

**SME**

**SYNERGY**

**PRECISION INTEGRATED  
TURNTABLE**

**INSTRUCTIONS**



# Warning! Important Safety Instructions CAUTION:

## **RISK OF ELECTRIC SHOCK DO NOT REMOVE POWER SUPPLY UNIT COVER.**

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE POWER SUPPLY UNIT COVER. THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER ALL SERVICING TO QUALIFIED PERSONNEL.

- Please read this manual carefully and keep it in a safe place for future reference.
- The slots in the Power supply unit at the back and underside are provided for necessary ventilation. To ensure reliable operation of this apparatus, and protect from overheating, these slots must never be blocked or covered.
- Do not place a water containing vessel on this apparatus, as this can result in a risk of fire or electric shock. Do not expose this apparatus to rain or place it near water.
- If this apparatus accidentally gets wet, unplug it and contact an authorized dealer immediately.
- You can clean this apparatus with a damp cloth when necessary, but be sure to unplug the apparatus first. To cut off the power source, unplug the apparatus from the wall outlet.
- Do not overload wall outlets, extension cords or adaptors beyond their capacity, since this can result in fire or electric shock.
- Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at the plug end, adaptors and the point they exit from the appliance.
- Before connecting the AC power cord to the Power supply unit, make sure the voltage of the Power supply unit, as marked on the label at the rear, corresponds to the local electricity supply.
- Never insert anything metallic into the open parts of this apparatus.
- Only a qualified technician should remove the Power supply unit cover.
- Be sure to hold the plug, not the cord, when disconnecting this apparatus from an electric socket.
- Locate this apparatus near an easily accessible AC outlet.
- If this apparatus does not operate normally, in particular if there are any unusual sounds or smells, unplug it immediately and consult an authorized dealer.
- Unplug this apparatus from the AC outlet before any service.

## **IMPORTANT NOTICE:**

The mains lead on this equipment when supplied for use in the UK, is fitted with a moulded plug incorporating a fuse. The value of the fuse is indicated on the pin face of the plug and if it required replacing a fuse approved to BSI 1362 of the same rating must be used. Never use the plug with the fuse cover omitted if the cover is detachable. If the plug fitted is not suitable for the power points in your house or the cable is not long enough to reach the power point, you should obtain a suitable safety approved extension lead or consult your dealer for assistance. However, if there is no alternative but to cut off the plug, remove the fuse first and then safely dispose of the plug. DO NOT connect the plug to a mains socket as there is a risk of shock hazard from the bared flexible cord.

## **IMPORTANT:**

The wires in the mains lead are coloured in accordance with the following code: **BLUE NEUTRAL, BROWN LIVE**. As these colours may not correspond to the coloured markings identifying the terminals in your plug, proceed as follows: The wire coloured BLUE must be connected to the terminal marked with the letter N or coloured Blue or BLACK. The wire coloured BROWN must be connected to the terminal marked with the letter L or coloured BROWN or RED.

## **WARNING:**



DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL, WHICH IS MARKED WITH THE LETTER E OR BY THE EARTH SYMBOL OR COLOURED GREEN OR GREEN AND YELLOW.



## **WEEE SYMBOL INFORMATION**

### ***Correct Disposal of This Product (Waste Electrical & Electronic Equipment)***

***(Applicable to the European Union and other European countries with separate collection system).***

The marking shown on this product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible damage to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable re-use of material resources.

Household users should contact either the retailer where they purchased this product or their local government office, for more detailed information of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

**SME****SYNERGY****PRECISION INTEGRATED  
TURNTABLE****INSTRUCTIONS**

This is not an ordinary turntable. These instructions cover unpacking, adjustment and installation procedures and you owe it to yourself to read them carefully before proceeding further.

## **1. Introduction**

The SME Synergy Precision Integrated Turntable is built to exacting engineering standards providing reliability and freedom from critical adjustments. Build integrity, sophisticated electronics and vibration free moving parts allow the full capabilities of any sound system to be fully explored.

## 2. Contents

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### 3. Specification (Turntable)

The turntable is driven by a 3-phase, 6 pulse, inductance motor, with 8 pole Neodymium magnets and 3 integrated Hall position sensors.

The electronic controller uses a high performance microcomputer, optimised for motor control. The Hall position sensors on the motor provide accurate feedback to the micro controller allowing very accurate and stable speed control, including 33 1/3, 45 and 78 rpm. The reference oscillator is a 10MHz quartz crystal, which is multiplied by 4 to produce an internal microprocessor clock speed of 40MHz.

The driver stage has CMOS buffers/MOSFET drivers with 1.2 Amp peak drive capability. The power output stage is six high power complimentary Mosfets in a 3 Phase Bridge Driver configuration.

Closed loop speed control is implemented using a pseudo sine wave commutation sequence and a proportional-plus-integral (PI) algorithm.

The design incorporates a 4 layer surface mount technology pcb with on-board user adjustable speed variation control.

Speeds	33 1/3, 45 & 78 rpm
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#### 3.1 Dimensions (Turntable)

Width	370.0mm (14.57")
Depth	350.0mm (13.80")
Height	178.0mm (7.0") – To top of Arm
Platter Diameter	304.0mm (11.97")
Spindle to Arm	215.35mm (8.48")
Net Weight	16.0Kg (35lb)
Shipping Weight	18.25Kg (40lb)

#### 3.2 Dimensions (Power Supply)

Width	170mm (6.75")
Depth	305mm (12.0")
Height	68mm (2.65")

#### 4. Dimensions (Tonearm)

Distance from Pivot to Stylus	233.15mm (9.18")
Distance from Pivot to Turntable Centre	215.35mm (8.48")
Cartridge Fixing Centres	12.70mm (0.50")
Offset Angle	23.635°
Linear Offset	93.47mm (3.68")
Overhang	17.8mm (0.70")

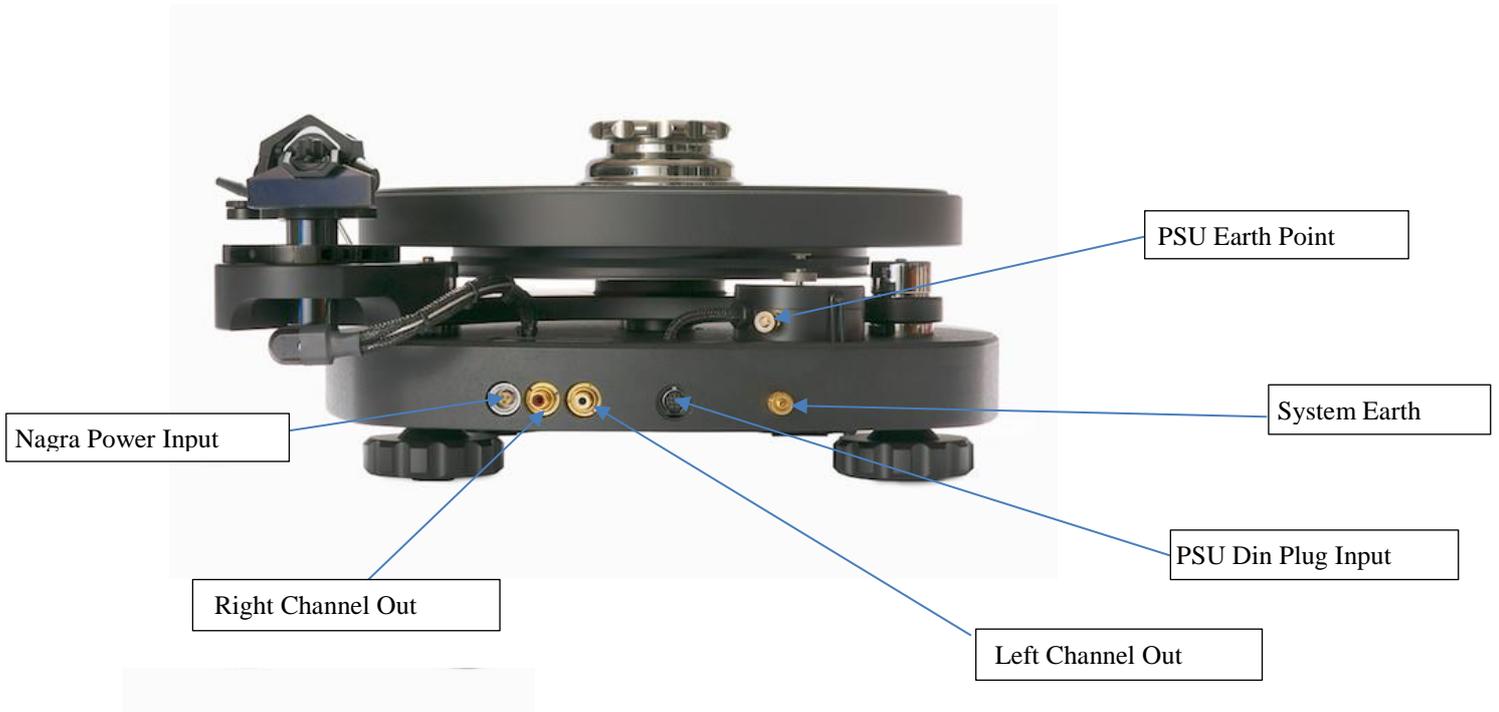
#### 5. Specification (Tonearm)

Effective Mass	10.5g
Cartridge Balance Range	5-16g
Vertical Tracking Force	0-3g
Maximum Tracking Error	0.012°/mm
Null Point Inner/Outer	66.04/120.9mm (2.60"/4.76")

## 6. Packing List – SYNERGY Turntable

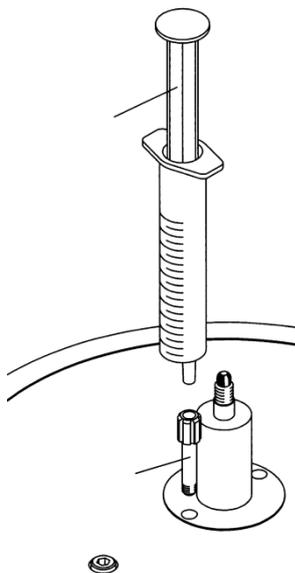
Qty	Description	Part No.	✓
1	Synergy Assembly #..... Arm # .....		<input type="checkbox"/>
1	Stroboscopic Disc	1087	<input type="checkbox"/>
1	Base and Sub-Chassis Assembly	1200/3	<input type="checkbox"/>
1	Platter	1201/2	<input type="checkbox"/>
1	Operating Instructions	1271/3	<input type="checkbox"/>
1	Record Clamp Chrome Finish	1239/2	<input type="checkbox"/>
1	Stylus Guard (fitted)	1245/2	<input type="checkbox"/>
1	Power Supply Unit - 100V <input type="checkbox"/> 115V <input type="checkbox"/> 230V <input type="checkbox"/>	1266/S	<input type="checkbox"/>
1	PSU Nagra - 100/115V <input type="checkbox"/> 230V <input type="checkbox"/>	1267	<input type="checkbox"/>
2	Power Cord - UK <input type="checkbox"/> EUR <input type="checkbox"/> USA <input type="checkbox"/>	1098-9	<input type="checkbox"/>
1	Nagra Low Voltage Lead		<input type="checkbox"/>
1	Drive Belt	1100	<input type="checkbox"/>
1	Audio Lead (Crystal Cable)	4900A/CR	<input type="checkbox"/>
1	Syringe of Lubricating Oil	1287	<input type="checkbox"/>
1	Syringe of Spindle Oil	1058/20	<input type="checkbox"/>
1	Record Spindle Washer	1148	<input type="checkbox"/>
1	Oil Filler Adaptor	1129	<input type="checkbox"/>
1	Precision Tonearm, Series IV Synergy	1300/2	<input type="checkbox"/>
1	Alignment Protractor	4911	<input type="checkbox"/>
1	4mm A/F Hexagon Wrench	1083	<input type="checkbox"/>
1	Ball-Ended Hexagon Wrench 3.0 A/F	5905/300	<input type="checkbox"/>
1	Box Spanner	1946	<input type="checkbox"/>
1	HTA Key	5892	<input type="checkbox"/>
1	Velcro Strap Fitted		<input type="checkbox"/>
1	Cartridge & Cartridge Guard Fitted		<input type="checkbox"/>
1	Series IV Instruction Book	4931	<input type="checkbox"/>
1	Warranty Card		<input type="checkbox"/>

## 7. SYNERGY Integrated Precision Turntable



## 8. Unpacking

1. Unpack and check all items against the packing list in section 7. In the very unlikely event that anything is missing your dealer and SME Limited should be notified at once.
2. The design of the turntable allows it to be used on any substantial table or similar piece of furniture in the absence of a dedicated equipment stand.
3. Lift the motor side of the turntable and remove the Motor Transit Screw from the underside of the base immediately below the motor.
4. Remove the two packing strips from the sides of the motor.
5. The turntable is packed with only a little oil in the bearing housing and this should now be filled. A metered charge is provided in Syringe Part No: 1287.
6. Remove the syringe from its packing and insert the tip into the Oil Filler Adaptor, which will be found already fitted to near the spindle. (see diagram)
7. Slowly inject the complete quantity into the bearing maintaining downward pressure throughout the operation to prevent leakage.
8. Remove the syringe and dispose of it responsibly!
9. Unscrew and remove the Oil Filler Adaptor using the Box Spanner Part No: 1946. Retain the adaptor for possible future use
10. The suspension is secured for transit by two screws; these are accessible through holes in the driven pulley, using the 4mm A/F hexagon wrench. The two packing strips can now also be moved from the underside of the driven pulley.



## 9. Setting Up

1. Unpack the drive belt and place it over the driven pulley. Press it down as far as the flange, ensuring that it is free from twists, then stretch it over the motor pulley.
2. Examine the face of the driven pulley and the underside of the platter to ensure that both mating surfaces are clean, place the platter squarely over the turntable spindle lowering it gently until it rests on the driven pulley. Rotate the platter slowly by hand to position the belt on the pulleys. **WARNING: The unique Isodamp damping material with which the platter is faced, has been diamond turned and scrolled for intimate contact with the record. Avoid handling or anything that might mar the surface, as like the record itself, it could be easily damaged.**
3. If desired the turntable can be levelled by rotating the appropriate supporting foot. If the base is lifted slightly at the same time the foot will turn more readily. Check the adjustment with a precision spirit level placed on the platter.
4. Unpack the Synergy power supply unit, the mains voltage setting is indicated on the back panel. Before fitting the power cord check carefully that this matches your mains voltage.
5. The power cord has a standard moulded mains plug. In the event that it must be replaced the original plug should be cut off and disposed of responsibly.

**WARNING!** To meet international safety standards the power supply unit is earthed through the yellow/green wire of the power cord and particular care must be taken to ensure that this is connected so as to maintain effective earthing should the original mains plug be changed.

6. Connect the low voltage output cable from the power supply unit by inserting the mini-DIN plug into the socket at the rear of the base. Take care to see that it is pushed fully home. Connect earth wire from PSU to the motor earth stud. An on-off switch is situated on the back of the power supply unit.
7. The supplied audio leads should now be connected from Synergy to your amplifier. One end of each cable is fitted with earthing wires, this end should be connected to the amplifier corresponding red and white 'phono' inputs. The other end of each cable should be connected to the corresponding right and left RCA output sockets on Synergy, see picture on Page 9. A separate earth link wire is also provided and this should be connected to the Synergy chassis/system earth and together with the two phono earths to the earthing point on your amplifier.

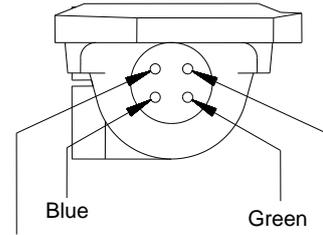
### NOTE:

In some systems connection of the separate earth wire could cause unwanted 'earth hum'. If this is experienced it is safe to not use the earth wire and its removal should improve any production of unwanted system noise or 'hum'.

## 10. Cartridge Replacement, Removal / Installation

### Please note:

The Tonearm and Cartridge are pre-installed and aligned at the factory. It is advised that if a digital cartridge scale is available to check that the playing weight has remained set at 2.30 grams during transit.



1. Before removal and installation of the cartridge, see that its stylus guard is in position as a precaution against accidental damage.

The Siltech silver cartridge leads have 1mm diameter receptacles for the headshell and standard 1.25mm for the cartridge. The latter may require adjustment with pliers or a screwdriver blade for a snug fit on non-standard terminals.

Connections to the cartridge must never be made by direct soldering.

The tonearm colour coding is as follows:

Red - right channel    Green - right channel ground

White - left channel    Blue - left channel ground

2. The Siltech silver cartridge leads, Part No. 5899TK1 can be replaced and may be obtained from your dealer or SME Ltd..

## 11. Operation - Turntable Speed Adjustment

The SYNERGY precision integrated turntable is extensively run-in and its speeds set before leaving the factory. If you should wish to check the speed settings and make your own adjustments, the procedure is as follows:

1. Place the Stroboscopic Disc (1087) on the platter. Re-check the drive belt for centrality on the motor pulley.
2. Press button marked 33 once to start the turntable rotating, the LOCK LED blinks until the speed stabilises (for up to 25 seconds) and then becomes constant indicating that the selected speed is locked.



3. To adjust speeds depress and hold down the 33 and 45 buttons together for 8 to 10 seconds the 33 LED will flash after this period indicating that the adjustment mode is engaged; release both buttons. Press and release the 33 button to slow down or the 45 button to speed up. The disc should be viewed in a fluorescent or neon light, The appropriate band will synchronise and appear stationary when the speed is correct, whilst clockwise and reverse movement will indicate fast or slow running respectively. This is best observed if the tonearm, with cartridge fitted and in the raised position, is placed directly over the band being viewed as a reference point. The adjustment method provides a microfine increment for each press of the button, so a number of depressions will have to be made to make an appreciable difference to the turntable speed. When the speed adjustment is completed depress and hold down the 33 and 45 buttons together for 5 seconds, the 33 LED will stop flashing and become constant and your speed setting will be stored in the system memory for future use.
4. Repeat this process for the 45 and 78 speed ranges if required.

## **12. Operation (Turntable)**

1. Connect the mains cable to the Nagra power supply.
2. Plug in the NAGRA Power Supply low voltage output, into the power socket at the rear of the chassis. Place the record spindle washer on the spindle followed by the record and clamp. The latter should be screwed down clockwise enough to deflect the record flat into firm contact with the platter. With a fingertip tap the record in three places equally over its surface and with a little practice it will soon become evident whether or not the record is touching the platter. If not, some further tightening may be necessary but this is not always the answer however and sometimes releasing the clamp a little may do more to effect the desired improvement.

*The foregoing clamping instructions assume vinyl records, for shellac 78's the record washer should not be used for risk of breaking the record.*

3. The turntable is now ready for use. At this point packing and all other items no longer required should be stored in the packing case so as to be available if needed in the future.
4. Switch on SYNERGY turntable power supply. The LED marked 'power' will light up. Select the speed by pressing the button 33, 45 or 78, the LED appropriate will light up and the turntable platter will rotate. The LOCK LED blinks momentarily until the speed stabilises and then becomes constant indicating when selected speed is locked.
5. Depress the selected speed button again to stop rotation. The speed and LOCK LEDs will go out.
6. Either of the other speeds may be selected at any time simply by pressing the desired speed button. The LOCK LED will blink momentarily until the new speed stabilises and becomes constant when that speed is locked.

7. The SYNERGY is not equipped with a lid as this could cause and pick up acoustic feedback.

### **13. Operation (Tonearm)**

1. With the control lever in the raised position move the tonearm out of the armrest and position the arm so that the stylus is over the selected record groove.
2. To lower the stylus onto the record move the control lever forward until it is just past top dead centre. This will set the lowering control in motion, at which point it will take over the movement of the lever, giving a smooth controlled descent.

Note: For the correct descent time the control must be operated exactly as above. The speed will be increased considerably if the lever is pushed down instead of being allowed to fall of its own accord.

3. To raise the stylus from the record slowly move the control lever back to its original position. When the arm is not in use it should always be returned to the armrest for safety.
4. For further information on the Synergy tonearm please refer to the supplied SME Series IV Owners Manual.

### **14. Maintenance (Turntable)**

1. There are no critical adjustments or need for 'tweak' and only very little maintenance. Clean the drive belt occasionally by drawing it through a piece of soft linen moistened with lighter fuel. The same material may be used to clean the periphery of the motor and driven pulleys.
2. Replace the drive belt after 1000 hours or two years. A replacement drive belt part number 1100 is available from SME Limited.
3. Having sintered bronze bearings the motor requires minimal lubrication. One drop of oil only in one year is sufficient and must not be exceeded.
4. Remove the platter and drive belt. Apply one drop of 1287 lubricating oil from the syringe at the point indicated on top of the motor. Choose a time when the turntable will not be used for some hours so that the oil can find its way down to the lower bearing. After this time check that there is no oil on the motor pulley and replace the drive belt and platter.
5. Clean the Synergy only with a Microfiber or lint free clean cloth, lightly dampened with luke warm water and if necessary one drop of washing up liquid. Take care not to touch the special platter surface which should only be wiped gently with the afore mentioned dry cleaning cloth.
6. There are no user-serviceable parts inside the turntable or power supply units. A 500 mill amp fuse is located below the mains socket, its replacement should only be undertaken by qualified service personnel.

## **15. Transit Precautions**

The SYNERGY can be safely transported,

*SUBJECT ABSOLUTELY TO THE FOLLOWING PRECAUTIONS:*

Short journeys by car: remove the platter, disengage the drive belt from the motor pulley, and replace the transit screw (see page 8). The turntable itself is best placed on the floor of the car in front of the passenger seat. The platter and other items can be stowed elsewhere provided they are carefully protected. For all other transportation purposes the original packing case and materials must be used.

## 16. Guarantee

Your SME SYNERGY Precision Integrated Turntable and Tonearm is guaranteed against faulty material and workmanship. The nominal period of the guarantee is twelve months but is liberally interpreted at our discretion subject to the following conditions being observed:

1. Any matter arising must in the first instance be raised with SME Limited at the address appearing below.
2. In no circumstances return the turntable or any part thereof to SME Limited unless we have requested you to do so. Responsibility will not be accepted for any items or costs arising if this point is disregarded.
3. Items returned to our Service Department must be:
  - a) Sent strictly in accordance with the packing and routing directions which we will provide.
  - b) Insurance should be effected by the owner. SME Limited are unable to accept liability for any items until they reach the factory safely.
4. Defective parts will be replaced free of charge. The cost of labour may be charged at the discretion of SME Limited. Return transport and insurance costs will be charged.
5. The guarantee expressly excludes:
  - a) Cartridge wear and tear.
  - b) Damage by any cause whatever.
  - c) Contingent and third party liability.
  - d) Personal injury.
6. No alteration or variation of the guarantee will be recognised by SME Limited.
7. The guarantee is not transferable.

## **17. Appendix**

We hope these instructions have made the installation of your Synergy Precision Integrated Turntable and Tonearm straightforward. Care for it as befits its fine construction. Do not invert it except where directed for service. Do not apply oil other than that supplied by SME Limited for the purpose. Do not attempt to take it to pieces or interfere with any of the screws except as directed in the instructions. To do so will invalidate the warranty and may occasion costly repairs. Fit the cartridge stylus guard in place carefully when not in use, to reduce the possible risk of damage. Keep your turntable clean by dusting it regularly with due regard for the safety of the cartridge and stylus. Always use the soft dust cover when not in use. Finger marks may be removed from the black enamel/chrome finish with a linen handkerchief moistened with lighter fuel. Do not use any other kind of spirit or solvent cleaner.

In the unlikely event of a problem concerning operation or service, always contact us in the first instance at the address at the bottom of Section 25 (GUARANTEE), stating the exact nature of the problem, the name and address of the dealer who supplied the unit and its serial number which will be found on the label at the rear of the turntable base.

**SME**