

Item	Component name	Description	Quantity	Unit Cost (£)	Total Cost (£)	Details
1	Gastro Plate	3D printed base plate which attached to the gastronorm	1	0.96	0.96	<a href="#">Thingiverse</a>
2	Main Body	3D printed housing that slots onto the gastro plate and houses the electronic and pipe fastening	1	1.35	1.35	<a href="#">Thingiverse</a>
3	Face Plate	3D printed plate that houses the screen, proximity sensor and LED	1	0.22	0.22	<a href="#">Thingiverse</a>
4	Rotary Dial	3D printed dial for the rotary encoder	1	0.12	0.12	<a href="#">Thingiverse</a>
5	22mm Fitting	Straight compression fitting which attaches the copper pipe to the body	1	3.65	3.65	<a href="#">Screwfix</a>
6	22mm 90 Bend	Solder fitting for 22mm pipe	2	1.35	2.69	<a href="#">Screwfix</a>
7	125x22mm pipe	British made copper pipe, cut using hacksaw or other means for vertical part	1	0.75	0.75	<a href="#">Screwfix</a>
8	45x22mm pipe	British made copper pipe, cut using hacksaw or other means for horizontal part	1	0.25	0.25	<a href="#">Screwfix</a>
9	End Cap	3D printed end cap to hold pvc tubing in centre of copper pipe	1	0.05	0.05	<a href="#">Thingiverse</a>
10	Keg	Stainless steel	1	17.99	17.99	<a href="#">Brew Sply</a>
11	6mm Tubing	Standard coffee machine pump tube size, so can be sourced from a coffee machine service engineer.	3m	0.35	1.05	<a href="#">Brew Sply</a>
12	12v Pump	2.8l/min water pump (can be substituted for something else) as its controlled by a relay	1	67.09	67.09	<a href="#">RS Comp.</a>
13	Tubing Insulation x 3m	Foam 8mm ID insulating tubing for the 6mm ID 8mm OD pVC/Silicone tubing	1	1.55	4.65	<a href="#">Snc &amp; Rsh</a>
14	Non-Return Valve	SMC (or similar) food Grade non return valve for 6mm tubing 0.005MPa Cracking Pressure	1	3.89	3.59	<a href="#">RS Comp.</a>
15	M4 Socket Head Screws	Screws for mounting the face plate to the	4	0.06	0.24	<a href="#">HWStore</a>
16	Electronic Kit	As in Electronics BOM	1			<a href="#">Elec. BOM</a>
17	1/9 Gastronorm	1/9 HDPE Gastronorm or equivalent	1	3.22	3.22	<a href="#">Nisbets</a>

**Total = £98.79 without Keg**

All of these components are suggestions. Due to the adaptability of the design, these can be substituted however the design may not work as intended.



## BOM - Electronics Bill of Materials

Item	Component name	Description	Quantity	Unit Cost (£)	Total Cost (£)	Details
1	ATMEGS328P-U	Microcontroller	1	3.56	3.56	<a href="#">Elec.</a>
2	Optolsolator	PC817 Optolsolator	1	0.40	0.40	<a href="#">RS Comp.</a>
3	Proximity Switch	4mm m12 Proximity Switch	1	3.65	3.65	<a href="#">RS Comp.</a>
4	10 NanoFarad Capacitor	Ceramic Capacitor SLCC 10nF	4	0.196	0.196	<a href="#">RS Comp.</a>
5	10k Resistor	10k Resistor	4	0.05	0.2	<a href="#">RS Comp.</a>
6	220 Resistor	10k Resistor	3	0.05	0.15	<a href="#">RS Comp.</a>
7	120 Resistor	10k Resistor	1	0.05	0.05	<a href="#">RS Comp.</a>
8	110 Resistor	10k Resistor	1	0.05	0.05	<a href="#">RS Comp.</a>
9	Relay	TE Connectivity DPDT PCB Mount Latching Relay	1	2.89	2.89	<a href="#">RS Comp</a>
10	Buck Converter	Step-Down Switching Regulator, 1-Channel 3A Adjustable 5-Pin,	1	4.40	4.40	<a href="#">RS Comp</a>
11	Power Connector	RS PRO PCB Mount DC Power Socket 2A	1	3.70	3.70	<a href="#">RS Comp</a>
12	12V 2A power supply	XP Power, 24W Plug In Power Supply 12V dc, 2A,	1	12.07	12.07	<a href="#">RS Comp</a>

**Total Cost for Electronic components - £31.32**

**Total Cost for all Parts - £130.10**

All of these components are suggestions. Due to the adaptability of the design, these can be substituted however the design may not work as intended.