SYSTEM 4C

Case installation guide

C R H Electronics Design

SYSTEM 4C
Installation guide
By C R Harding

The System4C board was specifically designed to fit this stylish enclosure so a complete compact self contained two to four axis CNC system can be produced.
Unlike most other boards the front edge of the board has only LED's on show with input connections transferred to a second pcb that can be mounted at the rear. Thus giving an uncluttered front panel and all necessary input/output connections out of sight at the rear of the case. The case itself is steel, made in six parts, a top, bottom, two sides plus front and back aluminium panels. A steel baseplate forms the main part of the installation kit. This is made from 1.5mm steel with a grey powder coat finish. The plate is pre-drilled for fitting the power supply, fixing the System4CE motherboard, cooling fan and fixture to the enclosure. The System motherboard holes and enclosure fixing holes are pre drilled to 2.5mm and will need tapping out with a M3 thread. The power supply has threaded inserts and can simply be bolted down with M4 screws. The fan is fixed with four 4mm nuts and bolts with the fan label upwards. The fan draws air up from the base of the case and blows out through the sides and lid. The pre punched holes in the base of the case will be position so they are underneath the fan mounting. The lid pre punched holes are however placed at the opposite end of the enclosure above the motherboard. This allows the cool air to pass over the driver boards more effectively.
Figures 1 & 2 show the necessary cut-outs and holes for the front and back panels. The drawings naturally show the full four axis system layout on the rear panel. You can however omit the A or Z holes for XLR drive axis outputs if you are only building a two or three axis system. You may have alternative motor connectors already available and you may alter the panel layout to suit your own needs. The mains connector is supplied pre wired as it is understandable that some engineers don't like messing with electricity, especially high voltages. There are two earth wires on the socket. One runs with the brown, live and blue, neutral mains connections and must be connected on the power supply earth terminal. The other is a short earth lead with a solder tag. This is bolted to the back panel just above the mains connectors and is fastened with a 3mm nut and bolt with a star washer between the tag and the metalwork. This should be well tightened so that the star washer cuts through the paint and into the metal.
The motherboard is fixed into position with four 16mm screws with 10mm spacers between the board and the base plate Fig8 . The LED's hang over the edge of the motherboard and by sliding the base plate in the slots of the case can be positioned perfectly with the front panel. The base plate is positioned on top of the side supports and the fixing screws tightened from underside. The fan cable runs along the side of the case and connected to the GND and 12V terminals, black GND and Red 12V. The kit contains a short red and black cable used between the output of the power supply and the power terminals of the System4CE board. The 350 watt power supplies have three ground and three positive terminals and any pair can be used to power the board. Fig 3 shows these power connections and also the mains connections from the power socket. Fig 4 gives an idea of how to fold the parallel connecting cable so it also runs around the side of the case to the back panel. Also shown is the two wires from the fan connected to the black terminal block. Pictures of Fig 5 & 6 show a completely wired 3 axis system including the XLR cables to each driver board from the back panel Fig7. The parallel board mounted at the rear is fixed by the two screw lugs fitted to the socket. The XLR connectors are quite tight when new but free up after a few insertions. They click into position when pushed fully home and the lever on the socket allows the plugs to be released when pressed. The transfers supplied with the kit are transparent self adhesive. Just peel from the backing paper and press firmly into position. The front label needs to be aligned so that the text matches the led's. It may help to draw a pencil line just above led's to help in placing the label straight before hand.

Fig1

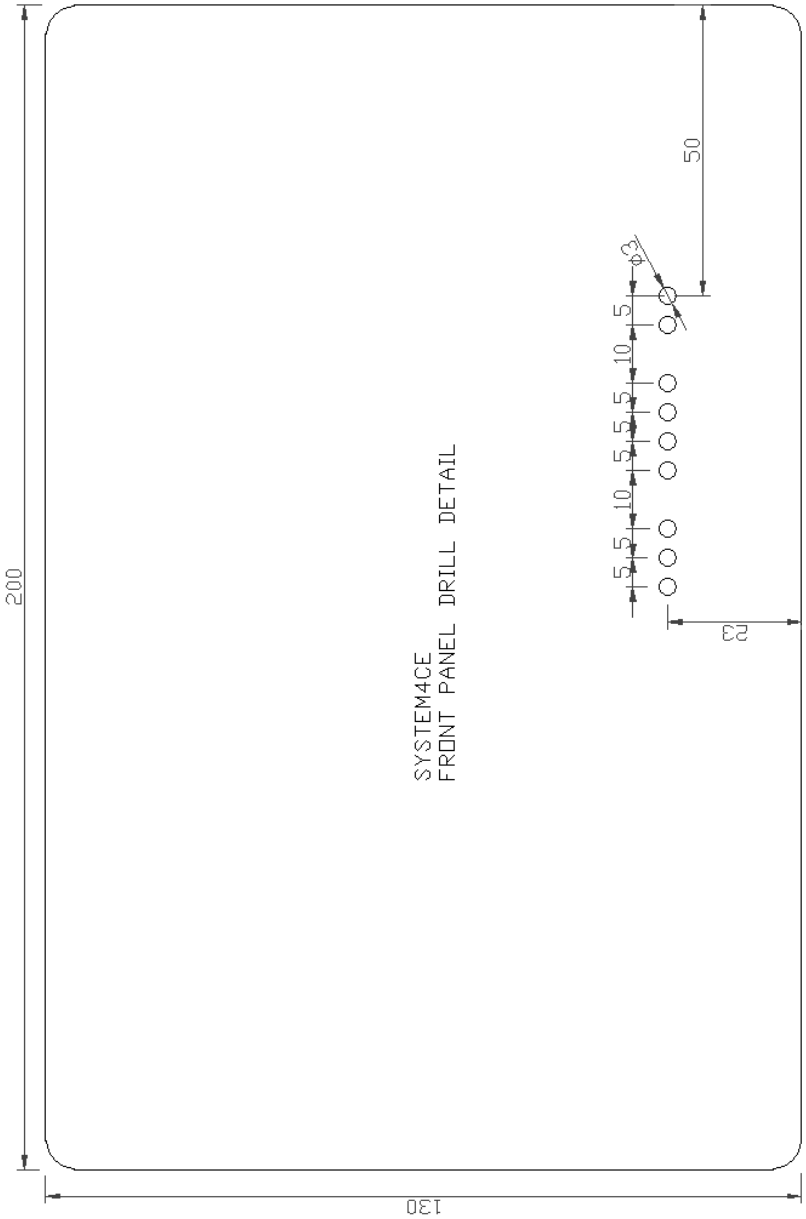

SYSTEM4CE
FRONT PANEL DRILL DETAIL
200
130
50
23
φ3
5
10
5
5
5
10
5
5

Fig2

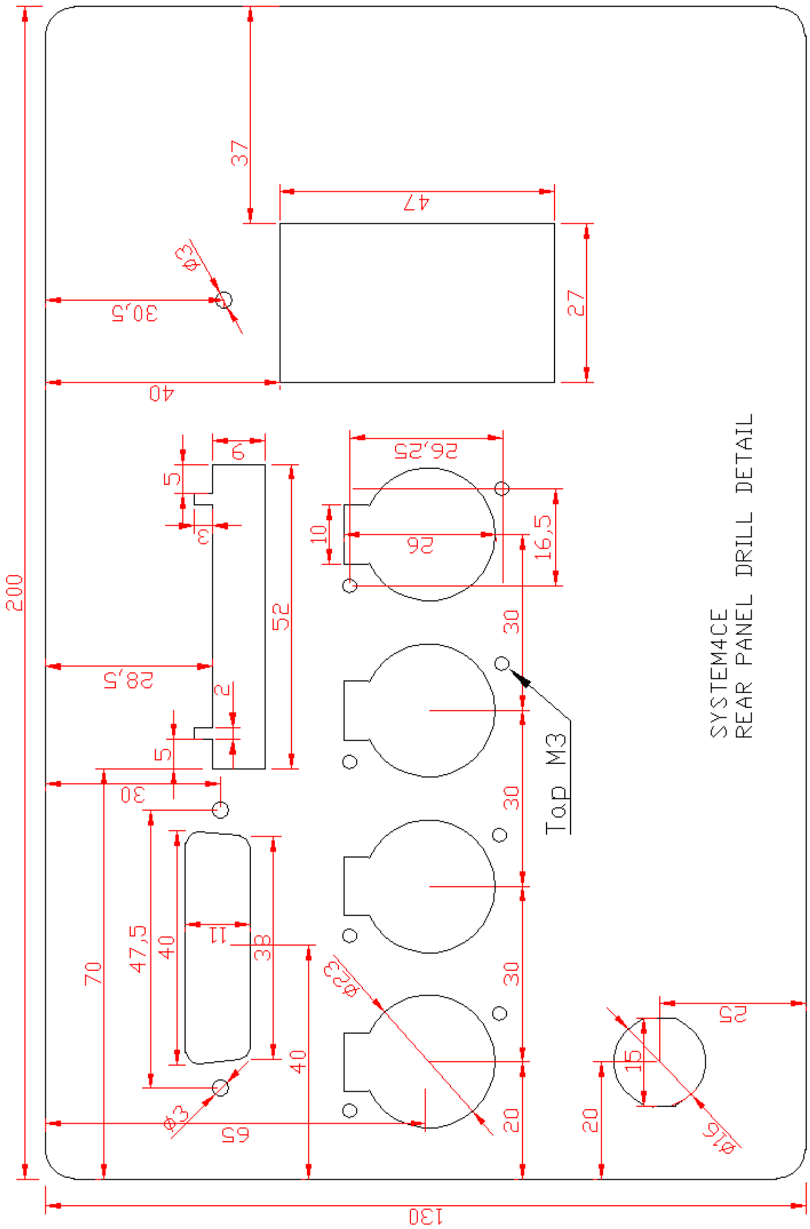

SYSTEM4CE
REAR PANEL DRILL DETAIL
Tap M3
200
130
37
47
27
40
30,5
φ3
26,25
26
10
16,5
6
5
3
52
28,5
2
5
30
47,5
40
11
38
70
40
φ23
30
30
30
20
65
φ3
20
15
25
φ16

Fig3

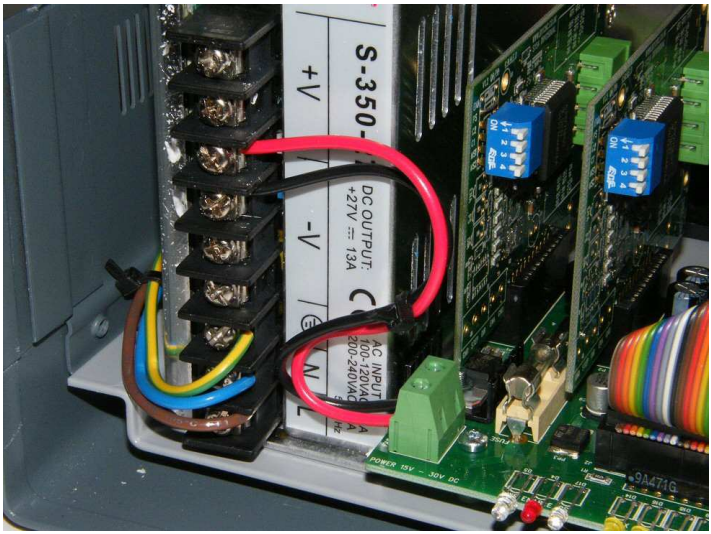

S-350-
+V
-V
DC OUTPUT:
+27V 13A
AC INPUT
100-120VAC
200-240VAC
N
L
POWER 15V ~ 30V DC

Fig4


S-350-27
+V
-V
N
L

Fig5

Fig6

Fig7

The back panel label shows the positions of the input connections, the axis outputs and pin positions for motor connection.

Manual V1.0 Nov 10

Parts list

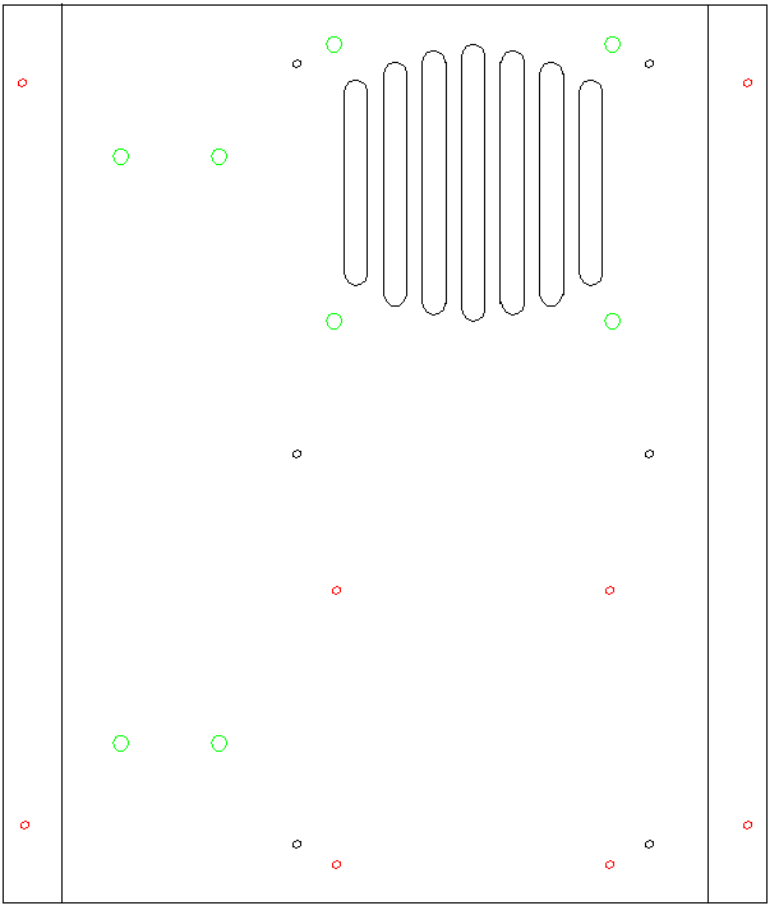
Steel base plate
Pre-wired mains, IEC switched socket
80mm 12V Fan
4 off, 10mm plastic spacers
4 off M3 X 16mm screws
8 off M4 X 10mm screws
4 off M4 Nuts
5 off M3 X 6mm screws
M3 star washer and M3 nut
100mm red/black wire

Contact Details

J Harding, 5 Colwyn Drive, Knypersley, Stoke-on-Trent. ST8 7BJ England

Website WWW.DIYCNC.CO.UK
E-mail roy@diycnc.co.uk

Fig8



Holes in red are 2.5mm and are tapped M3. These are used for securing into case and mounting System4CE motherboard. Holes in green are 4mm for bolting power supply and fan.

XLR connector cable wiring to DRV25mod boards

Pin 1 Grey lead to 1A
Pin 2 Yellow lead to 1B
Pin 3 White lead to 2A
Pin 4 Orange lead to 2B