

DTS-100

Mounting Instructions

Release Management

This manual applies to:

- Module DTS 100mm
- Turntable Fleischmann 6052(C), 6152(C), 6652 (Märklin)

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1 Getting Started

1.1 Introduction

The manual of the DinaSys DTC turntable controller describes how the DTS sensor module can be mounted using aluminum auxiliary profiles, bolts and compression springs.

The mounting as described in this manual assumes mounting on plastic blocks. The advantages of this method are that it requires less space around the turntable and that, once implemented, it is a rock-solid installation that cannot be moved out of position by shocks and impacts. The downside to this method is that you have to work accurately for it to fit properly. This manual will help you with that.

The method described here only applies to the DTS-100 module. A different manual is available for the DTS-75. Its installation is simpler and requires even less space.

1.2 In the Package

In the package you find the following items:

2x	Extension plate DTS-100	A
4x	Set mounting blocks	B
4x	Locking plate with washer	E
4x	Hexagonal bolt M4 x 25	C
8x	Hexagonal bolt M4 x 12	C
8x	Nut M4	C
4x	Wingnut M4	C
12x	Washer M4	C
8x	Countersunk screw 2,4 x 12	D
8x	Countersunk screw 2,4 x 16	D
1x	Template (2 parts)	

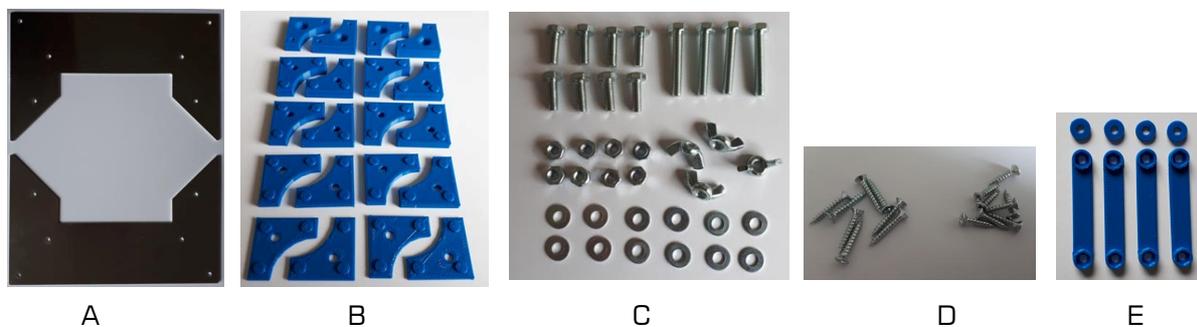


Figure 1: Parts in the mounting package

1.3 Further supplies

- Screwdriver PZ1
- Spanner or socket wrench 7mm. A small flat-nose or combination pliers may also suffice, but are less handy.
- Some tape and (handy:) thumbtacks.
- In some cases: Drilling machine with drills 1.5mm, 4.0mm, 4.5mm en 5.0mm

2 Preparation

The intention is that the DTS is mounted as centered as possible and as close as possible to the bottom of the turntable. The bottom of the turntable is not completely flat, so an exact size is difficult to give, but the highest desired position is that the DTS just does not touch the bottom, the lowest desired position is approx. 2mm lower.

This mounting method uses modular mounting blocks that click together and thus create the correct distance. A set of blocks consists of a base block and filler blocks of 6mm, 4.5mm, 3mm and 1.5mm. Which set of blocks you need depends on the thickness of the table top in which the pit is mounted and can easily be determined with the table below. Note: The starting point is the total thickness of the table top, including any padding material on the top (cardboard, cork) on which the edge of the turntable rests.

Total thickness tabletop (including padding)	Blocks to use
8,5- 9,9 mm	Base + 6 + 4,5 + 3
10,0- 11,4 mm	Base + 6 + 4,5 + 1,5
11,5- 12,9 mm	Base + 6 + 4,5
13,0- 14,4 mm	Base + 6 + 3
14,5- 15,9 mm	Base + 6 + 1,5
16,0- 17,4 mm	Base + 6
17,5- 18,9 mm	Base + 4,5
19,0- 20,4 mm	Base + 3
20,5- 21,9 mm	Base + 1,5
22,0- 23,4 mm	Base
23,5- 24,9 mm	LPbase + 1,5 ¹
25,0- 26,4 mm	LPbase ¹

Table 1: Filler blocks selection depending on the thickness of the table

Mount the M4 x 25 hexagon bolts in the base blocks. You will see a hexagonal recess on one side of the block. The intention is that the head of the hexagon bolt falls into this. However, the recess is quite tight to ensure that the bolt is properly tightened. It is best to proceed as follows: Insert the bolt from the side with the recess through the hole. Place an M4 (metal) washer on the other side of the bolt and screw one of the wing nuts on it. Make sure that the hex head of the bolt aligns as good as possible with the recess in the block. By then turning the wing nut you pull the head of the bolt into the recess. Remove wing nut and washer and repeat for the three other blocks.

Important: The washer under the wing nut is essential to ensure that you do not damage the plastic!



Figure 2: Install hexagon bolt in base block

¹ A special "low profile" base block is available for thicknesses greater than 23.5mm. This is not included as standard, so please indicate when ordering if necessary.

Select the filler blocks you need. The order in which you stack them is not important, only the 1.5mm, if you use it, should always be last. Check whether the set of blocks you are going to use fits well over the bolt. It may have a bit of resistance, but sometimes there is too much plastic in the opening. You can remove the excess with a 4mm drill. Usually this is fine by holding the drill in your hand. Otherwise, use a machine if necessary.

Mount the M4 x 12 hexagon bolts in the locking plates. There are 2 bolts in each plate. The method is actually identical to that of the basic blocks. Bolt through the hole, metal washer and wing nut on it. Align and tighten the head properly.



Fig. 3: Hexagon bolts in locking plate

Place a (blue) washer over one of the bolts at each lock plate.

Now attach the extension plates to the DTS-100 module. Take 2 locking plates with bolts and washer, 4 washers M4, 2 nuts M4 and 2 wing nuts. Place one of the extension plates on one side of the DTS, the side where the connectors are, and insert the bolt of the locking plate that does **not** have a washer through the slot in the DTS-100 and through the extension plate. The other bolt (with washer) comes through the (only fitting) other hole in the plate. On the bolt that goes through the DTS you put a washer and wing nut, on the other bolt you put a washer and normal nut. Hand tighten.



Figure 4: Use of locking plate

Repeat the process for the second extension plate. The result should be as below:

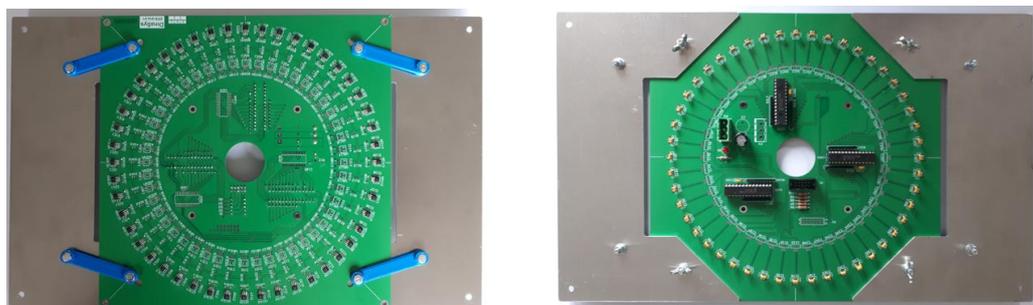


Figure 5: Extension plates attached to DTS (top left view, bottom right view)

Align the extension plates on the DTS. The easiest way to do this is to place the whole unit upright on a flat table and loosen the wing nuts and then tighten it again.

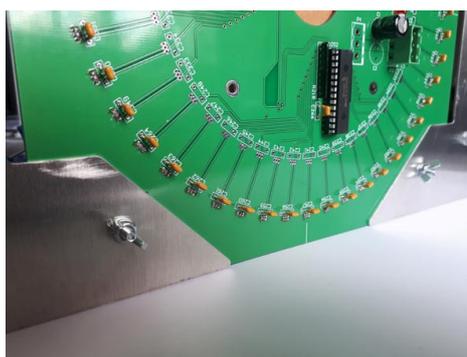


Figure 6: Align DTS and extension plates

3 Mounting

We are now going to mount the blocks against the bottom of the table. It is essential that you work very accurately and therefore it is also essential that you use the supplied template. If the turntable has not yet been placed and the hole has not yet been cut, it is best to mount the turntable first. You can then position the DTS more accurately and you immediately can check that the height is correct. The turntable does not need to be disassembled for this.

The template consists of two A3 sheets. The intention is that you cut the hole of the turntable from part 1 of the template, but if you did that just like that, you would be left with two loose halves. You only need the two edges of part 2 of the template. Cut the edges of part 2 at the dotted line. Then attach these borders to part 1 of the template. Stick tightly with adhesive tape and put the adhesive tape on both the front and back so that it does not come off or slide. It is best **not to use glue**, as this can damp the paper and cause it to stretch or distort.

Then cut out the contour of the turntable from the center.

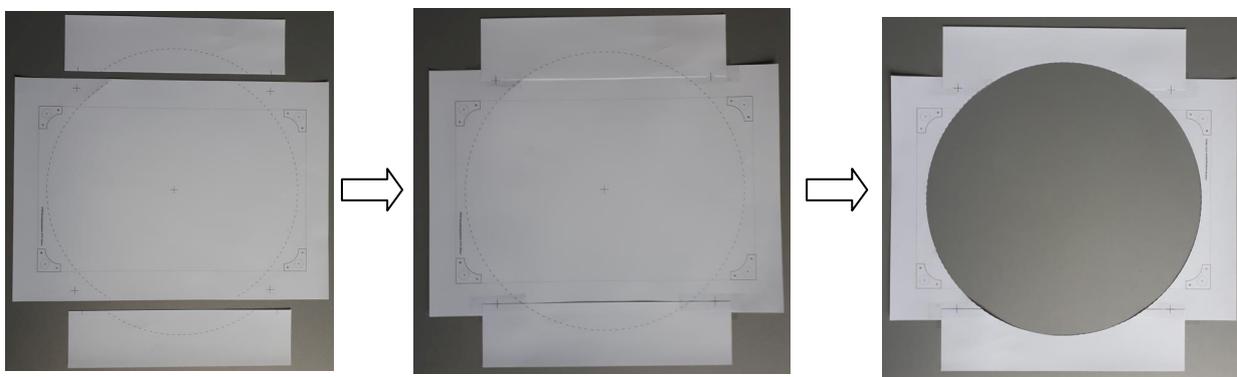


Figure 7: Template preparation

Place the cut out template over the turntable. The angle in which you mount the DTS and place the template is not essential. It is nice to place the DTS exactly in line with one of the main tracks, but the DTS will soon be 15 degrees rotatable, so any position works. If you have the luxury that you can put your table upright or turn it over, it is easy and you hardly have to fix anything. If you have to work upside down, you have a little more challenge. Make sure the template is as flat against the table as possible. Use masking tape to secure the template to the edge and a few thumbtacks around the edge of the turntable to prevent sag.

Two lengths of screws are supplied for mounting the base blocks. For thin table tops you will have to use the short ones, otherwise they will come out at the top. If desired, you can take the longer ones for thicker tables.



Mount the base blocks as precisely as possible at the location indicated by the template, but only screw them to the mounting point marked in red. So you **don't put the second screw** in yet. Tighten the first screw so that the block clamps well but you can still turn it with some force. Do this for all 4 blocks.²

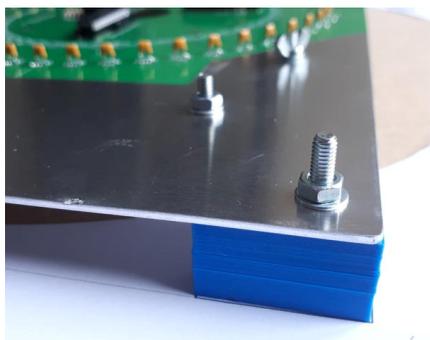
Figure 8: Mount the mounting block on the template. Only put in the screw in the red marked hole!

² If the surface is very hard, you may need to pre-drill. Make a centering point with a screw and then pre-drill with 1.5mm. You can also pre-drill at the (red) marked spot on the template, but experience shows that this causes deviations more quickly.

Now take the DTS with extension plates and place it over the 4 bolts of the base blocks. You don't have to put the filler blocks on it yet. It should fit, or almost. If it doesn't fit right away, you can turn the base blocks a few degrees to the left or right. It also helps to loosen the wing nuts slightly so that the extension plates can turn slightly relative to the DTS. If you can get the 4 bolts through and you have to work upside down, put a nut on it loosely to make sure it doesn't fall off. Then turn the nuts until the DTS almost touches the bottom of the pit (so roughly as it will be later on). When you have turned the blocks, try to turn them back, as much as possible to the original position. It is easiest if the four wing nuts are not tight and the whole thing can turn a little. It is a matter of some trying, but in the end you should be able to get all the blocks (almost) back to their original position. Check that in that position of the blocks the DTS can rotate left and right with respect to the extension plates. You may feel some resistance, but it should not be extremely hard.

Now tighten the 4 wing nuts by hand, unscrew the nuts from the bolts of the mounting blocks and remove the DTS with extension plates from the blocks. Make sure that the blocks do not turn anymore. Now finally secure the blocks with the other 4 screws.

You can now remove the template. You can cut the template around the blocks. If you also want to remove the template from under the block, you can unscrew the block and then put it back again. After all, the holes where the block should be are already there.



Now place the necessary filler blocks on the base blocks and mount the DTS with extension plates. Put 4 washers and nuts on it. Tighten the nuts "handtight" using a spanner or socket wrench. If you loosen the 4 wing nuts you should be able to rotate the DTS 15 degrees left and right.

Figure 10: Mounted DTS



Figure 9: Insert second screw

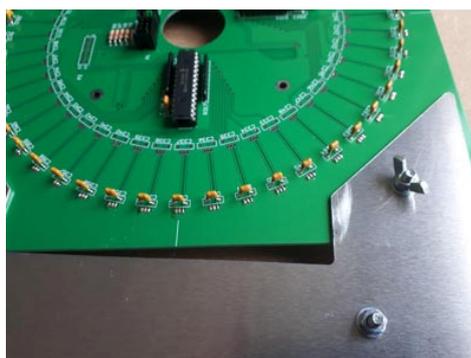


Figure 11: Rotate DTS right/left

If you can't get the 4 bolts through the extension plates, then the blocks are not mounted accurately enough. You can then do two things:

- Remove the lot and make another attempt in a different position
- Drill the outer 4 holes of the DTS extension plates slightly to 4.5 or 5.0 mm, so that you have more leeway. That there may be more play is not a problem, because you clamp the plates on the blocks with the four nuts anyway and then the extension plates can no longer move.