FLUKE®

Hart Scientific®

2018

Thermometer Carousel

Rev. 610401

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Hart's warranty obligation is limited, at Hart's option, to refund of the purchase price, free of charge repair, or replacement of a defective product which is returned to a Hart authorized service center within the warranty period.

To obtain warranty service, contact your nearest Hart authorized service center or send the product, with a description of the difficulty, postage, and insurance prepaid (FOB Destination), to the nearest Hart authorized service center. Hart assumes no risk for damage in transit. Following warranty repair, the product will be returned to Buyer, transportation prepaid (FOB Destination). If Hart determines that the failure was caused by misuse, alteration, accident or abnormal condition or operation or handling, Hart will provide an estimate or repair costs and obtain authorization before commencing the work. Following repair, the product will be returned to the Buyer transportation prepaid and the Buyer will be billed for the repair and return transportation charges (FOB Shipping Point).

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Fluke Corporation, Hart Scientific Division
799 E. Utah Valley Drive • American Fork, UT 84003-9775 • USA
Phone: +1.801.763.1600 • Telefax: +1.801.763.1010
E-mail: support@hartscientific.com

www.hartscientific.com

1 Before You Start

1.1 Introduction

The 2018 carousel is designed for use with Model 6055 calibration bath. It mounts into the bath access opening and is secured into place using the two shoulder screws supplied with the carousel. The 2018 is designed for use with either liquid in glass thermometers or metal sheathed probes. The carousel is constructed of stainless steel and can be safely used with all bath fluids over the entire range of the 6055. It can hold up to twelve thermometers or probes without exposing them to the bath fluid. One open well is located in the center of the device for placing a reference probe directly into the bath fluid if required. The wheel shaped handle above the carousel allows liquid in glass thermometers to be rotated into position for proper viewing of each instrument's meniscus by the user.

1.2 Symbols Used

Table 1 lists the International Electrical Symbols. Some or all of these symbols may be used on the instrument or in this manual.

Table 1 *International Electrical Symbols*

Symbol	Description
	AC (Alternating Current)
	AC-DC
	Battery
	CE Complies with European Union Directives
	DC
	Double Insulated
	Electric Shock
	Fuse

Symbol	Description
	PE Ground
	Hot Surface (Burn Hazard)
	Read the User's Manual (Important Information)
	Off
	On
	Canadian Standards Association
CAT II	OVERVOLTAGE (Installation) CATEGORY II, Pollution Degree 2 per IEC1010-1 refers to the level of Impulse Withstand Voltage protection provided. Equipment of OVERVOLTAGE CATEGORY II is energy-consuming equipment to be supplied from the fixed installation. Examples include household, office, and laboratory appliances.
	C-TIC Australian EMC Mark
	The European Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) mark.

1.3 Safety Information

Use this instrument only as specified in this manual. Otherwise, the protection provided by the instrument may be impaired.

The following definitions apply to the terms "Warning" and "Caution".

- "WARNING" identifies conditions and actions that may pose hazards to the user.
- "CAUTION" identifies conditions and actions that may damage the instrument being used.

1.3.1 ⚠ WARNINGS

To avoid personal injury, follow these guidelines.

GENERAL

Appropriate personal safety protection should be worn by the operator at all times while using the instrument and calibration bath.

DO NOT use the instrument for any application other than calibration work. The instrument was designed for use with a Hart Scientific Model 6055 bath for temperature calibration. Any other use of the unit may cause unknown hazards to the user.

DO NOT use the instrument in equipment other than a Hart Scientific Model 6055 calibration bath.

DO NOT use the instrument in environments other than those listed in the user's guide.

DO NOT overfill the bath. Allow for thermal expansion. As some fluids heat up, they expand, which can cause overflowing of extremely hot fluid which may be harmful to the operator. See calibration bath manual for specific instructions.

Typically, the instrument is installed in the calibration bath and never removed. If the instrument is to be removed from the bath, **DO NOT** wipe instrument down with a towel or other flammable medium. If the bath set point is high, the salt can ignite causing severe injury to the technician or extreme danger of fire or explosion. Provide a safe surface and situation for the probes to cool prior to cleaning the salt from the instrument. Once the instrument and salt on the instrument have cooled to ambient (25°C), the salt can be safely cleaned from the instrument. Read **BURN HAZARDS** before re-installing the instrument into a bath.

Follow all safety guidelines listed in the user's manual.

Calibration Equipment should only be used by Trained Personnel.

DO NOT operate high temperature baths (500°C) near flammable materials. Extreme temperatures could ignite the flammable material.

Overhead clearance is required. Do not place the instrument under a cabinet or other structure. Always leave enough clearance to allow for safe and easy insertion and removal of probes.

The instrument is intended for indoor use only.

BURN HAZARD

The bath in which this instrument is used may generate extreme temperatures. High temperatures may be present in this equipment. Fires and severe burns may result if personnel fail to observe safety precautions.

Before installing this unit in a bath, ensure the bath DOES NOT contain any water and has been completely dried prior to filling with fluid. Any trapped water can cause a steam explosion resulting in personal injury. If the bath has been filled with water, ensure the inside of the drain tube is dry prior to filling the bath with salt.

When immersing any object in the bath, ensure that you are not introducing anything into the bath that will react with the bath fluid. Ensure that probes are

DRY and free of contaminants. Read the MSDS (Material Safety Data Sheet) for the bath fluid used.

Precautions must be taken to prevent personal injury or damage to objects. Probes may be extremely hot when removed from the bath. Cautiously handle probes to prevent personal injury. Carefully place probes on a heat resistant surface or rack until they are at room temperature.

BATH FLUIDS

Salt used may produce noxious or toxic fumes under certain circumstances. Consult the fluid manufacturer's MSDS (Material Safety Data Sheet). Proper ventilation and safety precautions must be observed.

1.3.2 ⚠ CAUTIONS

To avoid possible damage to the instrument, follow these guidelines.

DO NOT overfill the bath in which this instrument is used. Overflowing liquid may damage the electrical system. Be sure to allow for thermal expansion of the fluid as the bath temperature increases. See the calibration bath user's guide for specific instructions.

This instrument is a precision instrument. Although it has been designed for optimum durability and trouble free operation, it must be handled with care. Position the bath before the tank is filled with fluid.

Most probes have handle temperature limits. Be sure that the probe handle temperature limit is not exceeded in the air above the instrument.

The instrument and any thermometer probes used with it are sensitive instruments that can be easily damaged. Always handle these devices with care. Do not allow them to be dropped, struck, stressed, or overheated.

When removing probes from the bath, **DO NOT** wipe probes down with a paper towel. If the bath set-point is high, the salt can cause the paper towel to ignite in your hand. Provide a safe surface and situation for the probes to cool prior to cleaning the salt from the probes. **DO** ensure the fluid is cleaned from the probes prior to immersing the probe in the next bath. Clean your probe between each bath to avoid contamination between bath fluids.

Under filling the bath in which this instrument is used may reduce the bath performance and may possibly damage the bath.

When calibrating PRTs always follow correct calibration procedure and calibrate from high temperatures to low temperatures with the appropriate triple point of water checks. Never immerse a wet or cold PRT into a bath filled with hot fluid. Severe damage to the PRT may result as well as personal injury to the calibration technician.

1.4 Authorized Service Centers

Please contact one of the following authorized Service Centers to coordinate service on your Hart product:

Fluke Corporation, Hart Scientific Division

799 E. Utah Valley Drive
American Fork, UT 84003-9775
USA

Phone: +1.801.763.1600
Telefax: +1.801.763.1010
E-mail: support@hartscientific.com

Fluke Nederland B.V.

Customer Support Services
Science Park Eindhoven 5108
5692 EC Son
NETHERLANDS

Phone: +31-402-675300
Telefax: +31-402-675321
E-mail: ServiceDesk@fluke.nl

Fluke Int'l Corporation

Service Center - Instrimpex
Room 2301 Sciteck Tower
22 Jianguomenwai Dajie
Chao Yang District
Beijing 100004, PRC
CHINA

Phone: +86-10-6-512-3436
Telefax: +86-10-6-512-3437
E-mail: xingye.han@fluke.com.cn

Fluke South East Asia Pte Ltd.

Fluke ASEAN Regional Office
Service Center

60 Alexandra Terrace #03-16
The Comtech (Lobby D)
118502
SINGAPORE

Phone: +65 6799-5588
Telefax: +65 6799-5588
E-mail: antng@singa.fluke.com

When contacting these Service Centers for support, please have the following information available:

- Model Number
- Serial Number
- Voltage
- Complete description of the problem

2 Specifications

Probe Outer Diameter (Max)	9.0mm (0.354 in)
Probe Immersion (Max)	427mm (16.8 in)
Wetted Parts	304 Stainless Steel

3 Carousel Installation

WARNING: *Read all warnings and cautions is this guide and in the 6055 Calibration Bath User's Guide before installing the carousel into the bath.*

1. The salt must be in a liquid state before installing the carousel into the bath.
2. The volume used by the carousel is approximately 459 cubic centimeters (28 cubic inches), which means the fluid level in the bath has to be reduced by approximately 1.27 centimeters (0.5 inches).
3. If applicable, remove the access cover, not the lid, from the bath. The access cover is the part that is placed directly over the Constant Level Flow Test Well (see Figure 4 System Diagram in the 6055 Calibration Bath User's Guide).

WARNING: *Before inserting the carousel in the bath, insure that it is clean, dry and free of all contaminants. Personal injury or death can occur from reaction of contaminants and bath salt. Refer to the salt MSDS for more information.*

4. Carefully, install the carousel into the bath. The carousel can only be installed in the bath one direction. The small end needs to be placed into the Flow Test Well.
5. Once the carousel is inserted in the bath, install and tighten the shoulder screws (2) supplied with the carousel to secure it in place. If the shoulder screws are not installed and tightened, the carousel could move around due to the upward flow within the Flow Test Well.