1. General Information

The **7286 Conventional Märklin Turntable** can be converted with the **7687 Digital Retrofit Kit** to the easy-to-use control of the 7686 digital turntable. The turntable does not have to be removed from the layout or taken apart for this conversion. Turntables of other makes are in general not equipped, as delivered from their manufacturer, for the installation of the 7687 Digital Retrofit Kit.

The 7686 turntable can be used for **conventional** and for **digital operation.** A 6020 Central Unit or a Control Unit 6021, and a 6040 Keyboard are required for **digital control** of the turntable. It is also possible to control the layout with a computer (6050 or 6051 Interface) and with a track diagram control board on a computer screen (Comboard 60511).

By digitally controlling the turntable, each existing track connection (spoke track) can be accessed directly with the track indexing feature. The turntable deck can be turned to the next spoke track in single steps. At the push of a button a locomotive on the deck can also be turned 180° in either direction. The special digital decoder and control electronics are integrated in the turntable receiver delivered with the unit.

Information:
The description before you explains in particular the use and operation of the **digitally** equipped turntable.
Please note in addition the information on the installation, on the operation of locomotives on the turntable, and on maintenance of the turntable in the current instructions for the 7286 turntable!

2. Installation on the layout

The **turntable receiver** can be screwed directly onto the mounting posts under the turntable pit or next to the turntable on the layout base board. The 30 cm (1') ribbon cable is the maximum distance that the receiver can be from the turntable. The existing terminal strip on the 7286 Conventional Turntable is no longer needed when converting this turntable with the 7687 Digital Retrofit Kit.

3. Electrical connections for the turntable

Important: The 7686 turntable is designed to be operated only on the **Märklin Digital H0** system. This turntable **cannot** be used with Märklin Digital= for two-rail layouts.

The **ribbon cable** for the turntable has a sixpin special plug which is inserted into the corresponding socket on the receiver. The center sockets **B** and **0** on the receiver are connected to the Digital power circuit (Central Unit or Booster). The socket **L** must be connected to the **same transformer** as that supplying the Digital power circuit (ill. 1).

The existing control box for the 7286 Conventional Turntable is no longer needed when converting this turntable with the 7687 Digital Retrofit Kit. Simultaneous hookup of the conventional control box and the digital decoder is not possible.

For **digital locomotive operation** the sockets **B 0 0** for locomotive power are connected to a digital power circuit (Central Unit or Booster) (ill. 1). This power circuit may be different from that supplying power for controlling the turntable.

For **conventional locomotive operation** the sockets **B 0 0** are connected to a standard train transformer (example: 6627/6631, ill. 2).

The **running rails** on the turntable are electrically separated from each other. This will allow you to use one of these rails for a "track occupied" feedback signal.

The sockets marked in colors to the right of the receiver are intended for additional function indications (see Part 8).

Important Information:

The 7286 turntable has been delivered since 2002 in a technically different version that is part of the usual ongoing product development. The current version of the 7687 has already been designed for this change. If you have a turntable that was bought before 2002, then you must have the turntable and the 7687 electronic circuit adjusted to work together. You can have your authorized Märklin dealer send the 7286 turntable along with the 7687 electronic circuit to the Märklin Service Department.

Caution: With this adjustment work, damage is possible to the electronic circuit or the turntable. These damages are not covered by the manufacturer's warranty!

4. Keyboard as control component

The turntable decoder is **permanently coded** and is assigned to a digital accessory controller (Keyboard or Switchboard). The digital accessory controller to be used for the turntable should have a group address set at **15** (ill. 3).

If a second digital turntable is to be used on the same layout, the address for this second turntable decoder can be changed to **14**, but only at the factory.

An overlay is included with the digital turntable which is to be placed on the **keypad** of the Keyboard used to control the turntable. This overlay gives the functions for the various buttons on the **Keyboard** in relation to the turntable (ill. 4).

The spoke tracks are consecutively numbered clockwise. Spoke tracks opposite these tracks have the same number, since they are connected through the deck.

The pairs of buttons on the Keyboard not occupied by spoke tracks can be used to control other solenoid accessories connected to standard accessory decoders.

Buttons	Function
end	memory storage during programming interruption of operation
input	programming mode entry during programming
clear	delete during programming resume operation
turn	turning the deck 180°
step	turning the deck to the next spoke track
>	to the right (clockwise)
<	to the left (counterclockwise)
O	selecting the direction of rotation
▶	to the right (clockwise)
◀	to the left (counterclockwise)
1 23 **2 ... 24**	turning the deck to the spoke track with the number pushed (if present)

5. Programming

The position and number of spoke tracks must be entered, before first using the turntable or after changing or expanding the spoke tracks. A simple **programming** procedure at the digital accessory controller takes care of this.

The programming process can be started only in the first **5 seconds** after turning on the digital layout by pressing the **input** button. Any other button cuts off the transfer into the programming mode (ill. 5).

The internal track memory storage can be newly defined in the programming mode. After pressing the **input** button, the turntable rotates automatically to the last stored position for spoke track **1** and then sounds a beep. If another spoke track is to be number **1**, then the deck must be turned with the **step** button > or < in steps to the desired position. This spoke track is now stored as the new number **1** by pressing the **clear** button, and the track positions previously in memory storage are deleted.

The other spoke tracks are then entered in any order desired. Here too the deck must be turned with the **step** button > or < in steps to the desired position for each track. Each spoke track must be stored in memory storage by pressing the **input** button before turning the deck to the next position.

When all of the existing spoke tracks have been entered, the programming procedure can be ended by pressing the **end** button. The entire configuration for the turntable is now in memory storage, and the spoke tracks are automatically numbered clockwise from position **1**.

If corrections or changes are necessary afterward, the programming procedure, starting with spoke track **1**, must be repeated.

The memory storage remains in effect even after the digital layout is shut off.

6. Operating the turntable

The deck can be started in **single-step operation** in both directions with the **step** buttons > and <. The deck will stop automatically at the next spoke track. If the **step** button is kept pressed, the deck will pass on to the next spoke track.

To **turn** a locomotive, the deck can be turned 180° from any position by pressing the **turn** button.

Any spoke track can be reached at the press of a button, regardless of the position of the deck, by using the **track indexing** feature. Just press the button with the number for the desired spoke track from **1** to **24**. Spoke track numbers not programmed are ignored.

The **direction of rotation** (for turning and track indexing) can be selected with the ▶ and ◀ buttons:

- ▶ turning to the right (clockwise),
- ◀ turning to the left (counterclockwise).

The direction set remains until it is changed. The direction to the right is indicated by the LED above the ▶ button (ill. 6).

The **end** button can be pressed to **stop** the turntable before reaching a desired spoke track. The turntable will stop at the next edge segment, even if there is no spoke track there. After pressing the **clear** button, the control procedure begun is **continued**. During the interruption the direction of rotation can be changed with the ▶ or ◀ buttons.

When there is an **interruption** of the digital operation (short circuit or emergency halt with the **stop** button on a locomotive controller), the deck on the turntable completely **ends** the control procedure previosly begun, if the power supply at the **L** socket remains on. After the digital system is turned back on by pressing the **go** button on a locomotive controller, the operation of the turntable can be continued as desired.

The **power supply** to the digital layout can be **turned off** only when the turntable deck is standing still. Otherwise, the current position for the deck could be erroneously placed in memory storage. A possible mistake after accidentally turning off the main power can be corrected by checking position **1** (see Part 9).

7. Operating locomotives

The **deck track** is constantly supplied with power for locomotives (Digital system or conventional transformer) through the turntable receiver. In digital operation an auxiliary function for the locomotive on the deck track remains in operation (example: headlights or smoke).

8. Function monitoring

Connections for **3 lights** are provided on the turntable receiver for monitoring functions (ill. 7). Light bulbs (16 volt) or LED's (with the appropriate resistance) can be connected here. These light indicators can be connected to the **L** accesory power socket only with the **diode** (1N4001...4007) included with the turntable (follow installation instructions for this diode!).

These lights monitor the programming and the operation of the turntable:

red (rt)	green (gn)	yellow (ge)	function
		×	ready for programming
○		×	positioning
	○	×	position 1 reached
		○	spoke track not stored in memory
	○	○	spoke track stored in memory
○		○	looking for spoke track
○			turntable in operation
	○		spoke track reached
×		×	disturbance

(○ = lighted, × = blinking)

The connections for these light indicators can also be used for feedback functions (example: with s 88 decoder).