCB			
Variant:			Valve_Machine			
Number	LibRef	Description	Technology	Layer	Designator	Quantity
1	CMP-00041-A-1	Battery Holder Coin 1220 12.5mm THT		Bottom	BH1	1
2	CMP-00010-A-3	Coin Lithium Battery 3V, 35mAh, 12.5x2mm		Bottom	BT1	1
3	CMP-08368-A-2	CAP 100pF 50V ±20% 0805 (2012 Metric) Thickness 1mm SMD	SMT	Bottom	C3, C8, C15, C25, C33, C34	6
4	CMP-08468-A-2	CAP 1uF 50V ±20% 0805 (2012 Metric) Thickness 1.45mm SMD	SMT	Bottom	C4, C27	2
5	CMP-08452-A-2	CAP 100nF 50V ±20% 0805 (2012 Metric) Thickness 1mm SMD	SMT	Bottom	C5, C7, C16, C17, C20, C21, C22, C23, C24, C29, C30, C47, C51, C53	14
6	CMP-09201-A-2	CAP 20pF 50V ±10% 0805 (2012 Metric) Thickness 1mm SMD	SMT	Bottom	C13, C14	2
7	CMP-08248-A-2	CAP 10uF 6.3V ±20% 0805 (2012 Metric) Thickness 1.45mm SMD	SMT	Bottom	C18, C19, C26, C28	4
8	CMP-08383-A-2	CAP 820pF 50V ±20% 0805 (2012 Metric) Thickness 1mm SMD	SMT	Bottom	C48, C49, C50, C52	4
9	CMP-08759-A-2	CAP EL 470uF 35V ±20% D=10mm F=5mm H=16mm	THT	Bottom	CE2	1
10	CMP-08750-A-2	CAP EL 47uF 16V ±20% D=6.3mm F=2.5mm H=5mm	THT	Bottom	CE4	1
11	CMP-00006-A-2	Schrouded Header, 2-Pin, Single Row, .120" Pocket Vertical, 2.54mm (.100") Pitch		Bottom	CN2	1
12	CMP-00025-A-2	NS25 Series, 4-Pin, PCB Mount, 2.54 mm Pitch, Straight		Bottom	CN5	1
13	CMP-00000-A-2	1.0 mm Pitch FFC/FPC Connector, SMT, Right Angle, ZIF, Top Contact, 4 Circuits		Top	CN6	1
14	CMP-00033-A-2	NS39 Series, 6-Pin, PCB Connector, 3.96mm Pitch		Bottom	CN8	1
15	CMP-00031-A-2	NS39 Series, 3-Pin, PCB Connector, 3.96mm Pitch		Bottom	CN10	1
16	CMP-00034-A-2	NS39 Series, 8-Pin, PCB Connector, 3.96mm Pitch		Bottom	CN11	1
17	CMP-00003-A-3	Tyco Secure Digital Card Socket, Push-Pull, Top Mount		Bottom	CN12	1
18	CMP-00032-A-2	NS39 Series, 4-Pin, PCB Connector, 3.96mm Pitch		Bottom	CN13	1
19	CMP-00030-A-2	NS39 Series, 2-Pin, PCB Connector, 3.96mm Pitch		Bottom	CN14	1
20	CMP-00036-A-2	NX Socket, 2-Pin, PCB Mount, 2.0 mm Pitch, Straight, Shrouded Box		Bottom	CN15, CN16	2
21	CMP-00011-A-1	Connector 16-pin for LCD Display LM240160DCW/C	THT	Top	CNLC01	1
22	CMP-00162-A-4	Small Signal Schottky Barrier Diode		Bottom	D2, D3	2
23	CMP-08774-A-3	BLM21A Series Chip Ferrite Bead, 1000 Ohm at 100 MHz, 0.28 Ohm at DC, 500 mA	SMT	Bottom	L2, L3, L6, L7	4
24	CMP-08774-A-3	BLM21A Series Chip Ferrite Bead, 1000 Ohm at 100 MHz, 0.28 Ohm at DC, 500 mA	SMT	Top	L5	1
25	CMP-00023-A-1	Full Graphics LCD Module LM240160DCW/C, 240x160 pixels		None	LCD1	1
26	CMP-00156-A-3	RED LED		Bottom	LED2	1
27	CMP-09212-A-3	Blank PCB		Top	PCB1	1
28	CMP-10281-A-3	HEXFET Power MOSFET		Bottom	Q3	1
29	CMP-00128-A-2	NPN Resistor-equipped Transistor		Bottom	Q4	1
30	CMP-04011-A-3	470k 0.125W 1% 0805 (2012 Metric) SMD	SMT	Bottom	R6	1
31	CMP-03982-A-3	270k 0.125W 1% 0805 (2012 Metric) SMD	SMT	Bottom	R7, R10	2
32	CMP-03313-A-3	47k 0.125W 5% 0805 (2012 Metric) SMD	SMT	Bottom	R9, R51, R71, R72, R75	5
33	CMP-03935-A-3	100k 0.125W 1% 0805 (2012 Metric) SMD	SMT	Bottom	R12	1
34	CMP-03289-A-3	4k7 0.125W 5% 0805 (2012 Metric) SMD	SMT	Bottom	R18	1
35	CMP-03785-A-3	4k7 0.125W 1% 0805 (2012 Metric) SMD	SMT	Bottom	R19	1
36	CMP-03315-A-3	56k 0.125W 5% 0805 (2012 Metric) SMD	SMT	Bottom	R25, R54, R73, R74	4
37	CMP-03297-A-3	10k 0.125W 5% 0805 (2012 Metric) SMD	SMT	Bottom	R31, R32, R35, R36, R42, R43, R44, R45, R48, R49	10
38	CMP-03263-A-3	390R 0.125W 5% 0805 (2012 Metric) SMD	SMT	Bottom	R33	1
39	CMP-03301-A-3	15k 0.125W 5% 0805 (2012 Metric) SMD	SMT	Bottom	R36, R61	2
40	CMP-03241-A-3	47R 0.125W 5% 0805 (2012 Metric) SMD	SMT	Bottom	R40	1
41	CMP-07049-A-3	1R1W 5% 2512 (6432 Metric) SMD	SMT	Bottom	R41, R69, R70	3
42	CMP-03233-A-3	22R 0.125W 5% 0805 (2012 Metric) SMD	SMT	Bottom	R46	1
43	CMP-06123-A-3	33R 0.75W 5% 2010 (5025 Metric) SMD	SMT	Bottom	R47, R50	2
44	CMP-03273-A-3	1k 0.125W 5% 0805 (2012 Metric) SMD	SMT	Bottom	R52, R67, R68	3
45	CMP-08845-A-2	4 x 100R 0.0625W 5% 4x0603 SMD	SMT	Bottom	R53, R55, R56, R57, R59, R60	6
46	CMP-08909-A-2	4 x 47k 0.0625W 5% 4x0603 SMD	SMT	Bottom	R58	1
47	CMP-03200-A-3	Jumper 0805 (2012 Metric)		Top	R62, R65, R66	3
48	CMP-03822-A-3	10k 0.125W 1% 0805 (2012 Metric) SMD	SMT	Bottom	R77, R79	2
49	CMP-00074-A-1	MACHINE SCREW PAN PHILLIPS M3 0.5mm, 5mm length		None	SC1, SC2, SC3, SC4, SC5, SC6, SC7, SC8	8
50	CMP-00042-A-1	HEX STANDOFF M3 NYLON 8MM		Top	SP1, SP2, SP3, SP4	4
51	CMP-00068-A-3	256 Kbit serial SPI busEEPROM with high-speed clock		Bottom	U1	1
52	CMP-10480-A-1	STM32 ARM-based 32-bit MCU with 1024 KbytesFlash, 100-pin LQFP, Industrial Temperature		Bottom	U2	1
53	CMP-00090-A-3	Seven Darlington Array		Bottom	U3	1
54	CMP-00629-A-2	800mA LowDropout Linear Regulator, 3-pin TO-252		Bottom	U5	1
55	CMP-00061-A-3	Dual Full-Bridge Motor Driver		Bottom	U7	1
56	CMP-00071-A-1	IC SPI SERIAL FLASH 32MBIT 104MHZ 8SO		Bottom	U8	1
57	CMP-08782-A-2	Crystal 8.000000 MHz, HC49 SMD, ±30PPM, CL 20pF		Bottom	X2	1

PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FETCO.
ANY REPRODUCTION IN PART OR AS WHOLE WITHOUT THE WRITTEN PERMISSION OF FETCO IS PROHIBITED.

REV	DATE	CHANGES DESCRIPTION	NAME:
A.1	02.08.2013	INITIAL RELEASE	S.Blicharz
B.1	04.12.2014	Added new variant: Valve_Machine	S.Blicharz
A.2	16.07.2015	Variant with micro with 1M flash	S.Blicharz
A.3	24.03.2016	Updated obsolete components	S.Blicharz
B.2	31.08.2016	Removed not needed components	S.Blicharz

VARIANT: Valve Machine

TOLERANCES			FOOD EQUIPMENT TECHNOLOGIES COMPANY, INC. Adamowicza 8, 05-530 Gora Kaluaria, POLAND PHONE: +48 22 7274787 FAX: +48 22 7274788 E-MAIL: engineering@fetco.com www.fetco.com	
UNLESS OTHERWISE SPECIFIED				
ALL DIMENSIONS ARE IN METRIC	DRAWING NAME: Assembly PCB; CBS-2100			
ALL DECIMAL $\pm .005$ ANGULAR $\pm 1/2$	CBS-2100PbDsc CREATED BY: S.Blicharz CHK'D BY:		DATE: 2016-09-05 SCALE: SCALE: 1.00 APP'D BY:	
FIRST-ANGLE 	VARIANT: Valve_Machine		DRAWING NO: 1051.00020.00_1 REVISION: B.2	
SHEET NAME AND NUMBER	Assembly Parts List - Sheet 1 of 4			

A

B

C

D

A

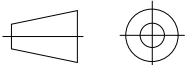
B

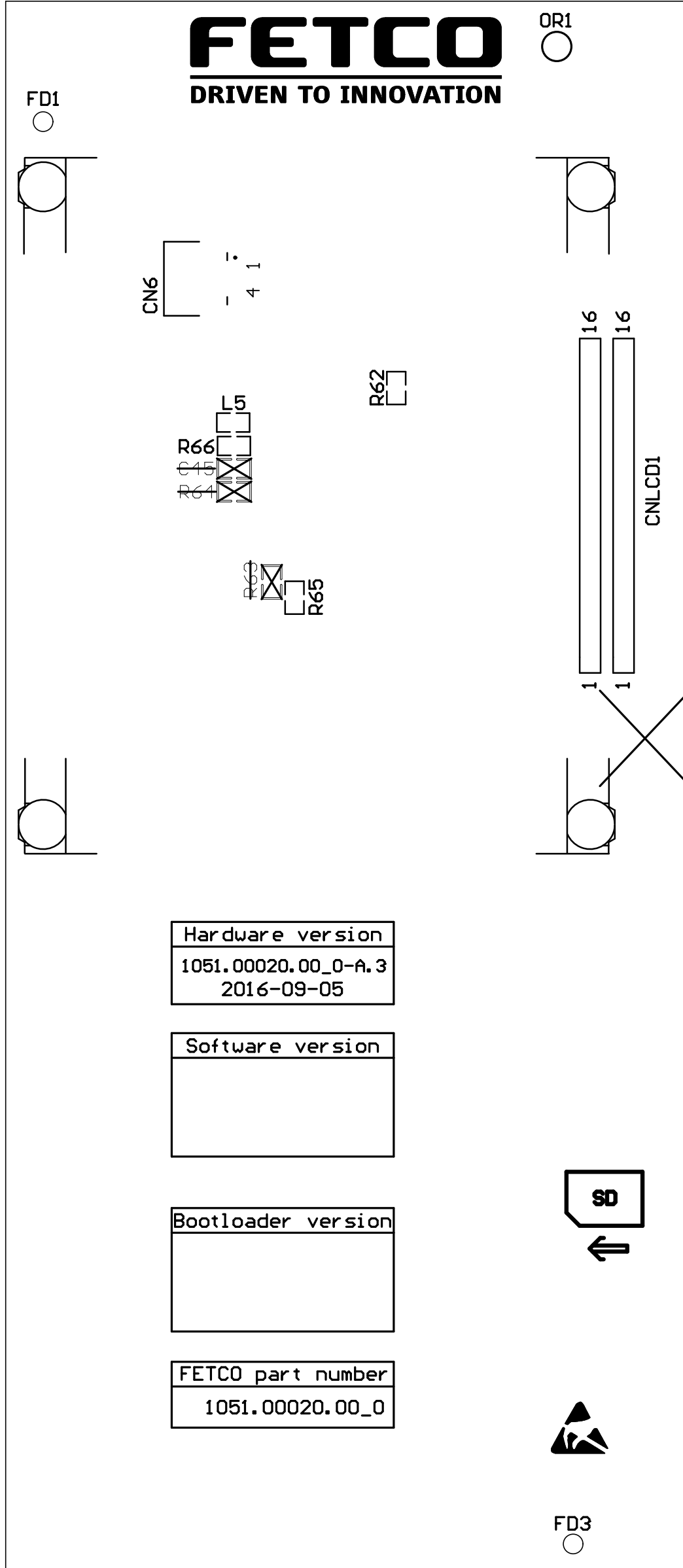
C

D

PARTS LOCATIONS1051.00020.00_1					
Project:		CBS-2100.PrPCB			
Variant:		Valve_Machine			
Number	Designator	Center-X(mm)	Center-Y(mm)	Layer	Rotation
1	BH1	23.825	110.087	Bottom	180
2	B11	-528.545	-357.448	Bottom	180
3	C3	40.196	176.66	Bottom	0
4	C4	40.246	171.123	Bottom	180
5	C5	47.816	162.03	Bottom	90
6	C7	16.472	163.681	Bottom	180
7	C8	16.472	158.068	Bottom	180
8	C13	4.61	132.744	Bottom	180
9	C14	10.224	132.744	Bottom	0
10	C15	34.354	15.955	Bottom	180
11	C16	9.131	112.932	Bottom	0
12	C17	22.492	136.859	Bottom	270
13	C18	25.235	136.859	Bottom	270
14	C19	24.359	124.562	Bottom	180
15	C20	25.87	128.213	Bottom	180
16	C21	34.582	143.513	Bottom	90
17	C22	48.247	143.488	Bottom	90
18	C23	52.515	123.143	Bottom	0
19	C24	33.287	118.012	Bottom	270
20	C25	16.116	34.801	Bottom	270
21	C26	56.325	48.263	Bottom	180
22	C27	56.299	51.108	Bottom	180
23	C28	15.164	107.061	Bottom	0
24	C29	9.449	101.448	Bottom	180
25	C30	18.631	89.996	Bottom	270
26	C33	24.905	18.723	Bottom	0
27	C34	15.735	30.204	Bottom	180
28	C47	68.58	9.576	Bottom	270
29	C48	75.197	18.139	Bottom	0
30	C49	44.867	18.647	Bottom	180
31	C50	49.06	26.115	Bottom	180
32	C51	69.787	27.613	Bottom	0
33	C52	70.701	24.718	Bottom	0
34	C53	48.552	172.927	Bottom	270
35	C52	14.948	81.953	Bottom	0
36	C54	14.338	83.665	Bottom	270
37	CN2	9.893	158.296	Bottom	90
38	CN5	72.517	66.446	Bottom	0
39	CN6	26.712	156.772	Top	90
40	CN8	32.087	6.35	Bottom	0
41	CN10	6.35	61.906	Bottom	270
42	CN11	6.35	36.004	Bottom	270
43	CN12	61.967	44.258	Bottom	270
44	CN13	56.118	6.35	Bottom	0
45	CN14	15.773	172.696	Bottom	270
46	CN15	6.35	14.802	Bottom	270
47	CN16	14.805	6.35	Bottom	0
48	CN1CD1	39.84	129.175	Top	90
49	D2	31.229	100.333	Bottom	180
50	D3	31.255	94.695	Bottom	180
51	L2	40.17	179.404	Bottom	180
52	L3	16.472	166.424	Bottom	180
53	L5	27.861	139.294	Top	180
54	L6	34.354	13.186	Bottom	180
55	L7	13.348	34.801	Bottom	270
56	LED1	0	0	None	0
57	LED2	6.21	71.073	Bottom	90
58	PCB1	-528.545	-357.448	Top	0
59	C3	60.465	148.035	Bottom	180
60	C4	65.24	144.834	Bottom	90
61	R6	40.221	173.917	Bottom	0
62	R7	40.272	165.586	Bottom	0
63	R9	47.816	157.534	Bottom	90
64	R10	40.272	168.355	Bottom	0
65	R12	36.335	167.415	Bottom	270
66	R18	16.472	155.274	Bottom	0
67	R19	16.472	160.836	Bottom	180
68	R25	24.905	13.211	Bottom	0
69	R31	35.852	32.287	Bottom	180
70	R32	35.852	35.03	Bottom	180
71	R33	14.796	132.744	Bottom	0
72	R35	31.471	103.149	Bottom	180
73	R36	24.905	15.955	Bottom	180
74	R38	9.131	110.036	Bottom	0
75	R40	28.029	136.859	Bottom	270
76	R41	14.173	51.384	Bottom	270
77	R42	35.852	21.314	Bottom	180
78	R43	35.852	24.057	Bottom	180
79	R44	35.852	26.8	Bottom	180
80	R45	35.852	29.544	Bottom	180
81	R46	65.799	148.619	Bottom	180
82	R47	11.9	13.796	Bottom	90
83	R48	30.467	97.514	Bottom	180
84	R49	60.465	144.275	Bottom	180
85	R50	15.812	13.796	Bottom	270
86	R51	68.898	59.236	Bottom	0
87	R52	5.448	33.163	Bottom	180
88	R53	54.21	152.414	Bottom	90
89	R54	14.897	22.076	Bottom	270
90	R55	66.343	118.297	Bottom	0
91	R56	66.191	128.864	Bottom	0
92	R57	66.419	139.125	Bottom	0
93	R58	56.217	42.763	Bottom	90
94	R59	56.636	56.507	Bottom	270
95	R60	56.183	36.484	Bottom	0
96	R61	14.897	26.521	Bottom	270
97	R62	47.485	143.488	Top	90
98	R65	35.116	118.012	Top	270
99	R66	17.75	136.452	Top	180
100	R67	70.726	18.139	Bottom	180
101	R68	49.136	18.622	Bottom	180
102	R69	72.835	14.532	Bottom	180
103	R70	47.003	15.015	Bottom	0
104	R71	50.076	32.414	Bottom	180
105	R72	50.076	29.645	Bottom	180
106	R73	49.06	23.346	Bottom	0
107	R74	70.701	21.974	Bottom	180
108	R75	48.552	168.431	Bottom	90
109	R77	18.212	50.597	Bottom	270
110	R79	17.272	63.932	Bottom	270
111	SC1	0	0	None	0
112	SC2	0	0	None	0
113	SC3	0	0	None	0
114	SC4	0	0	None	0
115	SC5	0	0	None	0
116	SC6	0	0	None	0
117	SC7	0	0	None	0
118	SC8	0	0	None	0
119	SP1	-528.545	-357.448	Top	0
120	SP2	-528.545	-357.448	Top	0
121	SP3	-528.545	-357.448	Top	0
122	SP4	-528.545	-357.448	Top	0
123	U1	54.445	159.109	Bottom	90
124	U2	40.272	130.89	Bottom	0
125	U3	25.794	30.534	Bottom	270
126	U5	16.675	97.813	Bottom	90
127	U7	59.728	20.247	Bottom	180
128	U8	55.436	170.056	Bottom	90
129	X2	9.614	128.604	Bottom	0

PROPRIETARY AND CONFIDENTIAL.
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FETCO.
ANY REPRODUCTION IN PART OR AS WHOLE WITHOUT THE WRITTEN PERMISSION OF FETCO IS PROHIBITED.

TOLERANCES		FETCO DRIVEN TO INNOVATION FOOD EQUIPMENT TECHNOLOGIES COMPANY, INC. Adamowicz 8, 05-530 Gora Kalwaria, POLAND PHONE: +48 22 7274787 FAX: +48 22 7274788 E-MAIL: engineering@fetco.com www.fetco.com	
UNLESS OTHERWISE SPECIFIED		DRAWING NAME: Assembly PCB; CBS-2100	
ALL DIMENSIONS ARE IN METRIC		CBS-2100Psb00c	
ALL DECIMAL $\pm .005$ ANGULAR $\pm 1/2$ FIRST-ANGLE 	CREATED BY:	DATE	DRAWING NO
	CHK'D BY:	SCALE	
	APP'D BY:	SCALE: 1.00	1051.00020.00_1
		VARIANT	
	Valve_Machine	REVISION	B.2
SHEET NAME AND NUMBER		Assembly Parts Locations - Sheet 2 of 4	

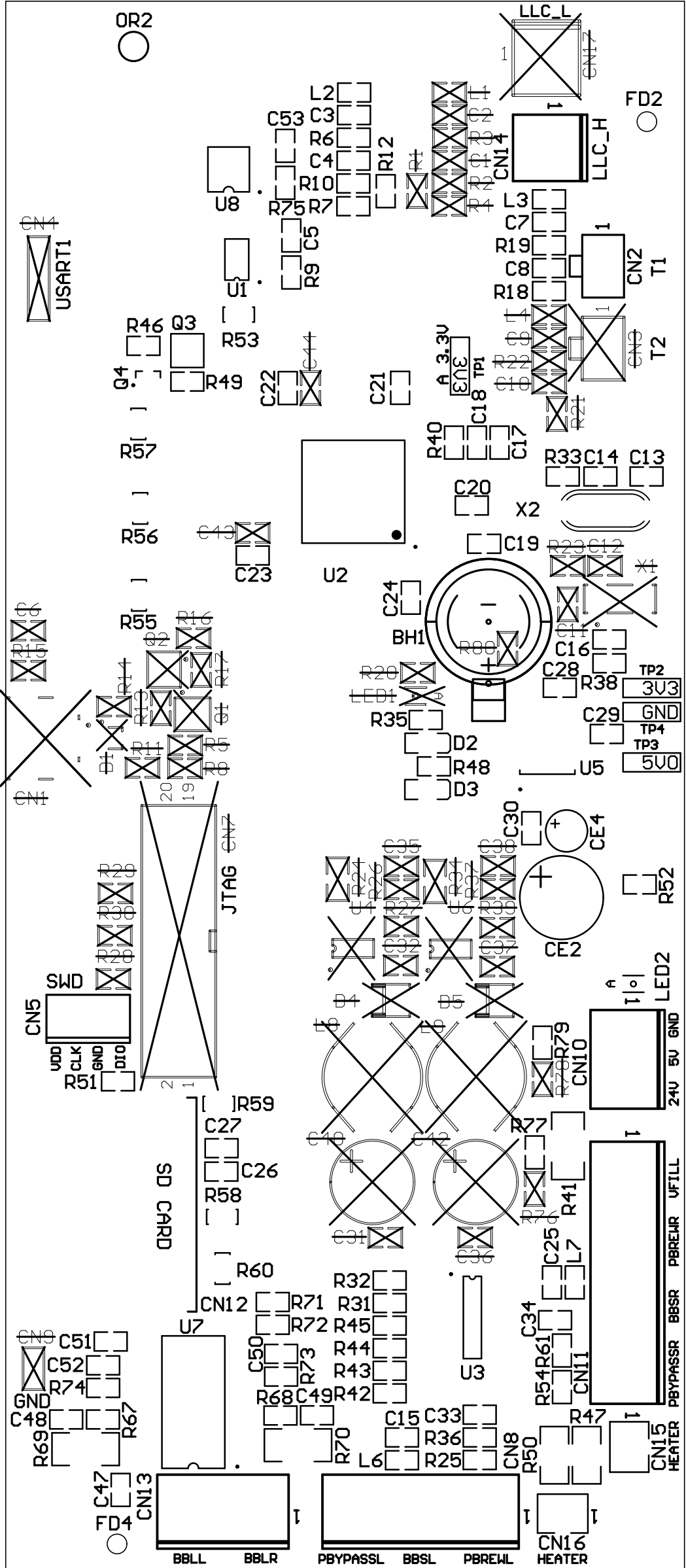


LAYER NAME: Top Assembly Drawing – Sheet 3 of 4
PLOT FILE: Top Assembly Drawing – Sheet 3 of 4

PROPRIETARY AND CONFIDENTIAL.
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FETCO.
ANY REPRODUCTION IN PART OR AS WHOLE WITHOUT THE WRITTEN PERMISSION OF FETCO IS PROHIBITED.

TOLERANCES UNLESS OTHERWISE SPECIFIED		FETCO DRIVEN TO INNOVATION FOOD EQUIPMENT TECHNOLOGIES COMPANY, INC. Adamowicza 8, 05-530 Gora Kaluaria, POLAND PHONE: +48 22 7274787 FAX: +48 22 7274788 E-MAIL: engineering@fetco.com www.fetco.com	
ALL DIMENSIONS ARE IN METRIC		DRAWING NAME: Assembly PCB; CBS-2100	
ALL DECIMAL +/- .005 ANGULAR +/- 1/2° FIRST-ANGLE 	CBS-2100.PcbDoc		
	CREATED BY: S.Blicharz	DATE 2016-09-05	DRAWING NO 1051.00020.00_1
	CHK'D BY:	SCALE SCALE: 1.00	
	APP'D BY:	VARIANT Valve_Machine	
			REVISION B.2
SHEET NAME AND NUMBER		Top Assembly Drawing - Sheet 3 of 4	

PROPRIETARY AND CONFIDENTIAL.
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FETCO.
ANY REPRODUCTION IN PART OR AS WHOLE WITHOUT THE WRITTEN PERMISSION OF FETCO IS PROHIBITED.



Bottom Assembly Drawing (Mirror) – Sheet 4 of 4

TOLERANCES UNLESS OTHERWISE SPECIFIED		FETCO DRIVEN TO INNOVATION FOOD EQUIPMENT TECHNOLOGIES COMPANY, INC. Adamowicza 8, 05-530 Gora Kalwaria, POLAND PHONE: +48 22 7274787 FAX: +48 22 7274788 E-MAIL: engineering@fetco.com www.fetco.com	
ALL DIMENSIONS ARE IN METRIC		DRAWING NAME: Assembly PCB; CBS-2100	
ALL DECIMAL $\pm .005$ ANGULAR $\pm 1/2$ FIRST-ANGLE 	CREATED BY: S.Blicharz		DATE 2016-09-05
	CHK'D BY:		DRAWING NO 1051.00020.00_1
	APP'D BY:		
		SCALE 1.00	
		VARIANT Valve_Machine	REVISION B.2
SHEET NAME AND NUMBER		Bottom Assembly Drawing - Sheet 4 of 4	