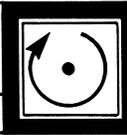


UNIVERSAL TURNTABLE CONTROLLER

SYNCHRONOUS CONTROL INTERFACE



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DESCRIPTION

The Universal Turntable Controller is a remote control interface for use with professional direct-drive turntables. The "UTC" converts the 'single button' start-stop control logic of the turntable to independent Start and Stop circuits, so that separate START and STOP control switches can be used to operate the turntable. Either momentary or maintained switches can be used. The UTC also provides outputs to drive RUN and STOP mode indicators, plus a 'logic' output for interface with auxiliary equipment. When the Universal Turntable Controller is installed, the turntable's own start-stop switch is still useable for cueing records; the UTC will always stay "in sync" with the turntable. The UTC is a solid-state device using CMOS circuitry for excellent RF immunity. It is designed to be used with Technics* models SL1200MKII, SP25, SP15, SP10MKII and SP10MK2A turntables.

CAUTION AND DISCLAIMER

Installation of the Universal Turntable Controller may require a slight modification of the turntable. This modification, though minor, does require the turntable to be disassembled so that connecting wires can be added. DO NOT attempt to install the UTC unless you are a qualified technician. If you do not fully understand the installation procedure, you are not qualified to install the unit! Disclaimer: Installation and use of the Universal Turntable Controller is solely at the users risk. The UTC may be considered to be a 'modification' of the turntable and may void any warranty thereof. The user is advised that the turntable manufacturer may refuse to service or repair any turntable that has or has had a UTC connected to it. It is suggested that, should the turntable ever require service after a UTC has been installed, the UTC wiring be removed and the turntable restored to its original condition before it is sent in for service.

INSTALLATION

Connections to the UTC are made via the two "D"-type connectors on the unit; one connector is provided for each turntable and its associated control circuitry. Mating connectors are supplied with the unit. Three wires from the UTC are connected to the turntable: STATUS, CONTROL, and GROUND. A three-circuit 'miniplug' and jack are provided for this; the jack can be mounted to the turntable chassis. The remaining wires connect to Start and Stop switches and mode indicators. See Figure 1. Connections to the turntable are slightly different for each turntable type. Refer to the section below appropriate for your model.

CONNECTION TO SL1200MKII AND SP25 TURNTABLES: The SL1200MKII and SP25 turntables are electrically identical. It is not necessary to remove the turntable from the base; all circuitry can be accessed by removing the platter from the drive motor shaft, then removing the cover beneath the platter. Mount the three-circuit minijack to the metal plate where the AC power enters the turntable. Carefully drill a 1/4" hole and mount the jack using the nut supplied. Be sure no metal filings drop into the turntable circuitry! Connect three wires to the jack; each will be connected within the turntable. The sleeve of the jack is connected to the turntable GROUND. The tip will be connected to the BRAKE POTENTIOMETER (R-201), and the ring will be connected to the turntables START-STOP SWITCH.

Near the front-left corner of the turntable, locate a bundle of wires leading from the start-stop and speed selector switches. Within the bundle, there is a yellow wire. This yellow wire is GROUND. Verify that the yellow wire is ground by checking continuity to a known power supply ground point. Carefully remove some of its insulation and tap onto this wire with the lead connected to the minijack SLEEVE. Also within the bundle is an orange wire, which is connected to the start-stop switch of the turntable. Verify this by checking continuity between the orange and yellow wires. There should be zero ohms when the start-stop switch is pushed. Carefully remove some of the insulation, and tap the orange wire with the lead connected to the RING of the minijack.

Now locate the 'BRAKE' adjustment potentiometer, a small trimpot designated R-201 located on the right side of the PC board. The wire from the TIP of the minijack should be connected to the CCW terminal of the pot. This is the terminal closest to the turntable motor. Important: Set the trimpot to its FULL CCW position. Reassemble the turntable.

*Technics is a registered trademark of Panasonic Corporation.

CONNECTION TO SP15 TURNTABLES: Remove the turntable from the base, then remove the plastic cover from the bottom of the turntable. Mount the minijack supplied in the small metal plate next to the Ground post. Carefully drill a 1/4" hole in the plate and secure the jack using the nut supplied. Be sure that no metal filings drop into the turntable circuitry!

Connect three wires to the jack; connect each wire within the turntable as follows:
The wire from the sleeve of the jack should be connected to the GROUND POST. Connect the wire from the ring of the jack to the turntables start-stop switch. Verify the correct switch terminal by checking continuity between the switch and ground; there should be zero ohms when the start-stop switch is pressed. The wire from the tip of the jack should be connected to one terminal of the BRAKE SOLENOID. The solenoid will have a diode across its two terminals; connect the wire to the terminal that has the diode anode wired to it. The anode is the end of the diode that is not marked with a band. Reassemble the turntable.

CONNECTION TO SP10MKII TURNTABLES: Remove the turntable from the base, then remove the metal cover from the bottom of the turntable. Carefully remove the small metal plate in which the 'remote' connector jack is mounted. Unsolder the wires from the jack; remove the jack. Install the three-circuit jack supplied in its place. Reconnect the ground wire (if any) to the sleeve of the new jack. Reconnect the 'remote start-stop' wire to the ring of the jack. Connect a length of wire to the tip of the jack. Re-attach the metal plate to the chassis. Connect the wire from the tip of the jack to the BRAKE SOLENOID of the turntable. The solenoid will have a diode connected across its terminals; connect the wire to the terminal that has the diode anode wired to it. The anode is the end of the diode that is not marked with a band. Reassemble the turntable.

CONNECTION TO SP10MK2A TURNTABLES: The SP10MK2A is almost identical to the older SP10MKII. See paragraph above. Install and wire the three-circuit minijack as described above, except for the wire connected to the brake solenoid. The wire from the tip of the jack should be connected to the BRAKE SOLENOID CONNECTOR. The connector, designated "CN-3", is in the lower left corner of the main PC board. Connect the wire to PIN 1 of the connector. Reassemble the turntable.

CONNECTING THE TURNTABLE TO THE U.T.C.

Connect a length of three-wire cable to the three-circuit miniplug supplied. Standard balanced audio cable (two wires, plus shield) is ideal. The other end of the cable is connected to the UTC "D" connector. See Figure 2. The wire from the sleeve of the plug is connected to PIN 1 (GROUND). The wire from the ring is connected to PIN 5 (CONTROL). The wire from the tip is connected as follows:

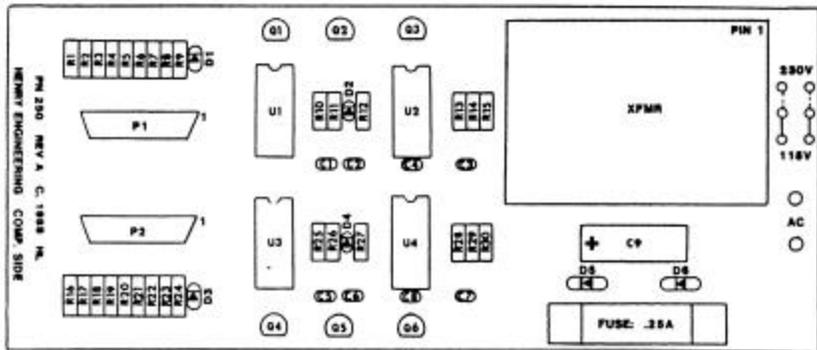
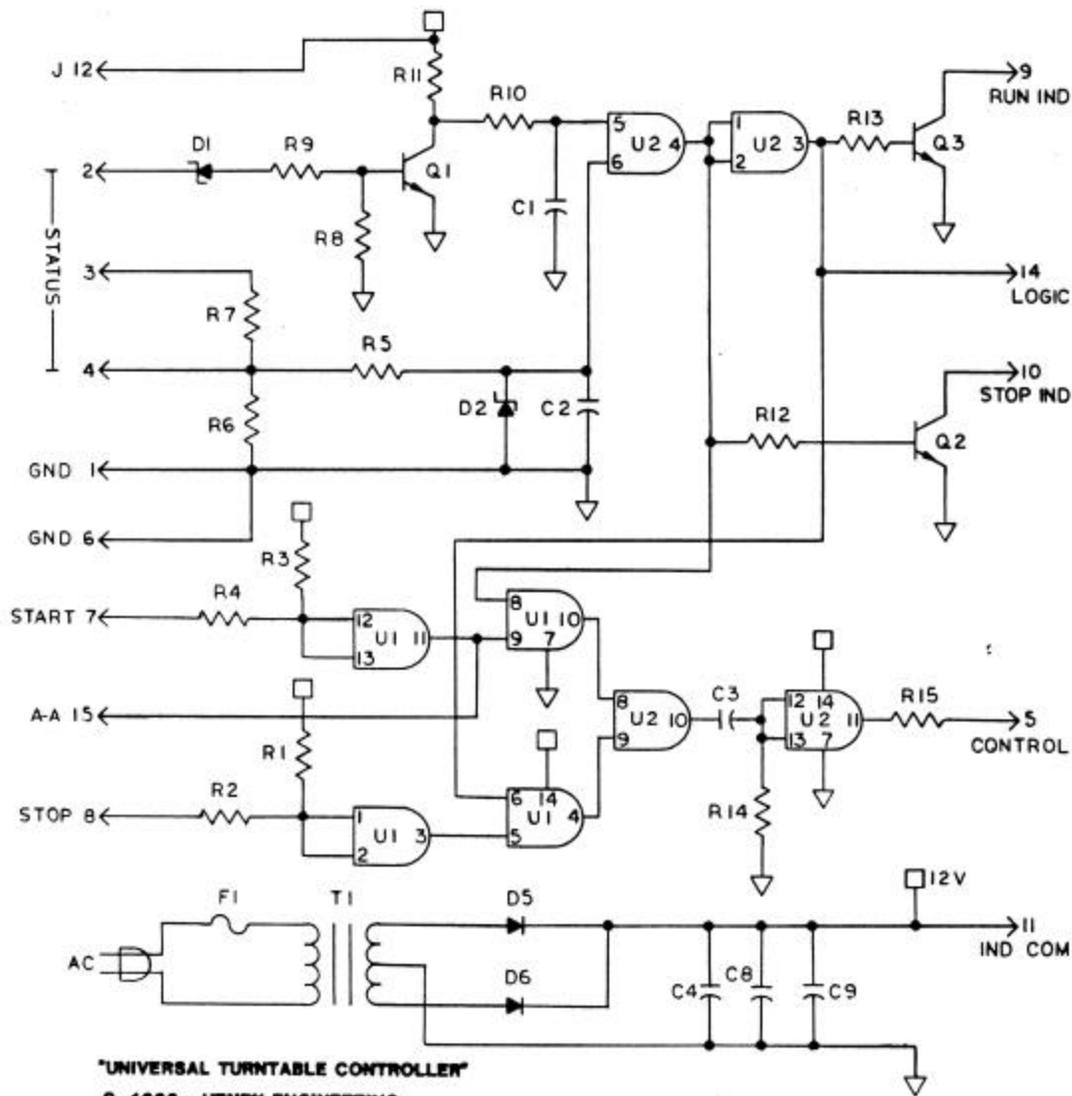
- SP1200MKII OR SP25: CONNECT TO PIN 2, AND INSTALL JUMPER BETWEEN PINS 4 AND 12.
- SP15 OR SP10MKII: CONNECT TO PIN 4, AND INSTALL JUMPER BETWEEN PINS 2 AND 1.
- SP10MK2A: CONNECT TO PIN 3, AND INSTALL JUMPER BETWEEN PINS 2 AND 1.

CONNECTING THE U.T.C. TO EXTERNAL CONTROL SWITCHES AND INDICATORS:

The UTC can be controlled by momentary or maintained contact closures, CMOS/TTL gate outputs, open collectors, or any circuit that switches to ground. (See Figure 2.) Start and Stop switches are connected to PINS 7 AND 8. If a single maintained switch is used, it should be connected to PIN 7; a JUMPER must then be wired between PIN 8 AND 15. The UTC provides outputs to drive 'Run' and 'Stop' indicator lamps (12 volt, 100 ma max.) on PINS 9 AND 10. LEDs can be used with a 1000 ohm resistor wired in series with each LED. Pin 14 is a 'logic' output; it is 'HI' when the turntable is running; 'LO' when it is stopped.

OPERATING INSTRUCTIONS:

Push the START switch to start the turntable; push the STOP switch to stop the turntable. If a maintained switch is used to control the UTC, opening the switch will stop the turntable. The mode indicators will always indicate either the RUN or STOP condition. Using the start-stop switch on the turntable will also switch the mode; the UTC will switch the logic and indicator lamps accordingly. NOTE: When SL1200MKII or SP25 turntables are used, the STOP indicator comes on about .5 second after the STOP switch is closed. This is normal. The delay occurs only when going from Run to Stop. The turntable will always start immediately when the START switch is closed.



PARTS LIST:

R2, 4, 15, 17, 19, 30	100 OHM
RR7, 22	22 K
R14, 29	1 MEG
RB, 9, 23, 24	100 K
All other R #s	10 K
C1-C8	.1uf/50v
C9	470uf/25v
D1, D3 (3.9v)	1N748A
D2, D4 (12 v)	1N5242
D5, D6	1N4004
F1 (FUSE)	.25A
Q1-Q6	2N4401
U1-U4	CD4011B

FIGURE 1

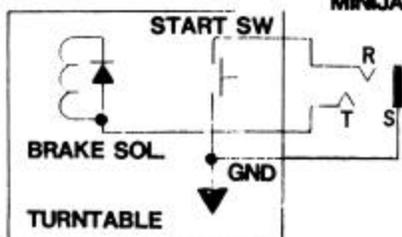


FIGURE 2

