

# PRODUCT DATA

## Turntable System — Type 9640

Turntable System Type 9640 consists of Controllable Turntable Type 5960, Turntable Controller Type 5997 and Remote Control WB 1254. The Turntable System is designed to rotate a test object, such as a loudspeaker, microphone, or hydrophone, for measurement of directional response. Used in combination with a personal computer, Type 9640 becomes part of a system capable of automatically recording the directional characteristics of many different test objects.

### USES

- Controlling test-object (e.g., loudspeaker, microphone, hydrophone) orientation during:
  - Directional response measurements
  - Sound power measurements
  - Directional noise radiation measurements

### FEATURES

- Rotation of up to 100 kg load, supported or suspended



- Continuous, relative or absolute rotation
- Controlled from turntable controller, remote control unit or PC over IEEE-488 interface
- Adjustable turntable speed and acceleration
- Connection of test object power supply and signal through slip ring
- Front panel read-out of mode and current test-object position

### Applications

Type 9640 can be used to measure directivity by means of frequency-response test methods. The test object can be accurately rotated using the Turntable System so that it is located at the desired angle to a measurement microphone. The response of the test object can then be obtained for any direction using PULSE Directivity and Polar Plot BZ 5551.

### Controlling the Turntable

Turntable Controller Type 5997 offers three modes of operation (Turn\_Rel, Turn\_Abs and Cont.) and three commands Set 0°, Acc. and Max\_360. Turn\_Rel and Turn\_Abs allow a relative or absolute turn (specified in degrees) to be made. When a polar plot of a single frequency is required, the CONT mode is to be selected as it rotates the turntable continuously at a constant speed.

As test objects have different inertia, the acceleration and deceleration in the start and stop phases can be controlled

by using the command ACC. The acceleration of the turntable can be adjusted to accommodate different test object masses, up to 100 kg.

The Set 0° command is used to set the zero degree mark that will be the reference for a given test. In order to prevent cable wrapping, the MAX\_360 command limits the turns between 0° and 360°. Alternatively, the cable can be fed through the slip ring on the turntable, allowing an unlimited number of rotations.



Remote Control WB 1254 offers 5 commands for controlling Turntable Type 5960 via a 15 m cable. The “<” and “>” keys are used to turn the test object clockwise and anticlockwise, respectively. When the test object has been positioned at the starting point, the zero degree mark can be set by pressing Set 0°. The mode of operation can be chosen at the front panel of Turntable Controller Type 5997. The turntable can then be started or stopped by using the Start and Stop keys.

## Connections to the Test Object

Two types of connection can be made from the base plate of the turntable, through slip rings, to the test object on the table plate. One supplies power to the test object while

the other, a screened coaxial connection, carries signals to and from the test object. The connections are heavily screened from each other, making spurious signals negligible under normal conditions.

## Compliance with Standards

 	CE-mark indicates compliance with: EMC Directive, Low Voltage Directive and Machinery Directive. C-Tick mark indicates compliance with the EMC requirements of Australia and New Zealand.
<b>Safety</b>	EN/IEC/UL 61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use.
<b>EMC Emission</b>	EN/IEC 61000-6-3: Generic emission standard for residential, commercial and light industrial environments. CISPR 22: Radio disturbance characteristics of information technology equipment. Class B Limits. FCC Rules, Part 15: Complies with the limits for a Class B digital device.
<b>EMC Immunity</b>	EN/IEC 61000-6-1: Generic standards – Immunity for residential, commercial and light industrial environments. EN/IEC 61326: Electrical equipment for measurement, control and laboratory use – EMC requirements. <b>Note:</b> The above is only guaranteed using accessories listed in this Product Data Sheet.
<b>Temperature</b>	IEC 60068-2-1 & IEC 60068-2-2: Environmental Testing. Cold and Dry Heat. Operating Temperature: 5°C to 40°C (41°F to 104°F) Storage Temperature: -25°C to +70°C (-13°F to +158°F)
<b>Humidity</b>	IEC 60068-2-78: Damp Heat 0 to 90% RH (5°C to 40°C), non-condensing at 40°C
<b>Enclosure</b>	IEC 529: IP 20

## Specifications – Turntable System Type 9640

### Controllable Turntable Type 5960

**Load:** Max 100 kg (220 lb.) on centre, 30 kg (66 lb.) on periphery, when table plate is lined up perfectly in horizontal plane. Same loads apply with turntable hung upside down

**Thread of Mounting Holes:** UNF 10-32 and M5

**Resolution:** 1°

**Speed of Rotation:**

- **Cont. Mode:** 22.7 to 720 seconds per revolution
- **Turn\_abs and Turn\_rel Modes:** 10 seconds per revolution (max.)

**Cable Length:** 15 m (48.5 ft)

**Table Plate Diameter:** 354 mm (13.9")

**Weight:** 12 kg (26 lb.)

### Turntable Controller Type 5997

#### OPERATING MODES

**Turn\_rel:** Sets the relative turn in degrees

**Turn\_abs:** Sets the absolute turn in degrees  
**Cont.:** Sets the continuous speed in seconds per revolution

#### COMMANDS

**Set 0 Deg:** Sets the reference angle  
**Acc.:** Sets the acceleration  
**Max\_360 On/Off:** Turns max. 360° on or off. On prevents cable wrapping

#### IEEE INTERFACE

Conforms with IEEE-488.1 and compatible with IEC 625-1. Provides remote control of all front-panel functions

#### FUNCTIONS IMPLEMENTED

SH1 – Source Handshake  
AH1 – Acceptor Handshake  
L3 – Listener  
SR1 – Service Request  
DC1 – Device Clear  
RL1 – Remote/Local

#### COMMAND SET

Standard engineering English reflecting the front panel and screen names

**Device Address:** Set to 10 (decimal) on delivery

#### POWER SUPPLY

**Voltage:** 100, 115, 127, 200, 220 and 240 V  
AC ±5%

**Power Rating:** approx. 15 VA

#### GENERAL

**Cabinet:** Supplied as model A (metal cabinet)

#### Dimensions:

**Height:** 143 mm (5.6")  
**Width:** 188 mm (7.4")  
**Depth:** 235 mm (9.3")  
**Weight:** approximately 3 kg (6.6 lb.)

## Ordering Information

Type 9640 Turntable System  
Includes the following accessories:

Type 5960 Controllable Turntable

Type 5997 Turntable Controller

WB 1254 Remote Control

AO 0422 Turntable Cable

AN 0019 Power Cable (country specific)

AN 0020 Power Cable

2×JP 0101 Screened Plug

#### REQUIRED ACCESSORIES

AO 0265 Interface Cable (2 m), IEEE-488

WQ 1270 IEEE-488 Interface Card, PCI-GPIB

or

WQ 1290 IEEE-488 Interface Card, PCMCIA

Brüel & Kjær reserves the right to change specifications and accessories without notice

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