



Instruction Manual
Manuale di istruzioni
Manuel d'instructions
Manual de instrucciones
Bedienungsanleitung



Cole-Parmer®
Digital Infrared Vortex Mixer
Model # 86579-06

General Information / Informations Générales

 Before using the unit, please read the following instruction manual carefully.
Avant d'utiliser l'instrument, il est recommandé de lire attentivement le présent manuel d'instructions.

 Do not dispose of this equipment as urban waste, in accordance with EEC directive 2002/96/CE.
Ne pas recycler l'appareil comme déchet solide urbain, conformément à la Directive 2002/96/CE.

This unit must be used for laboratory applications only.

The manufacturer declines all responsibility for any use of the unit that does not comply with these instructions. If the product is used in a not specified way by the manufacturer or with non specified accessories, product's safety may be compromised.

Cet instrument ne peut être utilisé que pour des applications de laboratoire.

Le fabricant décline toute responsabilité en cas d'utilisation non conforme aux instructions concernant ces instruments. Si le produit est utilisé d'une manière non spécifiée par le fabricant ou accessoires non spécifiés, la sécurité du produit peut être compromise.

**This unit has been designed and manufactured in compliance with the following standards:
L'instrument a été conçu et fabriqué conformément aux normes suivantes:**

Safety requirements for electrical equipment for measurement, control and for laboratory use
Règles de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire

IEC/EN 61010-1
IEC/EN61010-2-051

Electrical equipment for laboratory use

UL 61010-1

General requirement - Canadian electrical code

CAN/CSA-C22.2 No.61010-1

The manufacturer reserves the right to modify the characteristics of its products with the aim to constantly improving their quality.

Dans le but d'améliorer constamment la qualité de ses produits, se réserve le droit d'apporter des modifications aux caractéristiques de ceux-ci.

Safety Regulations / Consignes de Sécurité

The plug disconnects the instrument. Therefore, place the instrument where it can be quickly disconnected.

Le bouchon est le moyen de déconnexion de l'appareil. Par conséquent, placer l'appareil où il peut être rapidement débranché.

The heated solution may release toxic, dangerous or poisonous gases. Adequate safety measures must be taken, in accordance with the safety regulations in force, including the presence of hood and personal protective equipment (masks, gloves, goggles, etc.).

La solution chauffée peut libérer gaz toxiques ou dangereux. Des mesures de sécurité adéquates doivent être prises, en conformité avec les règlements de sécurité en vigueur, compris la présence de la hotte de laboratoire et équipements de protection individuelle (masques, gants, lunettes, etc.).

Position the instrument on a flat surface, with a distance from the wall of 30 cm (at least).

Positionner l'appareil sur une surface plat, avec une distance de la paroi de 30 cm (au moins).

Do not use with explosive and dangerous materials for which the equipment is not designed. The stirrer must not be used in explosive atmospheres.

Ne pas utiliser avec des matières explosives et dangereuses pour lesquelles l'équipement n'est pas conçu. L'agitateur ne peut pas être utilisé dans des atmosphères explosives.

It is responsibility of the user appropriately decontaminate the instrument in case of dangerous substances fall on or in it.

It is also responsibility of the user to use safety substances for cleaning or decontaminating, which do not react with internal parts of the instrument or with the material contained in it. In case of doubts on the compatibility of a cleaning solution, contact the manufacturer or local distributor.

Est responsabilité de l'utilisateur la décontamination en cas de déversement de matières dangereuses sur ou à l'intérieur de l'équipement. Est responsabilité de l'utilisateur à utiliser des substances qui ne produisent pas de danger pour le nettoyage ou de décontamination, qui ne réagissent pas avec les parties internes de l'appareil ou avec la matière qu'il contient. En cas de doute sur la compatibilité d'une solution de nettoyage, contactez le fabricant ou le distributeur local.

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1 Introduction

Mixing by spinning can be carried out quickly and safely by placing the tube containing the sample on the mixing cup head. The Vortex Mixer with LCD display can be used in automatic (SENSOR) or continuous mode (TIMER): in both cases the mixing speed can be adjusted using the speed selector knob (1).

When the instrument is switched on, it is always set in SENSOR mode. Mixing starts when the test-tube crosses the infrared sensor field. The instrument is factory set to continuous mode (Timer), mixing starts automatically when the speed selector / settings knob is pressed. To select Sensor mode rotate the knob to highlight "Sensor" on the display, press the knob to activate the operating mode selected. Mixing starts when the test-tube crosses the infrared sensor field (5) near the mixing cup head (4). The press-on fitting means that the mixing cup head can easily be replaced by any of the various accessories available for test-tubes of different sizes.

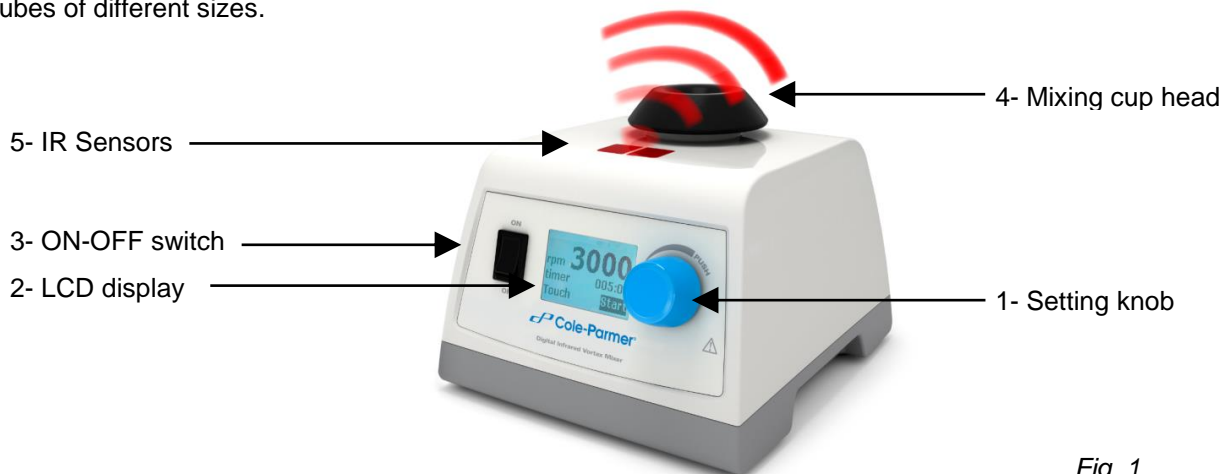


Fig. 1

2 Assembly and installation

Check the integrity of the unit after unpacking. The box includes:

- Digital IR Vortex Mixer with mixing cup head
- EU adapter plug
- Power supply 100-240V/12V no plug
- Instruction manual

2.1 Electrical connections

After having unpacked the instrument, place the unit on the laboratory bench.

Before connecting the instrument to the power supply, make sure that the values on the rating plate correspond to those of the power supply. Connect the unit to the power supply using the transformer supplied.

Ensure that the socket and the relative cut-off device conform to current safety norms and are easy to reach.

2.2 Start-up

Check that the mixing cup head is correctly positioned. Also check that the speed regulation knob is turned to "0 rpm". Use the on-off switch on the front of the unit to turn the unit on (position "ON"). The start-up and the control of the speed are effected with the knob. When switched on the unit will automatically start in the last operating mode set (Timer / Sensor).

2.3 Information about construction materials

Housing	Zinc alloy/Polymer	Feet	PVC
Paint	PET	Platform	PP
Frontal control panel	PET	Foamed part for platforms	PE
Cup head	SEBS		

3 Operating controls

Connect the unit to mains and turn it on using the on-off switch. Select the operating mode using the mode select button on the front of the unit.

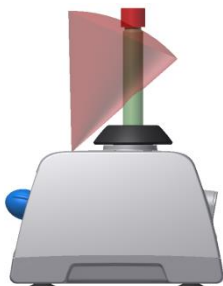


Fig. 2

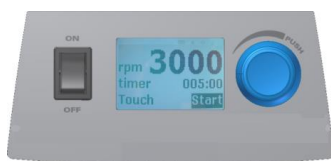
When **Timer** mode is selected, the timer can be set and the mixing cup head runs continuously at the set speed.

When the **Touch** mode is selected, mixing starts automatically when the test-tube crosses the sensor field (infrared optical system) shown in Figure 2.

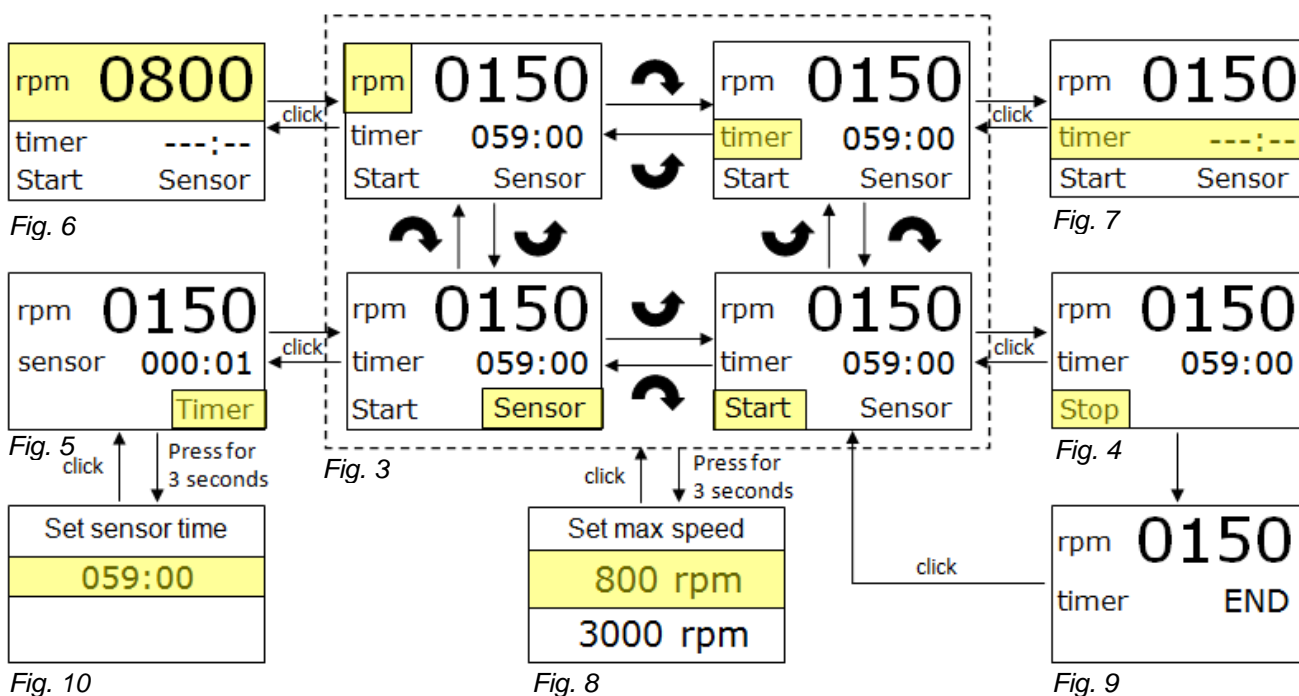
In both operating modes there is no need for any pressure on the mixing cup head. The sensor field is purpose-designed to detect the presence of any kind of test-tube.

NOTE: in case of black-out, the device will not automatically restart after the break and reconnect the power supply.

SETTINGS KNOB



With the instrument in stand-by, turn the knob to select and modify the operating parameters (rpm, timer, Start and Sensor) (Fig. 3). With the instrument running, turn the knob to increase or decrease the speed from 0 to 3000rpm or from 0 to 800rpm depending on the full scale setting. Press the speed selector / settings knob to start or stop mixing in Timer mode (Start or Stop highlighted - Fig 4), to select the operating mode (Sensor or Timer highlighted - Fig 5) and/or to modify speed and time parameters (rpm or timer highlighted - Fig 6 and 7). With the timer highlighted (Fig. 7), turn the knob to set the time from 1 second to 999min. and 59 seconds in Timer mode. During use the display will show the countdown and then END (Fig. 9). To deactivate the time keep the speed selector / settings knob pressed for 3 seconds. The display will show --- : --: mixing will be active for an infinite time. When a parameter is highlighted (Fig. 3), keep the knob pressed for 3 seconds to set the max speed (Fig. 8). This function can be used in Timer mode only. Use the 800rpm full scale setting if you are using a platform. When Timer is highlighted (Fig. 5), keep the knob pressed for 3 seconds to set the sensor time from 1 second to 999min. and 59 seconds (Fig. 10), this function can be used in Sensor mode only. The display shows the countdown and mixing stops automatically.



ON-OFF SWITCH

The on-off switch turns the unit on and off. If the switch is in the "OFF" position the unit is off; if the switch is in the "ON" position the unit is on. Always turn the unit off after use.

4 Maintenance

No routine or extraordinary maintenance is necessary apart from periodically cleaning the unit as described in this manual. In compliance with the product guarantee law, repairs to our units must be carried out in our factory, unless previously agreed otherwise with local distributors.

To replace the cup head, pull it upwards and off. The other push-fit accessories can then be inserted.

The instrument must be transported in its original packaging and any indications present on the original packaging must be followed (e.g. palletized).

4.1 Cleaning

Disconnect the unit from the power supply and use a cloth dampened with an non-inflammable non-aggressive detergent.

5 Technical data

Power supply input	AC 100-240V ($\pm 10\%$); 50-60 Hz ; 0.5A
Power supply output	DC 12V ; 1.25A
Dimensions (WxHxD)	150x130x165 mm (5.9x5.1x6.5 in)
Weight	2.7 Kg (6.2 lb)
Speed range	0-3000 rpm or 0-800 rpm
Timer range	1 sec. - 999min. 59sec.
Spin diameter	4.5 mm (0.177 in)
Max. weight on the mixing cup head / Accessories	0.5 kg (1.1 lb)
Permitted operation	Continuous
Operation mode	Timer or Sensor
Level of electrical protection IEC/EN60529+A1	IP 42
Noise level	<< 80 dBa
Admitted temperature	Storage: -10...+60 °C (+14...+140 F°) Working: 5°...+40 °C (+41...+104 °F)
Admitted humidity	Max. 80%
Power	15 W
Overvoltage category	II
Pollution degree IEC/EN61010-1	2
Max. altitude	2000 m

6 Accessories / Spare parts

A00000012CP	Foam stand for 19 microvials 1.5 ml - Eppendorf®
A00000013CP	Customizable soft foam top
A00000014CP	Foam stand 5 test tubes Ø16mm
A00000015CP	Foam stand for microtiter
A00000016CP	Small rubber supporting plate Ø 50mm
A00000019CP	Foam stand 4 test tubes Ø29mm

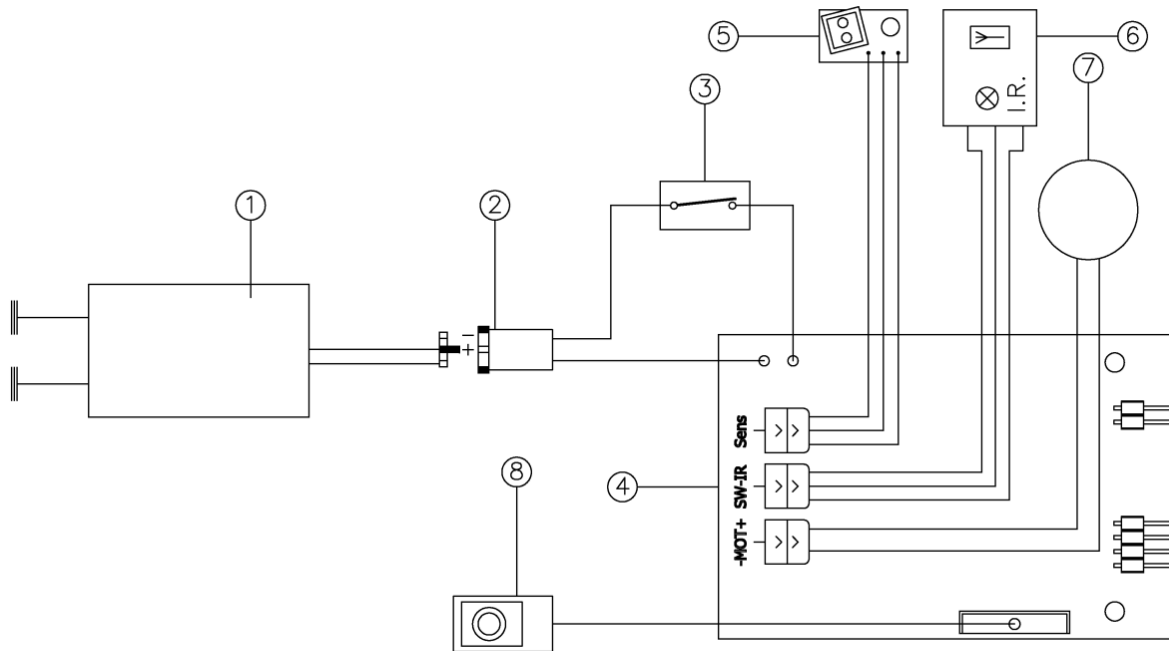
Do not exceed 800 rpm when using one of the above accessories. High speeds may cause the sample to spill.



10005195CP	Mixing cup head
10005213CP	Knob 24D blue

10005880CP	Foot 28Dx5H antivibration
40001099CP	Switching 100-240V/12V without plug

7 Wiring diagram



1. External power
2. Socket of the instrument
3. ON-OFF switch
4. Electronic board

5. Counter board
6. IR card
7. Electric motor
8. Stirring & time encoder

8 Declaration of conformity

We hereby declare that the product is manufactured in conformity with the following standards:

EN 61010-1/2001 EN61010-2-051/2003 EN 61326-1/2013

and satisfies the essential requirements of the following directives:

2006/42/EC
2014/35/EU
2014/30/EU
2011/65/UE (RoHS)
2012/19/UE (RAEE)
plus modifications

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