# TECHNICAL PAPER

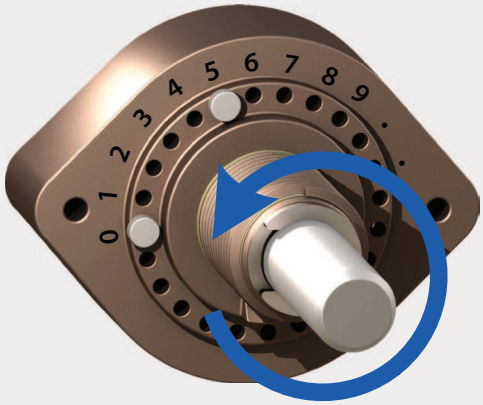
DACT
DANISH AUDIO CONNECT

## CT3 selector switch “re-programming”

The CT3 type of DACT selector switches can be mechanically “programmed” for different number of positions by simply moving one small stop-pin from one location to another.
In general we ship all switches with the stop-pin in the position, where the maximum number of switch positions are obtained.

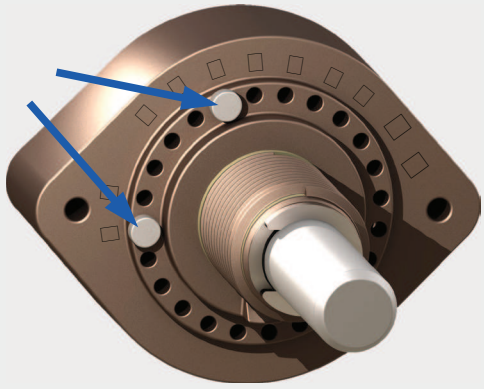
### STEP 1

Looking at the switch from the front side make sure to turn the shaft fully counter-clockwise until the end stop is reached. Failing to follow this step will possible render the switch unusable.



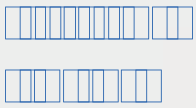

### STEP 2

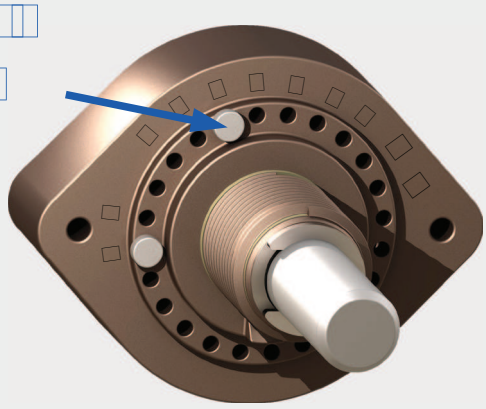
Identify the two stop pins (rivets) on the front side of the indexing mechanism.



### STEP 3a

Extract the clockwise-most rivet as shown. The small rivet does take a bit of force to remove. One way is using a small and sharp wire cutter. Make sure to get a good firm grip on the head of the rivet and squeeze out the rivet. The head of the rivet can be damaged quite easily so it is important to extract it in the first attempt.





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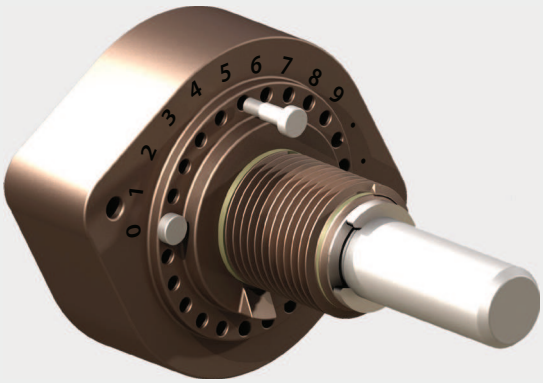
### STEP 3b

The small rivet does take a bit of force to remove. One way is using a small and sharp wire cutter. Make sure to get a good firm grip on the head of the rivet and squeeze out the rivet. The head of the rivet can be damaged quite easily so it is important to extract it in the first attempt.

### STEP 4

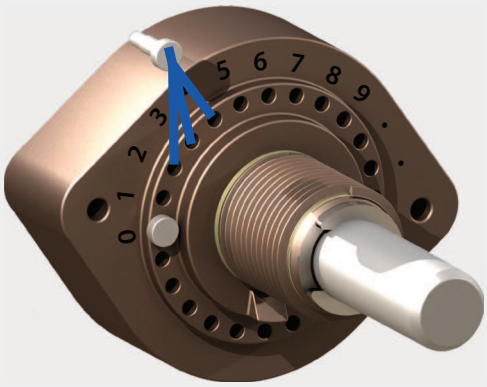
Rivet extracted.



### STEP 5

Insert the extracted rivet into one of the available positions moving it counter-clockwise. Moving it one position away from its original position will reduce the number of switch positions by one, and so on.

Placing the rivet back in another position is relatively easy, for instance by **carefully** squeezing or hammering it.



CT3 is a high quality Audio Selector Switch.
It is based on the same high precision, Swiss made switching mechanism as the DACT CT2 audio attenuators.
CT3 is a non-shorting type of switch making sure neither of the input sources will be short-circuiting each other when the switch is operated.
CT3-5-4/PCB switches two channels simultaneously. For both channels it switches signal AND ground. This is an effective way to minimize the risk of creating ground loops.
In the same way CT3-5-8/wire switches 8 poles.

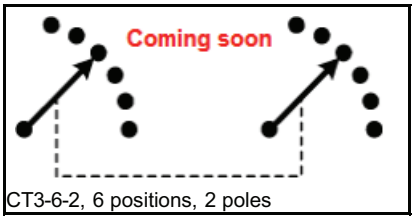
## FEATURES

- 2/4/8-pole switches 2/4/8 channels simultaneously
- Gold plated contacts for long lifetime even in hot and humid environments
- High reliability
- Matches perfectly with DACT CT2 audio attenuators
- Mechanically “programmable” for 1 to 3 or 5 or 6 postions

## TYPICAL APPLICATIONS

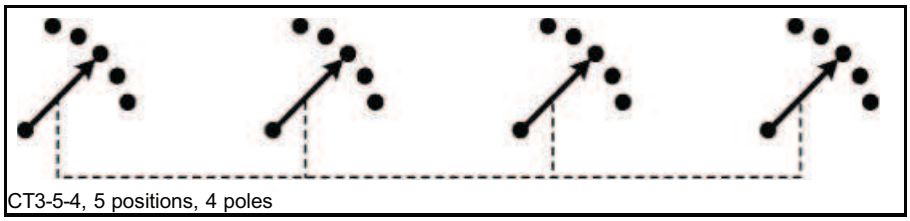
- Input selector in Do-It-Yourself Hi-Fi / audio projects
- Input selector switch in active or passive preamplifiers
- Selector switch in professional audio equipment
- Switch for long lifetime applications
- Test equipment selector switch

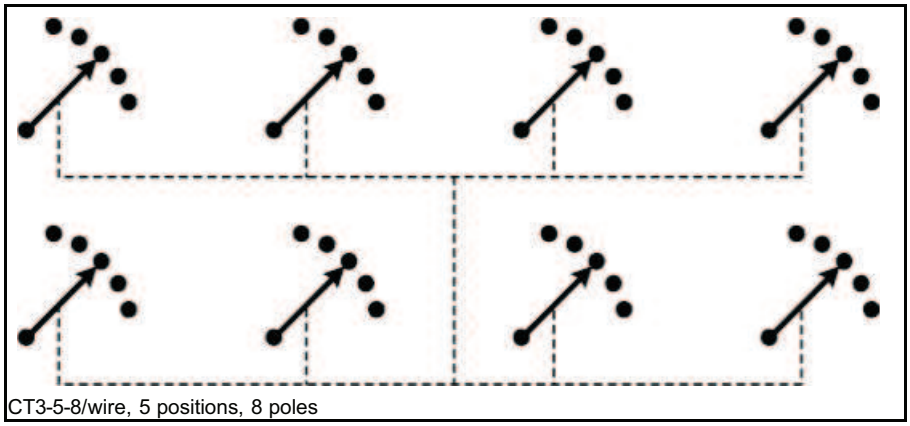
## PRINCIPLES OF OPERATION



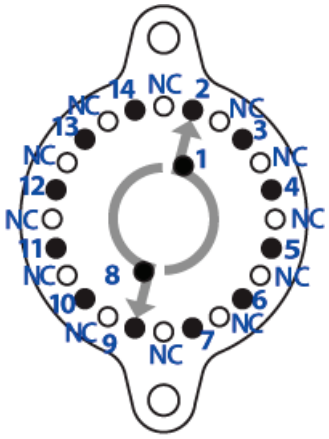
CT3-6-2, 6 positions, 2 poles

CT3-3-4, 3 positions, 4 poles


CT3-5-4, 5 positions, 4 poles


CT3-5-8/wire, 5 positions, 8 poles

## CONNECTIONS, CT3-6-2

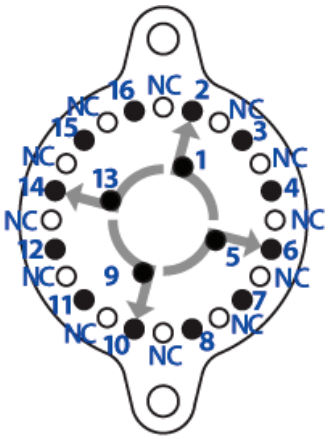



NC=Not Connected

Seen from the rear side (connector side)

| Pin no. | Connection - example only (input selector) |
|---|---|
| 1 | Output, channel 1, signal |
| 2 | Input, channel 1, signal, source 1 |
| 3 | Input, channel 1, signal, source 2 |
| 4 | Input, channel 1, signal, source 3 |
| 5 | Input, channel 1, signal, source 4 |
| 6 | Input, channel 1, signal, source 5 |
| 7 | Input, channel 1, signal, source 6 |
| 8 | Output, channel 2, signal |
| 9 | Input, channel 2, signal, source 1 |
| 10 | Input, channel 2, signal, source 2 |
| 11 | Input, channel 2, signal, source 3 |
| 12 | Input, channel 2, signal, source 4 |
| 13 | Input, channel 2, signal, source 5 |
| 14 | Input, channel 2, signal, source 6 |

## CONNECTIONS, CT3-3-4

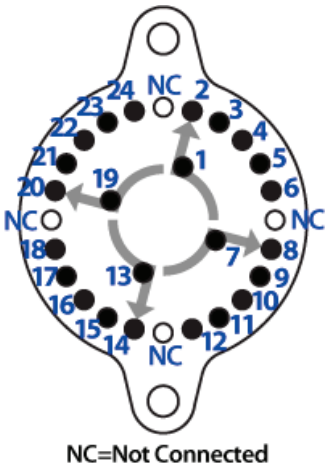



NC=Not Connected

Seen from the rear side (connector side)

| Pin no. | Connection - example only (input selector) |
|---|---|
| 1 | Output, channel 1, signal |
| 2 | Input, channel 1, signal, source 1 |
| 3 | Input, channel 1, signal, source 2 |
| 4 | Input, channel 1, signal, source 3 |
| 5 | Output, channel 1, ground |
| 6 | Input, channel 1, ground, source 1 |
| 7 | Input, channel 1, ground, source 2 |
| 8 | Input, channel 1, ground, source 3 |
| 9 | Output, channel 2, signal |
| 10 | Input, channel 2, signal, source 1 |
| 11 | Input, channel 2, signal, source 2 |
| 12 | Input, channel 2, signal, source 3 |
| 13 | Output, channel 2, ground |
| 14 | Input, channel 2, ground, source 1 |
| 15 | Input, channel 2, ground, source 2 |
| 16 | Input, channel 2, ground, source 3 |
| 17 | Input, channel 2, signal, source 4 |

## CONNECTIONS, CT3-5-4

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| Pin no. | Connection - example only (input selector) |
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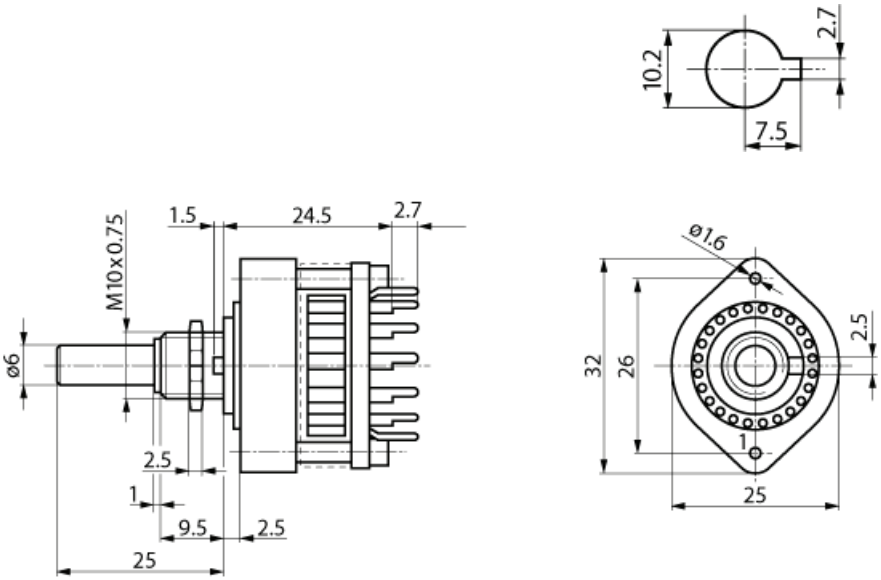
| 2 | Input, channel 1, signal, source 1 |
| 3 | Input, channel 1, signal, source 2 |
| 4 | Input, channel 1, signal, source 3 |
| 5 | Input, channel 1, signal, source 4 |
| 6 | Input, channel 1, signal, source 5 |
| 7 | Output, channel 1, ground |
| 8 | Input, channel 1, ground, source 1 |
| 9 | Input, channel 1, ground, source 2 |
| 10 | Input, channel 1, ground, source 3 |
| 11 | Input, channel 1, ground, source 4 |
| 12 | Input, channel 1, ground, source 5 |
| 13 | Output, channel 2, signal |
| 14 | Input, channel 2, signal, source 1 |
| 15 | Input, channel 2, signal, source 2 |
| 16 | Input, channel 2, signal, source 3 |
| 17 | Input, channel 2, signal, source 4 |
| 18 | Input, channel 2, signal, source 5 |
| 19 | Output, channel 2, ground |
| 20 | Input, channel 2, ground, source 1 |
| 21 | Input, channel 2, ground, source 2 |
| 22 | Input, channel 2, ground, source 3 |
| 23 | Input, channel 2, ground, source 4 |
| 24 | Input, channel 2, ground, source 5 |




## SPECIFICATIONS

### MAXIMUM RATINGS

| Note | Parameter | Conditions/comments | Value | Unit |
|---|---|---|---|---|
| 1 | Switching capacity | (resistive load) | 2V/2A<br>24V/0.6A<br>42V/0.4A | AC/DC |
| 1 | Operating ambient temp. range | | -25 to +70<br>(-13 to +158) | deg. C<br>(deg. F) |
| 1 | Storage temperature range | | -40 to +85<br>(-40 to 185) | deg. C<br>(deg. F) |
| 2 | Test voltage | (contact to contact)<br>(contact to earth) | 1,000<br>1,000 | V<br>V |

### MECHANICAL CHARACTERISTICS

| Note | Parameter | Conditions/comments | Value | Unit |
|---|---|---|---|---|
| | Number of positions | CT3-5-4/PCB, CT3-5-8/Wire<br>CT3-6-2/Wire<br>CT3-3-4/Wire | 1-5<br>1-6<br>1-3 | |
| | Indexing angle | CT3-5-4/PCB, CT3-5-8/Wire<br>CT3-6-2/Wire, CT3-3-4/Wire | 15<br>30 | deg. |
| | Switching function | | non-shorting | |
| | Gold plating, contacts | (hard-gold) | 3 | µm |
| | Gold plating, wiper | (hard-gold) | 8 | µm |
| 3 | Mechanical life | | >25,000 | cycles |
| | Switching torque | | 8-9 | Ncm |
| | Nut tightening torque | | max. 300 | Ncm |

### DC ELECTRICAL CHARACTERISTICS

| Note | Parameter | Conditions/comments | Value | Unit |
|---|---|---|---|---|
| 4 | Insulation resistance | (contact to contact)<br>(contact to earth) | $> 10^{13}$<br>$> 10^{12}$ | Ohm |
| | Contact resistance | (new) | max. 0.01 | Ohm |
| | Contact capacitance | (adjacent contacts) | 1 | pF |

**Notes**

1 Exposure to maximum rating conditions for extended periods of time may affect device reliability
2 Rms voltage, 50 Hz, 60% relative humidity, applied for 1 minute.
3 One cycle is defined as a full rotation from one end stop to the other and return.
4 Measured with 500 VDC for 1 minute.

**ANTISTATIC CHARGES**

To avoid noises from antistatic charges we suggest that one of the following two precautions is taken:

1. The CT3 is mounted with electrical connection between its click-house and the equipment chassis.
2. A 1 MOhm resistor is connected between the CT3 click-house and equipment ground.