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Quality Assurance

Credibility & Integrity

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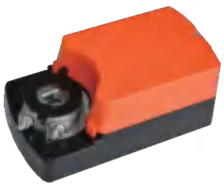


FUKA SOLUTION SDN BHD

FUKA SOLUTION SDN. BHD. was founded on 2019 in Selangor, Malaysia. Located in Gombak (Batu Cave), our main business focuses are HVAC Control products.

FUKA is work hard to build and maintain strong personal and business relationships with our customers. FUKA strives to provide products and customer service with the best quality, meanwhile maintaining the most competitive price. All products in FUKA are manufactured in Local (Malaysia).

All series of the damper actuator products from planning, design, producing, quality management, sales and warranty will providing a satisfaction of services to our customers.

We are providing all series damper actuators ,including standard version , spring return version and fire smoke version in high quality with competitive of prices, we solemnly promises global quality assurance products for three years of warranty.

Thanks of your attention and interesting to FUKA. And we look forward to having many years of good business cooperation together with you. Welcome to visit www.climaxheatingcooling.com for more product details and specifications and also to see more information about FUKA.

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CONTENTS

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Fan Coil Thermostats & Controllers

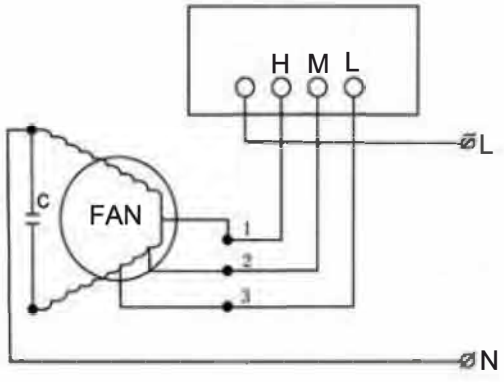
3-Speed Switch ILH101

1. General Information

ILH101 3-speed switch is applied to commercial, industrial and civil buildings.
It has 3-speed fan for system control.

Control panel	ILH101 3-speed switch FAN 1-2-3-OFF switch
Housing material	White ABS engineering plastics
Rated electricity	AC220V 2A 50/60Hz
Dimension	86×86×7 mm

2. Wiring Digram



3. Mounting:

It is recommended that mount ILH101 into a built-in standard junction box with a dimension of 75×75×35 mm or 55×105×48 mm

- Please read this instruction before installation.
- The power should be disconnected before installation.
- Wiring should abide by wiring diagram.
- Keep the thermostat parallel with wall.

Room Temperature Controller ILH102

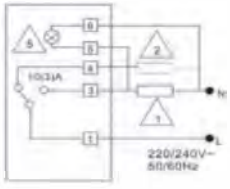
1. General Information

ILH102 electronic thermostats are mainly used in central air-conditioning and cooling/heating system, it can keep suitable temperature according to the set temperature point.

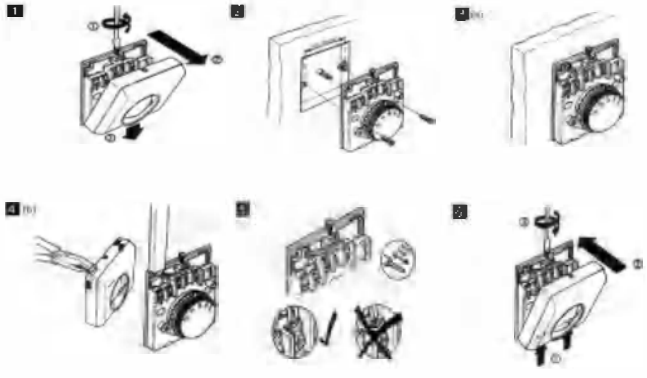
2. Technical Data

CONTROL MANNER	Mechanical(Aerator Bilious)
POWER SUPPLY	220V AC ±10%, 50Hz
MAX CURRENT	< 2A
TEMPERATURE RANGE	10~30℃
ACCURACY	± 1℃
APPEARANCE COLOR	Mike White
PROTECTION RATING	IP30
WORKING LIMITS	-20~55℃ and <92% RH

3. Wiring Diagram



4. Installation Diagram



Mechanical Thermostat ILH103

1. General Information

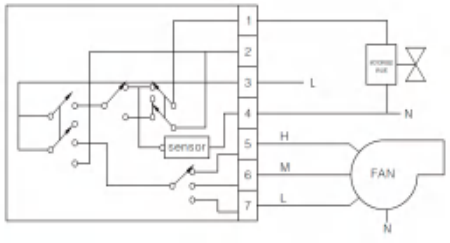
ILH103 product is available for the temperature control system, such as the fan coil of control air-conditioner and heating system, electrical heater, heat pump and so on. The sensitivity of it is very high. And this product is very practical and easy to install.

2. Specification

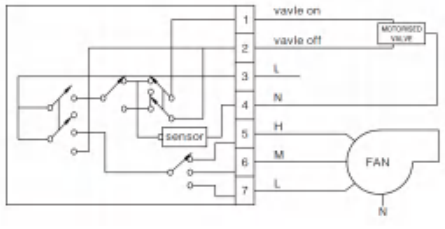
Working range : 10-30℃
Control Precision : ± 0.8℃ (at 20℃)
Temp. Sensing parts : Precision metal monopole charge sheet boxes
Thermostat : 220V AC ± 10% 50/60 Hz ,micro-switches out put
Fan Switch : 6(2) A 250V AC
Material : Tenacious fire engineering plastics
Color : Milky White
Thermostat Contact : ≧ 200000 (at 220V)
Manual Switch : 2000 times
Working environment : 0-50℃ 10-90%RH No dew
Storage Temperature : - 40℃ ~ +70℃
Net Weight : About 200g

3. Wiring Digram

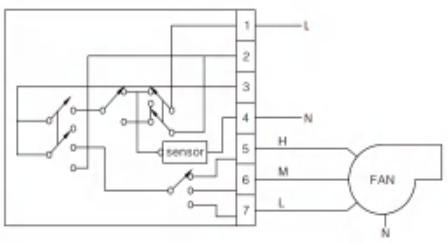
2-Wiring



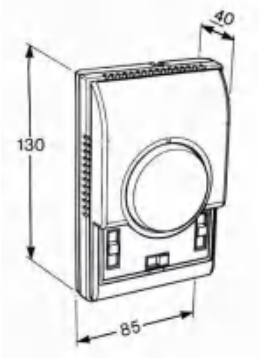
3-Wiring

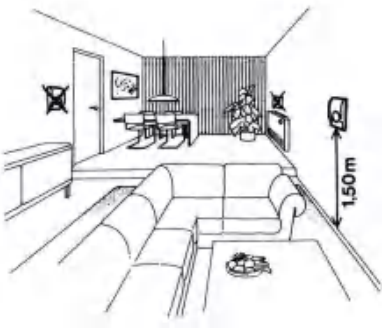


Without motorised valve

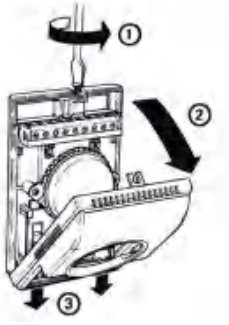


4. Dimension & Installation Sheet





1.



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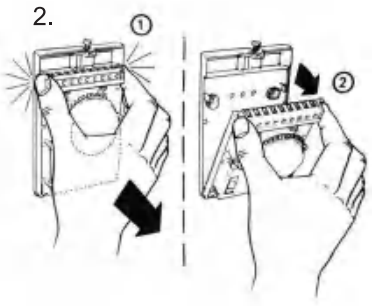

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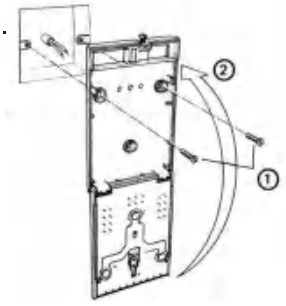
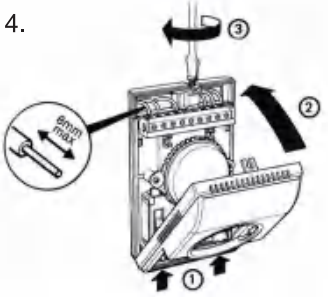


4.



Intelligent Central Air-Condition Thermostat ILH104

1. General Information

This product is available for the temperature control system, such as the fan coil of control air-conditioner and heating system,electrical heater, heat pump and so on.

It has very large LCD screen, gauges the indoor temperature with its inside NTC temperature sensor, and compare the date to the set temperature all the time.

It also adjusts air quantity of fan and the opening/closing piping electric ball valve in order to maintain the temperature of the room.

2. Technical Data

Working range：15-30℃

Control Precision：± 1℃

Power：≤ 1W

Temp. Sensing parts：NTC

Rating voltage：90¯260VAC 50/60 Hz

Current： <2A

Housing Material：Tenacious fire PC engineering plastics

Housing Color：Milky White

Size：86x86mm

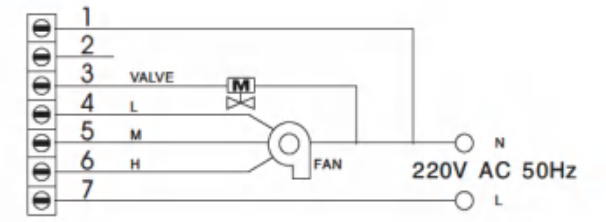
Optional functions：Blue background light, remote function

3. Characteristics

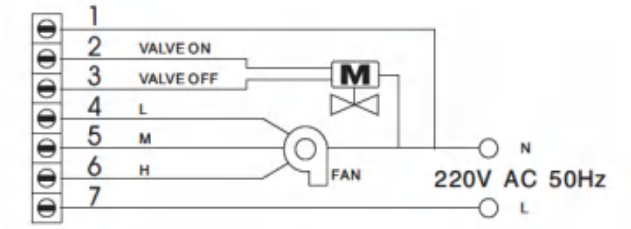
- LCD screen, blue background light (optional)
- Fan is controlled by temperature (optional)
- Modern and luxury outside design. And the thickness of panel is only 12 mm.
- 4 kinds of wind speed setting: auto, high, medial and low.
- It can be connected to 2-wiring motorized valve(2-port or 3-port), 3-wiring motorized valve, solenoid valve and fan valve.
- It has infrared remote control interface. And its remote control distance is more than 8m and the controlled angle degree is more than 30.(optional)
- Showing precise room temperature and setting temperature on the LCD screen.

4. Wiring Diagram

2-WIRING



3-WIRING



5. Installation Instruction

Make sure the electricity being turn off during installation, or components may be damaged.

Working temperature range: 5.0-40.0℃.

Relative humidity: Maximum 85 %.(20℃)

please use waterproof mask when installing in the restroom

Temperature controller should be installed on the indoor wall. And the height to the floor is about 1.5m for insuring the controller can get enough air.

Make sure that there is no heat source and direct sunlight in the room of the controller

The self-contained complete wire box is built-in type. Its size is 86× 86× 32.

Wireless Heating Thermostat ILH106

1. General Information

ILH106 is Radio Controlled Room Thermostat which requires no wiring and can be fitted in any normal operating environment within a typical 30 meter range of the TR205 RF Transceiver. It is available for Non-programmable and Programmable.

TR205 RF Transceiver should be mounted on a vertical flat surface near the boiler or central heating wiring centre. Do not place it too close to objects which might interfere with the radio signal. It is preferable to mount the transceiver such that an imaginary straight line between it and the transmitter thermostat is not obscured by the boiler or any other large metal objects.

2. Technical Data

Work Voltage: 3V± 0.2V (DC)

Consumption: <0.06W

Load Current: 2A/16A

Accuracy: ± 0.5oC

Set-point Range: 10.0- 30.0 ℃

Timing Error: <1%

Battery life: one year (2100 mah power)

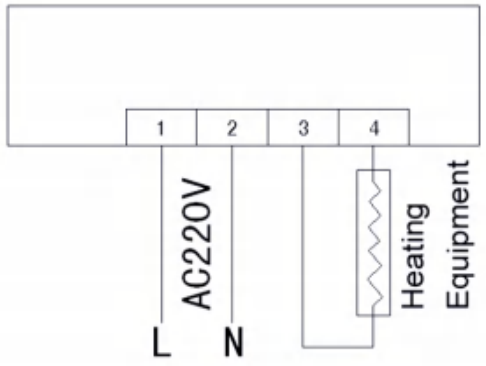
Thermostat Size: 136mm x 90mm x 30mm

Transceiver Size: 130mm x 75mm x 45mm

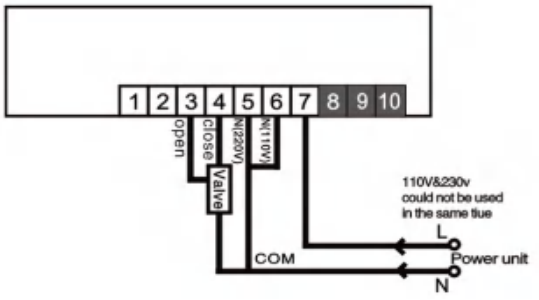
Note: we won’ t provide batteries.

3. Wiring Diagram

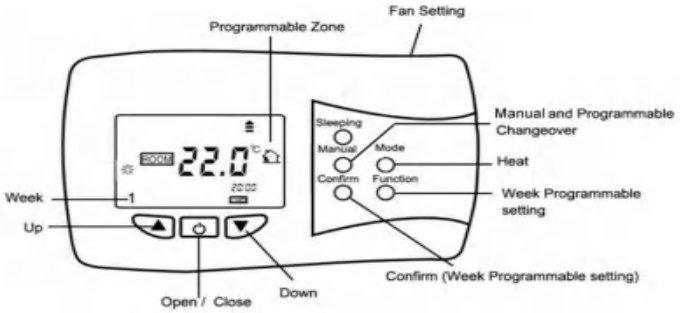
ILH106-16A



ILH106-2A



4. Symbols



5. Installation

	
5-1. Use a small size screwdriver (approx. 3.5 mm width) insert to the notch of LCD Display unit about 4 mm.	5-2.Turn up the screwdriver with a little pressure, and open the LCD unit
	
5-3. Please use two screws (provided) to fasten the back cover of LCD Display unit on wall or box.	5-4.Put two AA Batteries into the the side hole and close the cover.
	
5-5. The cover of LCD Display unit is connected on the wall or box at the angle of 30°.	5-6. Turn up the screwdriver with a little pressure, and open the LCD unit

Room Thermostat/Controller ILH107

1. General Information

ILH107 Series Room Thermostat/Controller takes use of the most advanced international microcomputer control CMOS chip. It can inspect the environment temperature through the internal or external NTC sensor. By comparing the ambient room temperature with setting temperature, it can control the valve to reach the comfortable and constant temperature.

2. Technical Data

2.1. Power Supply: 220VAC± 10% 50/60Hz
2.2. Consumption: <1.5W
2.3. Load Current: <5A
2.4. Accuracy: ±1°C
2.5. Set-point Range: 10-30°C
2.6. Timing Error: <1%

IMPORTANT:
Do not install this thermostat in condensing, wet or damp environment, Moisture may cause damage to the thermostat / controller

3. Characteristics

- NTC
- Digital LCD Display, EL Backlight
- Adjustable manual 3-speed or automatic fan speed control; High, Medium and Low
- Attractive modern styling and smart out-looking(12mm only for surface board)
- Data Memory. If the power cut off accidentally, it could be continuing to work by order when power turns
- When reach set-point, the motorized valve closed, but the fan coil turn to slow.

4. Keys and Operation

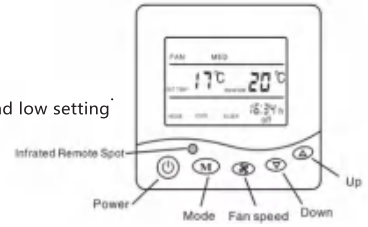
⏻:Power on/off.

Ⓜ:Mode: Cool

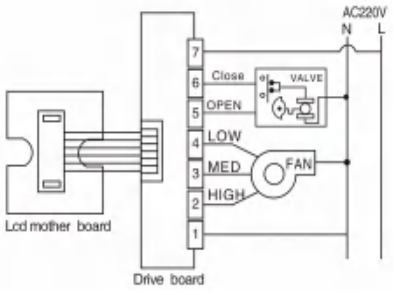
⊛: Fan speed : auto,high, medium and low setting (optional)

▲:Temp. up or modes selecting.

▼:Temp. down or odes selecting.



5. Wiring Diagram



6. Installation Instruction

6-1. The Power unit should be connected to the fan coil unit according to the wiring diagram (Please see wiring diagram on section 6)

6-2. Use a small size screwdriver (approx. 3.5 mm width) insert to the notch of LCD Display unit about 4 mm.

6-3. Turn up the screwdriver with a little pressure, and open the LCD unit

6-4. Please use two screws (provided) to fasten the back cover of LCD Display unit on wall or box.

6-5. LCD Display Unit and power unit are connected (please connect them softly to avoid the lines from damaged).

6-6. The cover of LCD Display unit is connected on the wall or box at the angle of 30°.

WARNING:PLEASE ARRANGE THE PROFESSIONAL TECHNICIAN TO INSTALL THIS PRODUCT ACCORDING TO INSTALLATION DRAWINGS AND INSTRUCTION.
RISK OF ELECTRICAL SHOCK. Disconnect power supply before making electrical connection. Contact with components carrying hazardous voltage can cause electrical shock and may result in severe personal injury or death.

7. Product & Accessories:

LCD Driver	1 pc
Power driver	1 pc
Install Instruction	1pc
Screw	4 pcs
Power Board	1 pc

WARNING: RISK OF ELECTRICAL SHOCK. Ground the thermostat according to local, national, and regional regulations. Failure to ground the thermostat may result in electrical shock and severe personal injury or death.

8. Troubleshooting

Please make sure again if the wiring connection of L and N Line are installed correctly and the mode of heating and cooling match with setting requested.

Normal Problems	Reason and Solution
No Response while power is on	- Please check if the power and connecting of L Line and N Line is appropriate connected. - Please check if the Turn-on/off key is working - During installation, have the LCD driver placed first before placing the Power Drive - Do the check the connection lines on LCD Driver to Power Driver
LCD Error	The back cover is anamorphic while installing, please release one or two fasten screws
Normal Display but no output	- The line connected with LCD Driver and Power Driver is broken - Please have the LCD Driver replace and the Power Driver
Remote Controller is out of control	- Please have the batteries checked - Replace the remote controller unit
The temperature displays incorrectly	Please adjust the temperature through pressing the keys on board

Floating Thermostat ILH108

1. Genenal Information

ILH108 floating thermostat is mainly used in central air-conditioning and heating system. It works with temperature sensor. It provides temperature control for central air-conditioning fan coil cool / heat motorized valves or other actuating mechanism in proportional and integral way. It can also control the fan blower of fan coil units and adjust the fan speed. When the electronic thermostat is turn off or power on, it can output a return signal to make the motorized valves or other actuating mechanism return.

2. Characteristics

- Auto-return function when turn off or power on.
- Power surge and instant pulse protection.
- Overtime protection function.
- Large LCD shows the ambient temperature, state and air volume.
- With system switch and fan speed switch.
- Inside or outside long-distance temperature sensitive element (NTC thermistor)
- Cool/Heat shift: clockwise or anti-clockwise direction signal output (summer or winter)
- With ABS fireproof plastic, compliance with UL-94 standard.
- With flexible installation and convenient wire-connection.

3. Technical Data

NAME	ILH108-01		ILH108-2	
POWER SUPPLY	AC24V	AC220V/230V	AC24V	AC220V/230V
OUTPUT	AC24V 1A	AC220V/230V 1A	DC0-10V 10mA	DC0-10V 5mA
POWER CONSUMPTION	0.8VA (without load)	5VA (without load)	0.6VA (without load)	5VA (without load)
FAN VOLTAGE(2A)	AC24V	AC220V/230V	AC24V	AC220V/230V
CONTROL PRECISION	±0.5℃(±1℉)			
CONTROL RANGE	10℃ - 30℃ or 50℉ - 86 ℉			
RETURN TIME	≥150s or ≥300s (for optional)		---	
OVERTIME CUT OFF	Total runtime for valve in the same direction ≥150s (≥300s), turns into overtime protection state.		---	
SENSITIVE ELEMENT	NTC thermistor 10KΩ (when at 25 ℃)			
WORKING TEMPERATURE	0 ~ 55 ℃/32 °F ~131 °F			
STORAGE TEMPERATURE	-10 ~ 60 ℃/14 °F ~140 °F			
AMBIENT HUMIDITY	90% RH maximum			

4. Instruction

1. Cool/heat shift: When power on (power supply switch at "•"), the thermostat will self-check, and then make the valve run for 150 seconds (or 300 seconds) continuously towards the closing end. When it finishes operation, the system will enter into turn off state. When the power supply switch moves to "❄", the LCD will show the cooling state symbol "❄", the action signal will output forward; when it moves to "☼", the LCD will show the heating state symbol "☼", the action signal will output backward. When it moves to "•", the LCD will shut off, the valve will run for 150 seconds (or 300 seconds) continuously towards the closing end, then the system will be shut off.

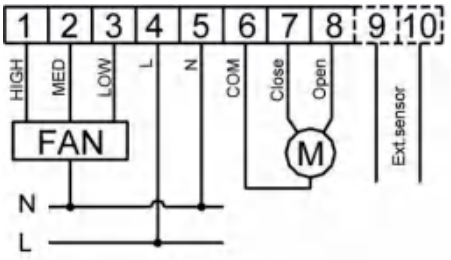
2. Fan: When the thermostat is in cooling or heating state, move the fan switch , the LCD will display corresponding air volume symbol. The terminals will output power and provide operating power for the fan. If the thermostat isn't connected to the fan, only or can be shown on the LCD. The symbol an only be shown when the thermostat is connected to fan completely and correctly.

3. Temperature setting: When user presses ▵ (increase) / ▿ (decrease) button, LCD display temperature setting will show increase or decrease accordingly. The increase/decrease rate is 1/1℃ °F. The adjusting range is 10~30℃/50 ~86°F. When user stops pressing the button for over 5 seconds, the thermostat will change the setting temperature data in its memory, and then the LCD shows the ambient temperature. (You can choose the initialization setting point as 25℃ / 77 °F.)

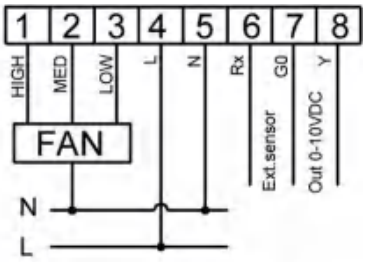
4. Built-in/external sensor: When built-in NTC thermistor is used, the jumper J3 should be put to "Int" position. If the external NTC sensor is used, the jumper J3 should be put to "Ext" position.

5. The temperature range shown on the LCD is 0 ~ 40 ℃ or 32°F ~ 99 °F.

5. Wiring Diagram

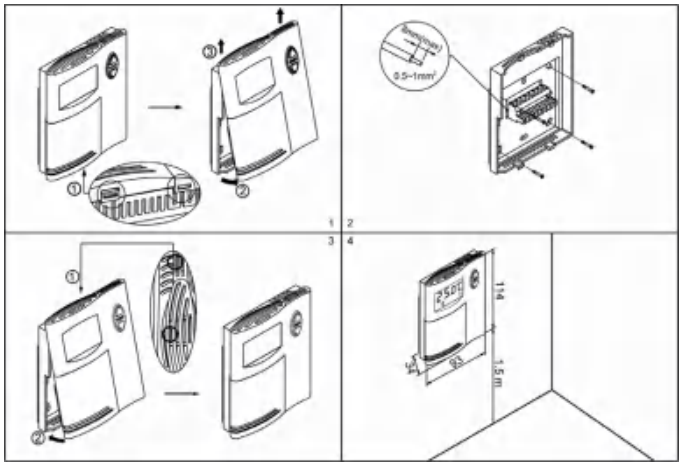


ILH108-01



ILH108-02

6. Installation



Intelligent Central Air-Condition Thermostat ILH109

1. General Information

The ILH109 Series thermostat, with multi purpose updated and computerized controller function,and by using inner integrated temperature sensor and motorized fan together, detecting the room' s temperature condition, at the same time comparing to user desire temperature degree,able to select the appropriate flow rate of warm or cold air capacity automatically, so therefore produce a comfy room condition. The product itself has passed government standard quality and CE international standard electricity safety. To be used for controlling and stabilizing room' s temperature in commercial, industria and household environment.

2. Technical Data

2.1. Power Supply: 220VAC± 10%, 50/60Hz
2.2. Consumption: <1.5W
2.3. Load Current: <2A (0.8A)
2.4. Accuracy: ±1°C
2.5. Set-point Range: 10°C - 30°C
2.6. Timing Error: <1%
2.7. Size: 86mm X 86mm X 13mm(Lx W x T)
2.8. Output Consumption: <200 W
2.9. Inductive load : 1.5A
Resistive load : 3A

IMPORTANT:
Do not install this thermostat in condensing, wet or damp environment, Moisture may cause damage to the thermostat.

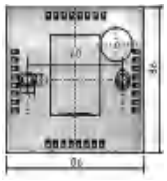
3. Characteristics

- NTC
- Digital LCD Display, EL Backlight
- Setting Turn-on/off within 24 hours(optional)
- Adjustable manual 3-speed or automatic fan speed control; High, Medium and Low
- Attractive modern styling and smart out-looking(12mm only for surface board)
- May connect to main system(optional)
- Manual operation available
- Data Memory. If the power cut off accidentally, it could be continuing to work by order when power turns

4. Dimension

Size: 86 x 86 x 13 mm

Size: 61 x 61 x 39 mm



5. Installation Instruction

1. The Power Driver should be connected to the fan coil unit according to the wiring diagram Install and insert the Power board/driver into 86 standard hidden box.

2. Use a small size screwdriver (approx. 3.5 mm width) insert to the notch of LCD board about 4 mm.

3. Turn up the screwdriver with a little pressure, and open the LCD thermostat/driver.

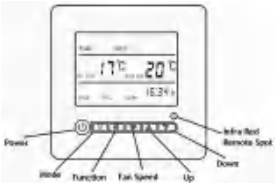
4. Please use two screws (provided) to fasten the back cover of LCD thermostat/driver to the hidden box.

5. LCD board and power driver are connected (please connect them softly to avoid the lines from damaged).

6. The cover of LCD board is connected to the hidden box at the angle of 30°

7. Press the cover softly for the last step of installation unit processes.

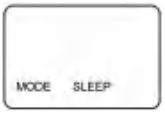
6. Keys and Operating Instruction



6.1 Turn On/Off the controller:
Press Button " Power " , choose the function of " Turn On" or " Turn Off" you desire.

6.2 (Optional) Infra Red Remote Spot is a remote control receiver spot. User should be aiming approximately within 60° of range.

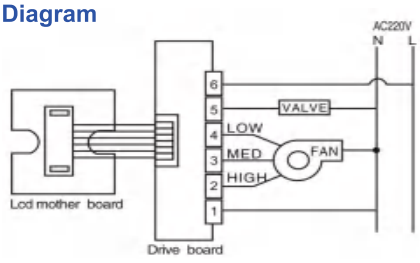
6.3 Timer Adjustment:
Sleeping function
Switch to Sleeping Function
Confirm " ▲" Cancel " ▼"



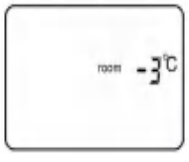
-Timing Turn-on:	-Timing Turn-off:
Switch to timing turn-on	Switch to timing turn-off
Set time up	Set time up
Set time down	Set time down
Confirm after 5 sec	Confirm after 5 sec

-Present time and timer adjustment
Press " Mode " buttons for 3 sec for starting the time setting.
Use " ▲" & " ▼" to adjust the time and after finish, please wait for 5 second

7. Wiring Diagram



8. Room Temperature Measurement



To Set and measure the room/ambient temperature, during Thermostat turn off, press and hold button " Mode" button & " Fan" button at the same time for almost 3 sec and then adjust the appropriate ambient and room temperature by using " ▲" for temperature up & " ▼" for temperature down and confirm temperature by turning on the unit.

9. Keys and Function of Remote Controller (optional)

" Mode " ------	Heating/Cooling Change-over
" UP " ----------	Temp Up "+"
" Down " ------	Temp Down "- "
" Fan " ---------	Fan Speed
" Sleeping " ---	Sleeping Function
" Timing " ------	Timing Setting
" Saving " ------	Energy-Saving
" Super " -------	High strong fan speed
" Power " ------	Turn-on/off

Thermostat ILH110

1. General Information

ILH110 Series Digital Heating Thermostats, taking use of world-advanced microcomputer control function, are used to control room temperature by internal or external precision sensor and Compare it with the set-point, then open/close motorized valve or heating equipment so as to automatically keep the room temperature stable in the water, electric or wall mounted heating system. It could set six time period sand relative temperature and choose the control way by manual or temporary manual. Checking room temperature and heating equipment temperature at the same time ,when the heating equipment temperature is higher than the room temperature, thermostat stops heating automatically to protect the heating equipment, when the heating equipment temperature is lower than the room temperature, thermostat opens the heater to lengthen its life.

2. Technical Data

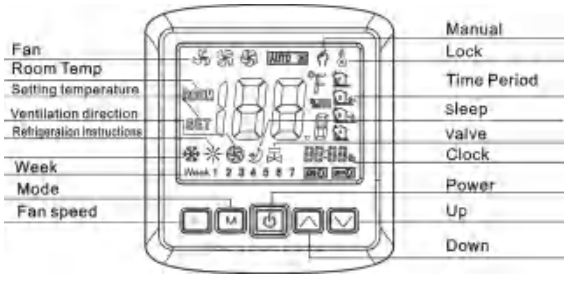
Power Consumption:<1.5W
Timing Error:<1%
Power Supply:50/60Hz,100V~220VAC
Accuracy:±1°C
Temperature Range:10°C~30°C
Load Current:1A(Inductive load), 2A(Resistive Load)
Size:94mm×87mm×18mm (L×W×H)

3. Model Definition

ILH110 □ □ □ □ □ □ □

A1. Control Fan Coil Unit and Two-line Motorized valve A2. Control Fan Coil Unit and Two-line motorized valve B. Control Motorized Valve and Motorized Fan C. Control Fan Coil Unit and Three-line Motorized Valve D. Control Three-speed fan valve E. (4-pipe configuration) to control Fan Coil Unit and Two-line Water Heating/Cooling Valve F. Control Heating Equipment.(Assist to heating,ang other requested functions)
T.Clock and timing on/off.
Y.Infrared remote; Blank stands for disables
J.Master Connection
L.Backlight;Blank stands for disable
P.Week of programming function
N.RS485 Communication

4. Function and Display



5. Operation

⏻ : Power, Turn on/off
Ⓜ : Mode,Press it to set the heat, cold and fan mode. Press it for a long time, can choose the sleep selection-manual/programmable mode regulation-Temperature patterns of week programmable
Fan: adjust auto, high, mid, low fan speed.
▲ : Temperature up or adjusting work mode
▼ : Temperature down or adjusting work mode

6. Menu Operational Processes

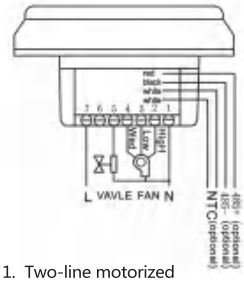
1. Set the temperature adjustment
   a.Programming operationmode: when it runs, temperature,time and time switch machines can not be adjusted, it must be re-programmed if youwant to adjust.
   b.Manual:can set through"▲" and "▼" .(LCD display upper right corner shows)
2. Key Lock Set:During Locking,press"▲" and "▼" for 5 sec. at the same time to lock/unlock the panel.
3. Fan speed
   Fan:adjust auto,high,mid,low fan speed.
4. Set heating,cooling,fan
   PressⓂto set the heat, cold and fan mode. In the fan state, the valve closed.
5. Sleep function
   PressⓂfor a long time, it flashes,press"▲" to confirem,press "▼" to cancel.
6. changeover the period programmable to manual control.(The upper right corner shows is manual mode, otherwise the programmable mode),Press press"▲" to manual,press "▼" to programmable mode.
7. Menu and week programmable function (optional)
   PressⓂfor a short time to adjust the time :Minutes adjusting→Hours adjusting→Week adjusting→Minutes open on set time→Hours open on set time→Minutes close on set time→Hours close on set time→temperature adjust during the set time.(three period,there are"12345" "6" "7",is("5+1+1" programmable mode,every mode has two times periods and a time temperature setting)

7. Serior Parameter Option

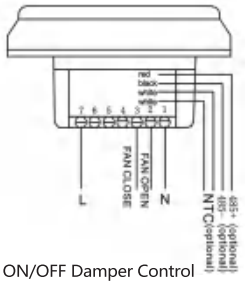
During power off, press" Ⓜ " and " " for 5 sec. into serior setting, It includes temperature correction, sensor option, low temperature protection, overheating protection, 485Communications IP high and low. Then press changeover into the relative item. Atlast, confirm it and turn on automatically.

Code	Option	▲ or ▼
1	Temperature compensation in internal sensor	-9°C~+9°C
2	Fan controlled choice	AU:control fan ON:fan out of control
3	Low temperature protection setting	ON:Low temperature protection open OFF:Low temperature protection close. When room temperature below 5°C thermost open the heat function and shows

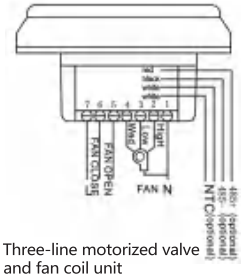
8. Wiring Diagram



1. Two-line motorized valve and fan coil unit
A1.reach the temperature, motorized valve and fan coil unit stop
A2.reach the temperature,motorized valve stop but the fan turn to low



2. ON/OFF Damper Control



3. Three-line motorized valve and fan coil unit

Proportional & Integrated Thermostat ILH113

1. General Information

ILH113 Proportional & Integration Control system is made of Proportional & Integration Controller, 24V Transformer, Sensor, Proportional & Integration Actuator and Proportional & Integration Valve Body.

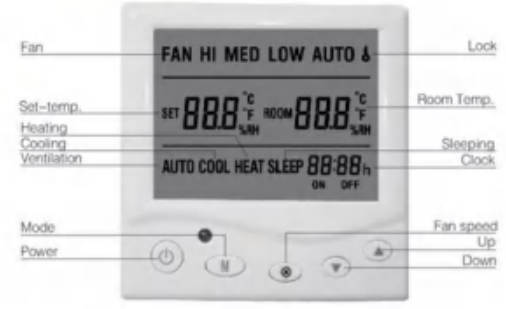
ILH113 Series Proportional Floating Thermostat, with multi, updated and computerized functions, detects different temp between ambient and setting temperature using precise NTC sensor(internal only) to adjust Heating and Cooling. Hence, it keeps the room at comfortable and constant temp...It could be programmable and non-programmable.

ILH113 Series Thermostats have got National Quality Authentication, and meet the standard of National Electric Safety. They are used to control room temperature in commercial, industrial and residential environment.

2. Technical Data

Temperature Range：7℃~120℃
Temperature Accuracy：±1℃
Load Current：<1A(Inductive load)
Self-consumption：<1.5W
Power Voltage：AC 24V± 10% 50/60Hz
Timing Error: <1%
Dimension： 86mm*86mm*13mm (Height x Width x Thickness)

3. Function and Display



4. Symbols

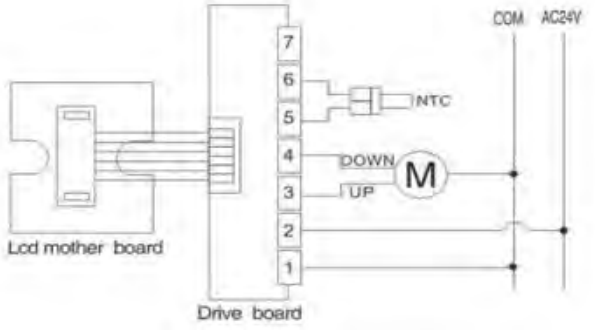
: Power, Turn-on/off
: Menu. Press it into Sleeping – Clock setting – Timing turn-on – Timing turn-off – Return to original.
M: Heating /cooling changeover
▲ : Temperature up
▼ : Temperature down

5. Parameter Option

During power off, press M for 3 sec, into senior setting. It includes temperature correction, P Value (Proportional Value), I Value (Integrated Value), 485 Communications IP high addresses and low address setting. Then press M changeover into the relative item. At last, confirm it and turn on automatically.

Code	Option	▲or▼
1	Temperature compensation	-9℃ ~+9℃ (Best and default is -1℃)
2	P-value Setting	P-value is 2℃、4℃、6℃、8℃、10℃(optional). 10℃ is Default and best.
3	I-value Setting	I-value is 1S~59S (optional) . 40S is Default and best.
4	The travel time of motorized actuator	The optional range is 4 min., 6 min. and 8 min.. They will match our VA3100, VA3200 and VA7100 Actuators.

6. Wiring Diagram



7. Installation

1. The Power Driver should be connected to the fan coil unit according to the wiring diagram Install and insert the Power board/driver into 86 standard hidden box.

2. Use a small size screwdriver (approx. 3.5 mm width) insert to the notch of LCD board about 4 mm.

3. Turn up the screwdriver with a little pressure, and open the LCD thermostat/driver.

4. Please use two screws (provided) to fasten the back cover of LCD thermostat/driver to the hidden box.

5. LCD Display Unit and power unit are connected (please connect them softly to avoid the lines from damaged).

6. The cover of LCD Display unit is connected on the wall or box at the angle of 30°.

Touch Screen Room Thermostat ILH114

1. General Information

ILH114 series Touch Screen Room Thermostat, with multi, updated and computerized functions, detects different temp between ambient and setting temperature using precise NTC sensor(internal only) to adjust Heating and Cooling. Hence, it keeps the room at comfortable and constant temp. It could be programmable and non-programmable

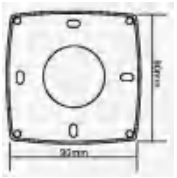
2. Technical Data

2-1. Power Supply: 220/110/24VAC(optional) ± 10%, 50/60Hz
2-2. Consumption: <1.5W
2-3. Load Current: 1A (0.6A)
2-4. Accuracy: ±1°C
2-5. Set-point Range: 10.0°C - 30.0°C
2-6. Timing Error: <1%
2-8. Output Consumption: <200 W

3. Dimension

90x90x18 mm

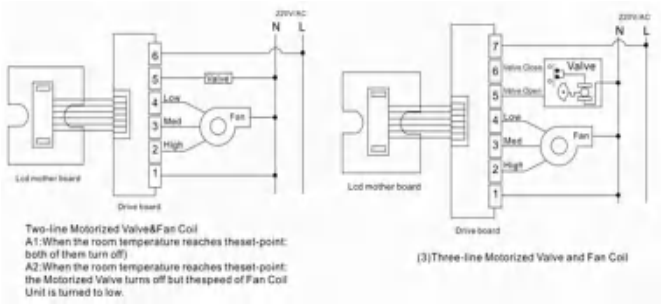
61x61x39 mm



Multifunctional back-case

WARNING: RISK OF ELECTRICAL SHOCK. Disconnect power supply before making electrical connection. Contact with components carrying hazardous voltage can cause electrical shock and may result in severe personal injury or death.

4. Wiring Diagram



5. Symbols

⏻ :Power on/off.
: Mode: press 0.3 seconds --- Heating/Cooling/Air flow only
Menu: Press 3 seconds---- Sleeping; Non-programmable & Programmable switchover; time and Programmable setting
: Fan Speed: auto, high, middle and low
▲▼: Temperature setting and mode adjusting.

6. Menu & Setting

Programmable(optional):Please refer to
Non-programmable(manual):

6-1. Temperature setting.

A. Programmable : When it is running, temperature and Power on/off can not be adjusted. Please refer to 6-6.
B. Non-programmable(Manual): Can set it directly through when in standby mode.(LCD screen shows " " on the top right corner):

6-1

6-2.Fan speed setting

Fan speed: Auto—High—Med—Low
Under auto fan mode, thermostat could adjust fan speed automatically according to comparing diff. temp. between room and set point.

6-2

6-3.Heating/Cooling/Air Flow Setting

Touch mode key: Heating/Cooling/Air Flow changeover.
When it is Air Flow, valve closes, and fan coil supplies air.

6-3

6-4.Sleeping Setting

Touch Function key for 3 seconds to switch to Sleeping and when the" " is flickering, please press▲for confirm and▼for cancel.

6-4

6-5.Programable& Non-programmable switchover

Touch Function key for 3 seconds to switch to Non-programmable (manual)
When the " " is flickering, please touch▲for confirm and▼for cancel.

6-5

7. Turn-on Automatically After The Power Back(optional)

While the system is in process, and the power cut off suddenly, it will memorize all the existent data and run according to previous data. Timing ans Sleeping also hava this memory function. This function is popular at Hotel, Power House etc.

8. Keys and Function of Remote Controller (optional)

" Mode " ------	Heating/Cooling Change-over
" UP " ----------	Temp Up "+"
" Down " ------	Temp Down "- "
" Fan " ---------	Fan Speed
" Sleeping " ---	Sleeping Function
" Timing " ------	Timing Setting
" Saving " ------	Energy-Saving
" Super " -------	High strong fan speed
" Power " ------	Turn-on/off

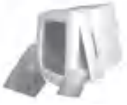
9. Installation

9.1 Use a small size screwdriver (approx. 3.5 mm width) insert to the notch of LCD Display unit about 4 mm.

9.2 Turn up the screwdriver with a little pressure, and open the LCD unit

9.3 Please use two screws (provided) to fasten the back cover of LCD Display unit on wall or box.

9.4 LCD Display Unit and power unit are connected (please connect them softly to avoid the lines from damaged).



9.5 The cover of LCD Display unit is connected on the wall or box at the angle of 30°.

9.6 The Power unit should be connected to the fan coil unit according to the wiring diagram.

IMPORTANT: PLEASE ARRANGE THE PROFESSIONAL TECHNICIAN TO INSTALL THIS PRODUCT ACCORDING TO INSTALLATION DRAWINGS AND INSTRUCTION.

10. Troubleshooting

Please make sure again if the wiring connection of L and N Line are installed correctly and the mode of heating and cooling match with setting requested.

Normal Problems	Reason and Solution
No Response while power is on	- Please check if the power and connecting of L Line and N Line is appropriate connected. - Please check if the Turn-on/off key is working - During installation, have the LCD driver placed first before placing the Power Drive - Do the check the connection lines on LCD Driver to Power Driver
LCD Error	The back cover is anamorphic while installing, please release one or two fasten screws
Normal Display but no output	- The line connected with LCD Driver and Power Driver is broken - Please have the LCD Driver replace and the Power Driver
Remote Controller is out of control	- Please have the batteries checked - Replace the remote controller unit
The temperature displays incorrectly	Please adjust the temperature through pressing the keys on board

Digital Room Thermostat ILH115

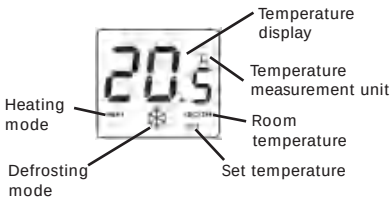
1. General Information

This type switched-mode room thermostat is suitable to regulate the overwhelming majority of boilers available in Europe. It can easily be connected to any gas boiler or air conditioning device that has a double wire connector for a room thermostat, regardless of whether it has a 24 V or 230 V control circuit.

Temperature can be measured more precisely as compared to simple, conventional thermostats. In accordance with the selected switching sensitivity, the thermostat will switch the boiler or any other appliances on and off below and above the adjusted temperature, respectively, and contributes to reduce energy costs while maintaining comfort.

The switching sensitivity of the thermostat is ± 0.2°C (± 0.3°C). This means the difference between the adjusted temperature and the actual temperature measured during the switching process. For example,if the factory default setting is 20°C on the thermostat,then the device switches the boiler on at 19.8°C or below, and switches it off at 20.2°C or above.

The information shown on the liquid crystal display of the thermostat includes the following:



2. Technical Data

— switchable voltage :	24 V AC / DC,...250 V AC; 50 Hz
— switchable current :	8 A (2 A inductive load)
— temperature measurement range :	5 to 35°C (in 0.1°C increments)
— adjustable temperature range :	10 to 30°C (in 0.5°C increments)
— temperature measurement accuracy :	±0.5°C
— selectable switching sensitivity :	±0.2°C / ±0.3°C
— defrosting temperature :	+7°C
— storage temperature :	-10°C to +60°C
— power supply voltage :	2x1.5 V AA alkaline batteries (LR6 type)
— power consumption :	1.5 mW
— battery lifetime :	approx. 1 year
— dimensions :	110 x 75 x 45 mm
— weight :	154 g
— temperature sensor type :	NTC 10 kΩ ±1% at 25°C

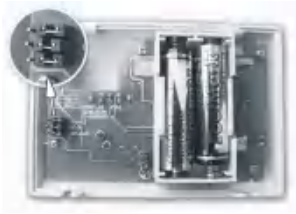
3. Installation of The Thermostat

- To install the thermostat, detach the rear panel of the thermostat from the front panel by loosening the screws at the bottom of the cover as shown in the figure.
- With the help of the screws provided and some tools fasten the rear panel of the device to the wall.
- Using a small screwdriver, remove the cover of the terminal block from the inner side of the rear panel.
- The output relay of the thermostat has three potential-free connection points, i.e. No. 1 (NO); No. 2 (COM) and No. 3 (NC), which are located under an inner cover on the inner side of the rear panel. To control heating, connect the two connection wires of the device to be controlled to terminals No. 1 (NO) and No. 2 (COM), i.e. to the normally open terminals of the relay, while the two connection wires of the cooling equipment should be connected to terminals No. 2 (COM) and No. 3 (NC), i.e. to the normally closed terminals of the relay.
- To prevent electric shock, replace the inner cover removed for the connection of wires after the assembling process has been completed.

Attention! The device must be installed and connected by a qualified professional. Always follow the manufacturer ' s instructions when connecting the thermostat to any heating or cooling appliance. The voltage appearing at terminal No. 1, No. 2 or No. 3 depends only on the system being controlled, therefore the dimensions of the wire are determined by the type of the device to be controlled. The length of the wire is of no significance.

4. Default Settings

After removing the rear panel of the device, the following factory default settings can be modified by relocating the jumpers (black plugs) located on the base panel.



4.1 Modifying the Switching Sensitivity

The switching sensitivity of the thermostat can be selected or adjusted by the uppermost jumper.

The factory default switching sensitivity (the difference between the adjusted temperature and the temperature measured when the device is switched on or off) is ±0.2°C that can be modified to ±0.3°C by relocating the plug onto the left and central pins.

4.2 Modifying the Switching Sensitivity

The switching sensitivity of the thermostat can be selected or adjusted by the uppermost jumper.

4.3 Changing the Displayed Temperature

With factory default settings the display shows the temperature in °C (Celsius) which can be modified to °F (Fahrenheit) by relocating the plug onto the left and central pins.

The temperature(s) to be shown on the LCD display can be selected and set by the bottommost jumper.

With factory default settings the display shows the currently measured room temperature value, while the notice " ROOM " appears in the bottom right corner of the display. The adjusted temperature is visible only during the adjustment process (for approximately 15 seconds). By relocating the plug onto the left and central pins the displayed temperature can be modified so that the display alternately shows the current room temperature and the adjusted temperature for 4 seconds, respectively. In this mode, notices " ROOM " and " SET " are alternately shown under the currently displayed temperature in the bottom right corner of the display, indicating whether the display shows the room temperature or the adjusted temperature value.

ATTENTION! To modify the factory default settings after inserting the batteries, press the " RESET " button with a small wooden or plastic stick to activate them.

5. Wiring Diagram

Floor Heating Thermostats ILH118

1. Product Feature

2. Buttons and Operation

1. Power on/off : Button "⏻" is used to turn on/off the system. When a thermostat is " on " status, the screen displays "✻".and the room temperature. While it is " off " status, the screen still displays the room temperature.
2. Temperature Setup : Button "▲" is to increase the temperature set-point, while button "▼"is to reduce the set point. Each time, it changes by a step of 1 degree.
3. Temperature Calibration Function (when it displays inaccurate temperature, we can go on the following operation.

   Under "off " status, press the button "M" for 3 seconds. It will display "XX ℃" (the mark " RT " disappears.). Then press "▲" or "▼" to adjust to the right temperature point, and it will realize setup automatically after 5 seconds.
4. Working mark"🔥": When the screen display this mark, it indicate that the heater is working. On the contrary, it means that the heater stops working.

3. Technical Data

Temperature setup range: 5℃ - 35℃

Temperature accuracy: ±1℃

Rated output power: <2000W

Power self-consumption: <2W

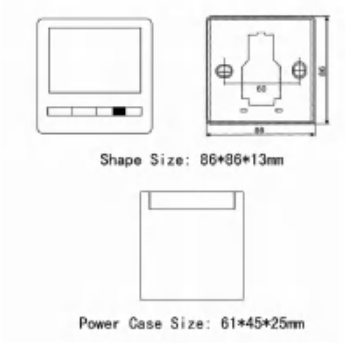
Working voltage: AC220V+10%, 50/60Hz

Conductor requirement: 0.5mm² ≤ interface diameter ≤ 2.5 mm²

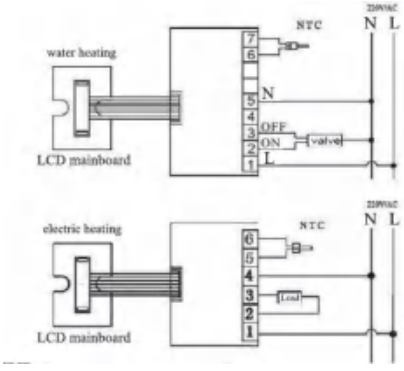
Outline size: 86mm* 86mm*13mm (Standization 86 case)

Holes distance: 60mm

4. Installation Dimension Figure



5. Wiring Diagram



6. Malfunction disposal

Statement: Only professional technical personnel can maintain the products of our company.

Malfunction	Disposal
Boot-strap error	★ Check L.N power and the wiring connection ★ Check the power on/off button; ★ Change the control board, or change the power supply board
LCD garbled	★ The back shell may be deformed during the installation loose the two fixation screws
Fuse blown	★ Confirm the wiring connection right ★ Change the power supply board
No output with right display	★ Power control panels and connecting cable may be damaged ★ Change the drive plate and then change the power supply board
Temperature display abnormal.	★ The temperature hasn ' t been calibrated.

7. Senior Option

Under the non-working state, press the button "M" for 5 seconds, it will go into the senior parameter setting. Then press the key "M" switching to different parameter setting.

	Selection Content	"▲" button or "▼" button
1	Temperature Calibration for inbuilt sensor	-9℃ to+9℃
2	Selection of sensor type	IN: inbuilt sensor (inbuilt sensor subject to temperature control and limit)default. OU: External sensor(outdoor sensor does) AI: double sensor(inbuilt senor subject to temp.control and external sensor temp.limit) Note: please select the right sensor type. If it is wrongly selected or the sensor is damaged,the LCD will display ERR, and the thermostat will stop to work until the fault is eliminated.
3	Setup of low-temperature protection	ON: If the room temp.is lower than 5℃.the heating equipment will be forcibly restarted till it\s 7℃. OFF: this function is off.(Default)
4	Setup of high-temperature protection	35-70℃.At the Min setup temp.35℃,then press the button "▼" ,it displays " -- " which means to cancel the high-temp.protection function.If the room temp.is higher than the setup degree of high-temp.protection,the heating equipment will be forcibly turned on the default point is 45℃.

8. Cautions

1. If you use hard plastic wire in installation, please bend it in appropriate angel.
2. The ambient temperature : 0℃ - 45℃.
3. Please make the connection according to the wiring diagram.
4. Please install in accordance with the correct installation diagram.
5. One thermostat can only drive one electric fan coil and a motorized valve.
6. One thermostat can only drive one electrical outlet or an electrical air valve.
7. It can be used to drive electromagnetic components such as electromagnetic valve.
8. Do not forcibly draw the wire.
9. Don' t squeeze play on the LCD during the installation process, and please do not knock the thermostat.
10. The LCD type of thermostat is exactitude electronic equipment, so please do not knock or drop it during the installation, and do not deform the back shell.
11. Do not drop it into construction mud.

9. Warranty Service

The warranty service is 18 months from date of purchase.

Note: The Service Center shall not be liable for any LCD scratch, break or damage to wire, back board, shell power supply board due to loading or installation.

10. Sale Support

The products of our company may enjoy life-long in accordance with the regulations. Our company will make a certain charge to the service out of the warranty period or product quality.

Digital Heating Thermostat ILH119

1. General Information

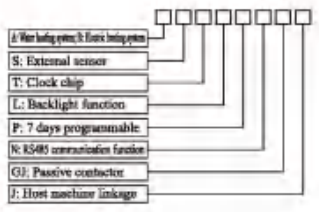
These series of digital heating thermostat, applying the most advanced and international standardized microcomputer control chip, measures the temperatures through the in-built and external high-precision sensor. It can make a real-time comparison with the parameters set by the user, automatically start and stop the heating equipment to maintain the room in a certain temperature point. It can set 6 time periods and corresponding temperature every day, and can select manual control or temporary manual control. The particular double sensor control function reinforces temperature detection on the heating equipment while detecting the room temperature.

2. Technical Data

— Power self-consumption : < 1.5W
— Timing error : < 1%
— Power voltage : 220VAC 50/60HZ
— Load current: GA: 3A GB : 16A/25A
— Temperature control range : 5℃-35℃
— Temperature accuracy : ±1℃
— Outline size : 86mm x 86mm x 13 (height x width x thickness)

3. Alternative Working Modes Table

Optional functions



4. Display and Function Description

- : Manual working mode. Under the manual mode, the heating equipment can be controlled through resetting its current temperature manually.
- : Programmable working mode. The thermostat runs automatically according to the setting time period and temperature point.
- Programmable working mode: 7-day programmable is divided into two periods, respectively "12345" / "67" 5+2 programmable working mode. Each working mode is subdivided into six periods and six corresponding temperature settings.
- : Getting up in the morning, the first period
- : Going out in the morning, the second period
- : Back home at noon, the third period
- : Going out at noon, the fourth period
- : Back home in the evening, the fifth period
- : Sleeping at night, the sixth period
- : Temporary manual working mode: under the current programmable working mode period, switching to the temporary manual state for a while, and it will automatically switch back to the programmable period control state when the next period approaches (temperature set under the temporary manual working mode will not be stored).
- Press "M" to switch over to the manual mode.
- : Button locking state. Press "▲" and "▼" at the same time for at least 5s to lock the thermostat buttons, and then press them meanwhile for at least 5s for unlocking.
- : Heating state. When the icon glitters, it means that the heating source exceeds the Max limited temperature and the load is cut off. If powered off, the icon may also glitter when the antifreezing protection starts the load.
- External temperature: floor temperature. It can only display on the screen after finishing selecting in-built and external temperature sensors. After selecting the sensor type "Al" in the senior options, keeping pressing "▲" , the screen will display the temperature of external sensor. If you release it, the screen will go back to the previous state 3 seconds later. (Optional: this option is only available to double sensor configuration)antifreezing protection starts the load.

5. Button Description and Operation

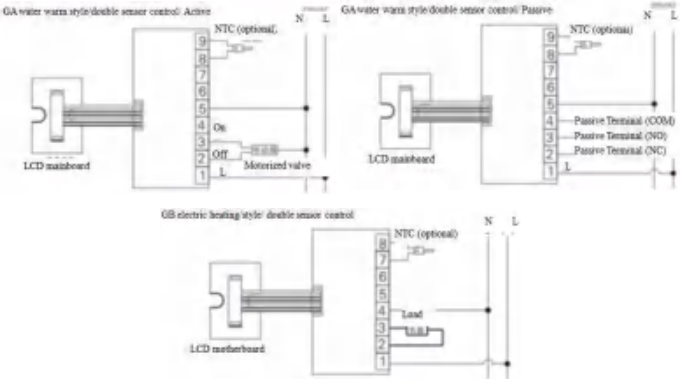
- : Power on/off button for selecting to turn on or off thermostat. If it' s on, the LCD will display its working data and the thermostat will operate under one of the below three working modes: manual mode, programmable working mode and temporary manual working mode. If it' s off, the LCD will display none. And the working state and senior parameters before powered off will be stored. "M:" model button. It refers to the switchover between manual model and 7-day programmable model. It is ineffective under the communication mode.
- : Clock program button. Firstly, we need to setup the correct time. Turn on thermostat, then press the button "" to setup Minute/ Hour/ Day. The adjusting sequence of the clock is below: minute adjustment→hour adjustment→week adjustment→back to original state. Press the buttons"▲" or "▼" to correct the time.
- Next, we can go to setup the week program. Turn on thermostats, keep pressing the button "" for 3 seconds to setup the week program. The adjusting sequence is below: adjustment of time for the first period from Monday to Friday→adjustment of temperature for the first period from Monday to Friday→ time and temperature for the second period from Monday to Friday→…→adjustment of time and temperature from Saturday to Sunday. (refer to the following attached table).
- After each parameter is finished setup, press "" to switch to next parameter setup. Press "▲"and "▼"to adjust the glittering parameter (time adjustment with 15 minutes step;"▼" sets temperature drop or adjusts the set value of work mode. "▲" sets temperature rise or adjusts the set value of work mode.

6. Setting Time and Temperature Program

(Attached table)

Period Display	Workday (Monday to Friday)		Weekend (Saturday to Sunday)	
	Time	Temperature	Time	Temperature
	06:00 getting up	20℃	06:00 getting up	20℃
	08:00 working	15℃	08:00 working	20℃
	11:30 noon break	15℃	11:30 noon break	20℃
	13:30 working	15℃	13:30 working	20℃
	17:00 off work	22℃	17:00 off work	20℃
	22:00 rest	15℃	22:00 rest	15℃

7. Wiring Diagram



Remarks : this figure is only for reference. The exact wiring way is subject to the wiring diagram on the back of the power box.

8. Description of Infrared Remote Controller and Function

(Attached table)

" " — Power on/off
" M " —Mode
" " —Week Program
" " — Clock function
" ▲ " — Temperature setup " +"
" ▼ " — Temperature setup " - "

HVAC Productions

Motorized Valve ILH201

1. General Instruction Information

ILH201 series motorized valves are used to control the terminal waterway of air conditioners, Which consist of thermostats that can control the motorized valves, and use speed-down devices and the reposition spring to turn the valves on/off so as to control the media in the pipe and then to control the temperature automatically with the help of the air sent by the fan coil units.

2. Features

- Stainless base with aluminum case
- Drive by completely-sealed psychomotor with stainless steel reposition spring
- Motor Voltage:220±10%VAC 50/60HZ
- Valve Type: Normally Closed 2-way valve and 3-way diverting valve
- Customer zed motor voltage and valve body connection type

3. Function and Display

1. Power Supply:AC220v±10% 50/60HZ
2. Working medium: hot and cold water
3. Pressure: 1.6Mpa
4. Work Condition:

   Temperature around:0~65℃

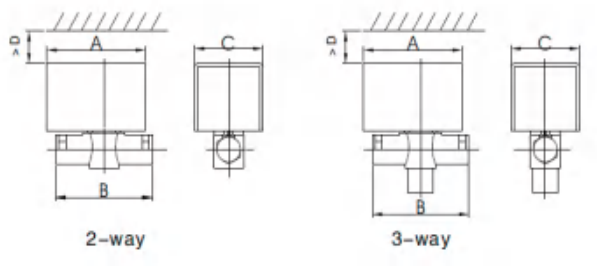
   Humidity range: 10-90% RH

   Pipeline Water Temperature:2~94℃
5. See the list below for Model, Specification Connection Type

Flow Capability:

Model	Caliber	2/3-way	Kv Rating	Close-Off(psi)
ILH201-215	1/2(15mm)	2	2.0	30
ILH201-220	3/4(20mm)	2	2.6	25
ILH201-225	1(25mm)	2	2.8	20
ILH201-315	1/2(15mm)	3	2.0	30
ILH201-320	3/4(20mm)	3	2.6	25
ILH201-325	1(25mm)	3	2.8	20

4. Dimension (mm)

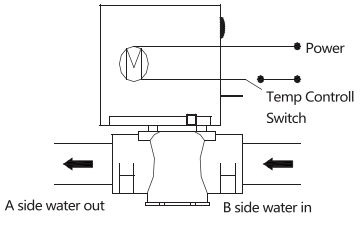


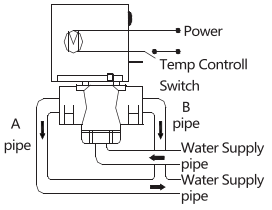
Valve Body Sizes

Model	A	B	C
ILH201-215	87	81	60
ILH201-315	87	81	60
ILH201-220	87	85	60
ILH201-320	87	85	60
ILH201-225	87	92	60
ILH201-325	87	92	60

5. Operation & Installation

1. Different pressure should be controlled within the range allowed.
2. Install the valve in the places easy for installation and maintenance.
3. Horizontally install the valve in the places void of moisture.
4. When to install the 2-way valve, the B end is for water to flow in, (with A and B marked under the valve).
5. When to install the 3-way valve, the medium will enter from under of the valve (no sign at this end). Note: End B is normally closed and end A is normally open. Please connect end B to the main pipe and end A to bypass pipe. Please refer to Fig. 3 when to install the valve.





When to manually start the valve, please carefully push the manual haft to outside, and when the haft is over the slot, then softly push it down and then the valve is in the open condition. And when to push the haft upward, the valve will return to its position at the help of its own spring. At this time, the valve is now in normal condition again.

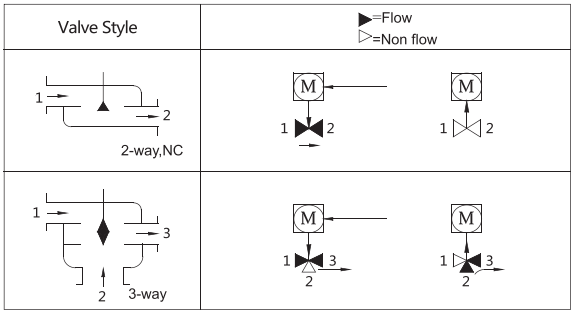
Motorized Valve ILH202

1. General Information

The brass valves are primarily designed to regulate the flow of water in response to the demand of a controller in zone and fan coil applications. They can be used in combination with on/off series of fan coil actuators.
The valves are available in 2 way N.C. (Normally Closed) or 3 way configurations.
Theelectric on/off actuator provides a two positions (open-closed) control. This compact, spring return actuator has 105N minimum seating force in a compact, easy-to install package
Connecting power, the motor of actuator drives other parts and overcomes the resistance from spring and push valve stem downwards. When power is off, return spring overcomes pressure from medium, and push stem to close position.
Actuator drives stem moving downward and valve core overcomes resistance from stainless spring and moves away from valve seat, open normally closed port.

2. Mounting (Combination)

- The fluid direction must same as the direction indicated by the arrow on the body.
- Mounting position is upright to horizontal, avoiding water dipping into inside.
- Valve must be connected in proper tools with water pipe properly.
- Never use the actuator as a lever to move valve body.



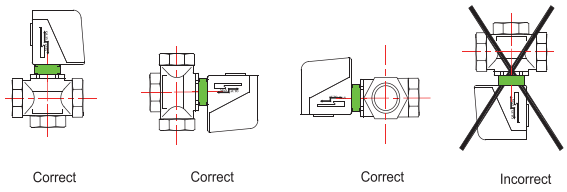
- The actuator must not be covered with insulating material.
- Sufficient clearance must be allowed for actuator maintenance or detaching.

3. Warning

- Manual operation should not be over-force avoiding the damage of the actuator.
- The water quality should meet VDI-2035 or similar requirements for HVAC applications. Other media for valve must be approved by us.
- The electric supply to the actuator should be shut off when repairing to avoid possible damage to the equipment, personal injury or shock.
- Do not touch or disconnect wires when power is on.

4. Specification of Motrized Actuator

Model	ILH202 Series
Action	On/off
Motor	Synchronous stall motor
Operating Voltage	AC220V 50/60Hz
Power	7 W
Pressure	1.6Mpa
Stroke Range	3mm~5mm
Pipeline Water Temperature	2-94℃
Humidity range	10-90% RH
Temperature range	0-65℃
Working medium	hot and cold water



5. Installation

Model	ILH202-2XX 2-way (normally closed) ILH202-3XX 3-way		
Body rating	max pressure resistance 300psi		
Medium	Hot or Cold Water for HVAC		
Body size nominal	15 (1/2")	20 (3/4")	25 (1")
Selectable Kv for 2-way	2.5	3.5	4.0
Selectable Kv for 3-way	2.5	3.5	4.0
Shipping Weight for 2-way	600g	650g	700g
Shipping Weight for 3-way	600g	650g	700g
Body Connection	G thread		
Materials	Body: brass		

Flow Switch ILH331

ILH311 series flow switch is a automatic element of protecting and controlling flow in the tube that are used in liquid lines carrying water, ethylene glycol, or other liquid not classified as hazardous. Liquid temperature,range:5℃~-120℃ Max. working pressure:1.0Mpa;

1. Typical Flow Rates

Model	Connecting size	Required to actuate switch(L/min)			
		Min.flow		Max.flow	
		flow	reducing flow	flow	reducing flow
ILH331	1	18	21	45	50
	1-1/2	30	35	100	105
	2	50	58	150	155
	2-1/2	75	86	187	200
	3	100	115	225	260

2. Specifications

Rated Voltage(V)		power Cosφ	125V AC	250V AC
Rated Amps(A)				
Non-Inductive Current		1	15	15
Induction current	Rated Current	0.75	3.5	2.5
	Locked Rotor Current	0.45	21	15

*Note: The ILH331 Flow Switch Cannot be used where the liquid in the pipes will drip below the liquid's freezing point, causing an internal freeze-up.

*IMPORTANT: ILH331 Flow Switches are designed for use ONLY as operating controls. Where an operating Control failure would result in personal injury and/or loss of property, it' s the responsibility of the installer to add devices (Safety, limit controls) or systems (alarm, supervisory systems) that protect against or warn of control failure.

Flow Switch ILH332

1.General Information

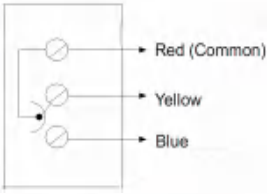
ILH332 series flow switches are used in measuring and controlling the flow of the liquid in the pipe, such as water, alcohol, etc.,as well as in the places where it needs chain effect or cutout protection.

ILH332 series flow switches have SPDT switch, full-sealing structure as its shell, and stainless steel as its inside components, which can assure its use in any conditions.

ILH332-A series flow switches are used for caustic fluid liquid,the materials of ILH332-A in contact with th medium is stainless steel.

Approvals: DnV,Det norske Veritas(Norway),CQC(China),CE (Europe).

2. Specifications



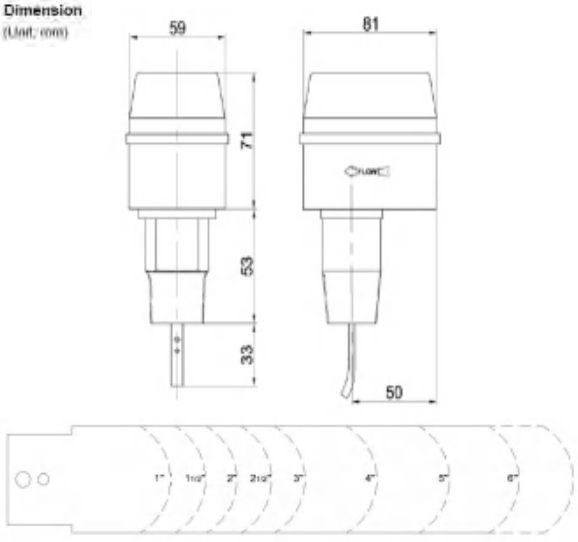
Ambient temperature: -20 ~ 50 ℃
Liquid temperature: -25 ~ 120℃
Max. liquid pressure: 1.5MPa

Voltage (V) / Current (A)		A.C. 110	A.C.220
Non-inductive current		10	8
Inductive current	Full load	10	8
	Starting	60	48

3.Model

Model	Connection	Medium	Materials in contact with the medium	crust
ILH332-1	1/2"-14NPT	Water	brass	Seal plastic case
ILH332-2	3/4"-14NPT			
ILH332-3	1"-11½NPT			
ILH332-A1	1/2"-14NPT	Caustic liquid	Stainless steel	
ILH332-A2	3/4"-14NPT			
ILH332-A3	1"-11½NPT			

Dimension
(Unit: mm)



Flow rates

Required to actuate switch (m^3/h)

Line pipe size(in.)		1	1-1/4	1-1/2	2	2-1/2	3	4	5	6	8
Min. flow	Flow increase R to B closes	1.0	1.3	1.7	3.1	4.1	6.2	8.4	12.9	16.8	46.6
	Flow decrease R to Y closes	0.6	0.8	1.1	2.2	2.8	4.3	6.1	9.3	12.3	36.6
Max. flow	Flow increase R to B closes	2.0	3.0	4.4	6.6	7.8	12.0	18.4	26.8	32.7	94.2
	Flow decrease R to Y closes	1.9	2.8	4.1	6.1	7.3	11.4	17.3	25.2	30.7	90.8

Flow Switch ILH333

1. General Information

The ILH333 Flow Switc has Are Single-Pole, Double-Throw (SPDT) flow switches that are used in liquid lines carrying water ,ethylene glycol, or other liquids not classlfied as hazardous. They can be wired to energize one device and de-energize an-other device powered from the same source when liquid flow either exceeds or drops below the set flow rate.

Note: The ILH333 Flow Switch can not be used where the liquid in the pipes will drop below the liquid' s freezing point , causing an internal freeze-up.

IMPORTANT: ILH333 Flow Switches are designed for use only as operating controls. Where an oerating control failure would re-sult in persoal injury and / or loss of property, it is the responsidility of the installer to add devices (safety,limit controls)or systems (alarm,supervi-sory systems) that protect against or warn of control failure

2. Installation

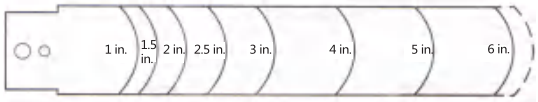


Figure 1: Trimming Template for the EXtra Paddle

IMPORTANT: To allow the switch to detect changes in the flow condition, the paddle must not touch the pipe or any restrictions in the pipe.

CAUTION: Equipment damage hazard.
To avoid damaging the switch, do not tighten the switch to the tee by grasping the switch enclosure. Use only the wrench flats provided.

- Screw the flow switch in position so the flat of the paddle is at a right angle to the flow. The arrow on the side of the case must point in direction of the flow.
- The switch should be mounted so the terminals or wire leads are easily accessible for winng.

Note: These flow switches must not be subjected to water hammer. If a fast-closing valve is located downstream of the flow switch, a suitable water hammer arrester must be used.

3. Typical Flow Rates

GPM(m³/hr)Required to Actuate Switch											
Pipe Size(in.)		1	1-1/4	1-1/2	2	2-1/2	3	4"	5"	6"	8"
Minimum Adjustment	Flow Increase R to Y Closes **	4.2 (1.0)	5.8 (1.3)	7.5 (1.7)	13.7 (3.1)	18.6 (4.1)	27.5 (6.2)	65.0 (14.8) 37.0+ (8.4)	125.0 (28.4) 57.0+ (13.0)	190.0 (43.1) 74.0+ (16.8)	375.0 (85.2) 203.0+ (46.0)
	Flow Decrease R to B Closes **	2.5 (0.6)	3.7 (0.8)	5.0 (1.1)	9.5 (2.2)	12.5 (2.8)	19.0 (4.3)	50.0 (11.4) 27.0+ (6.1)	101.0 (22.9) 41.0+ (9.3)	156.0 (35.6) 54.0+ (12.3)	333.0 (72.7) 170.0+ (38.6)
Maximum Adjustment	Flow Increase R to Y Closes **	8.8 (2.0)	13 (3.0)	19.2 (4.4)	29.0 (6.6)	34.5 (7.8)	53.0 (12.0)	126.0 (28.1) 81.0+ (18.4)	245.0 (55.6) 118.0+ (26.8)	375.0 (85.2) 144.0+ (32.7)	700.0 (173.8) 418.0+ (94.2)
	Flow Decrease R to B Closes **	6.5 (1.5)	12.5 (2.8)	18.0 (4.1)	27.0 (6.1)	32.0 (7.3)	50.0 (11.4)	122.0 (27.7) 76.0+ (17.2)	235.0 (53.4) 111.0+ (25.2)	360.0 (81.8) 135.0+ (30.7)	730.0 (165.8) 402.0+ (90.8)

* Flow rates for these sizes are calculated.
* GPMfigures are for a switch with a 6 in.paddle.For4in.And 5in.Line pipe,the6in.Paddle is trimmed to a 4 in .length,respectively.
** For switching action,refer to Figure 3.

Specifications

Product	ILH333 Flow Switch			
Maximum Liquid Pressure	150psig(1034kPa)			
Minimum Liquid Temperature	32 °F(0°C)			
Maximum Liquid Tempreature	250 °F(121°C)			
Electrical Ratings	120VAC	208VAC	240VAC	277VAC
Horsepower	1	1	1	-
Full Load Amperes	16.0	8.8	8.0	-
Locked Rotor Amperes	96.0	52.8	48.0	-
Non-inductive Amperes	16.0	16.0	16.0	16.0
Pilot Duty	125VA at 24/277VAC			
Wiring Connection	Screw Type Terminals			
Pipe Connector	1 in. 11-1/2 NPT Threads			

Condit Connection One 7/8 in.(22mm)Hole for 1/2 in.Conduit with 1-3/32in.(28mm) knockout Ring for3/4 inConduit.

4. Adjustment

CAUTION: Improper operation hazard.
The switch is factory set at approxi-mately the minimum flow rate Do not set lower than the factory setting as this may result in the switch failing to return to a'no flow' position.

CAUTION: Equipment damage hazard.
Sealed settings (screws marked with black paint) are not intended to be changed. Adjustment attempts may damage the control or cause loss of calibration, voiding the warranty.

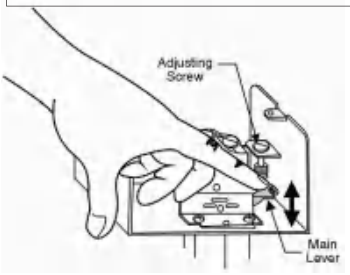


Figure 2: Minimum Adjustment

To adjust the setting of the flow switch:
1. Remove the ILH333 cover.
2. For higher flow rates, turn the adjusting screw clock-wise. To lower the flow rate after after it has been raised from the factory setting, turn the adjusting screw coun-terclockwise.
3.Check to see that the flow switch is not set lower than the factory setting by depressing the main lever nu-merous times. If the lever fails to "click" upon return at any time, turn the adjusting screw clockwis until the lever clicks upon return every time.

Checkout Procedure
The circuit betweenthe red and the yellow leads (termi-nals) will close when sufficient liquid flows through the pipe to trip the ILH333. A low flow indicator light or signal, when used, will activate when the liquid flow decreases or ceases.
Before leaving the installation, observe at least three complete oper ating cycles to be sure that the ILH333 and the system to which it is connected are functioning correctly.

Action of Switch on an Increase in Flow Above the Setpoint

Action of Switch on a Decrease in Flow Above the Setpoint

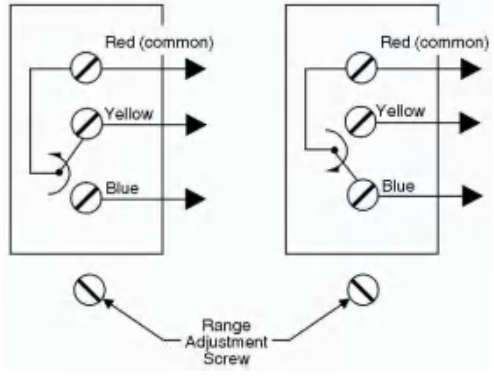


Figure 3: Switch Action

5. Wiring

WARNING: Shock hazard.
To avoid possible electric shock or dam-age to the equipment, disconnect the power supply before the wiring connec-tions or adjustments are made.

Frost Protector ILH341

1. General Information

ILH341-T series temperature control is a temperature-controlled electric switch, can be directly connected to single-phrase A.C. motors of up to about 1KW, or installed in the control current circuit of D.C. motors and large A.C. motors.

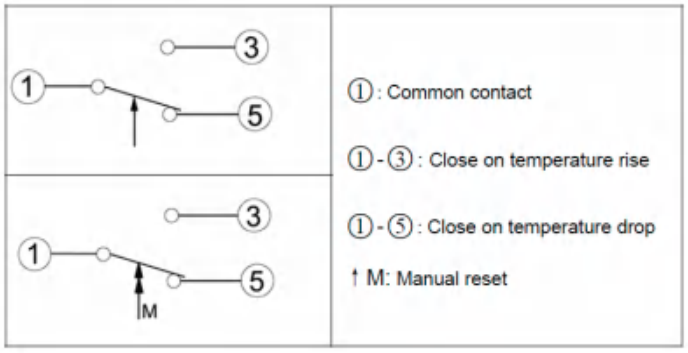
ILH341-T series temperature control has a single pole double throw (SPDT) changeover switch.

The position of switch depends on temperature control setting and bulb temperature.

2. Electricity Rating

Voltage (V) / Current (A)		A.C. 110	A.C.220
Non-inductive current		24	16
Inductive current	Full load	24	16
	Starting	144	96

3. Wiring Diagram

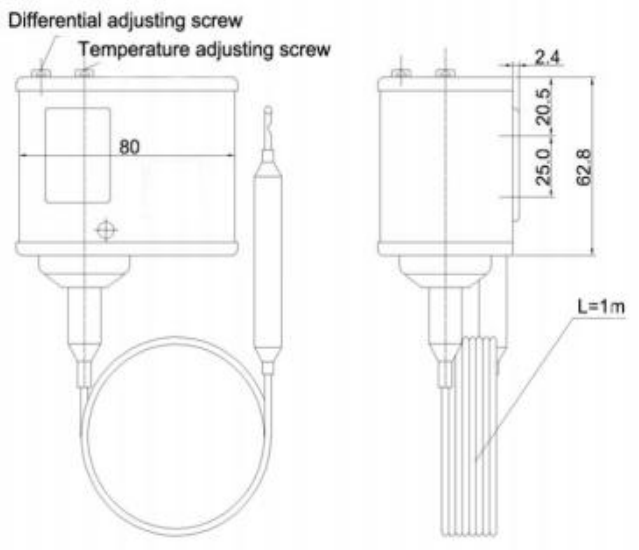


4. Model

Model	Adjusting range (℃)	Differential (℃) Min.	Differential (℃) Max.	Factory set (℃) On	Factory set (℃) Off	Max. bulb temperature (℃)	Bulb size (mm) Length	Bulb size (mm) Diameter	Use condition (℃)
T70	-70→+35	Low 5 High 3	15	-50	-45	45	80	10	Ts>Tb
T30	-30→0			-19	-14				
T15	-15→15			-5	0				
T40	0→40	5	20	17	20	70	120	12	All
T90	40→90			60	60	120			
T120	70→120			90	95	130			

Notes: 1 Ts --- Itself temperature, Tb --- Bulb temperature.
2 Can supply the type with manual reset.
3 Standard length of capillary is 1m, and entry can be used for 15mm dia.

5. Bracket Dimension(mm)



Frost Protector ILH342

1. General Information

ILH342 frost protector controller mainly have the function of antifreezing, used to guarantee system temperature is not lower than set value.

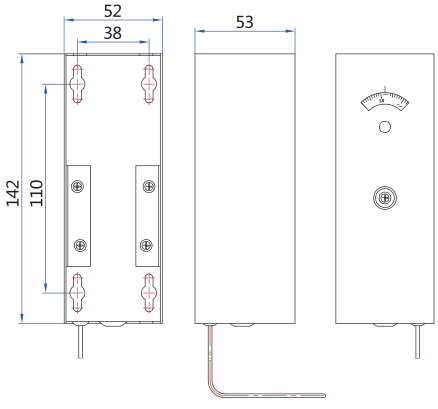
2. Features

- ℃ or ℉ scale is optional
- High precision of control and quick response
- Corrosion resistance and not affected by condensation
- Sensor length has 3M, 6M and others custom-made

3. Specifications

Power Supply: 24～250Vac ; 15 (8) A
Humidity Range: 0 ¯ 90% (No Condensation)
Temperature Control Range: 1.0 ¯ 7.5 ℃
Storage Temperature Range: - 30 ¯ + 70 ℃
Limit Temperature: 80 ℃
Connection: waterproof connectors
Sensor Material: brass
Weight: 320 g
Protection: IP54

4. Dimension



Differential Pressure Switch ILH351

1. General Information

ILH351 Differential pressure switch is pressure electric switch operation, can be used to measure air and non-corrosive gas with diaphragm material compatible of the absolute pressure, differential pressure, gauge pressure and vacuum negative pressure.

LIH351 Differential pressure switch in the ventilation duct is used as a switch or differential pressure switch to monitor the air filter and fan start-stop state, also applies to the primary and secondary level of wind valve control system.

ILH351 Differential pressure switch is also very suitable for prevent heating coil overheating and monitor industrial air cooling circuit.

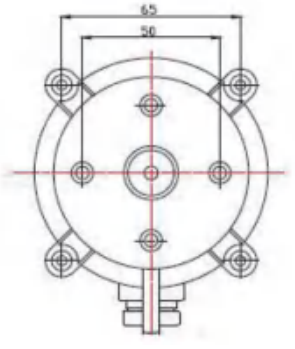
2. Features

- Simple installation, provide a full range of accessories, long service life
- Applicable medium and wide measuring range

3. Specifications

Measuring Range:
ILH351-A: 20Pa-300Pa,
ILH351-B: 50Pa-500Pa,
ILH351-C: 200Pa-1000Pa,
ILH351-D: 500Pa-2500Pa
Max. Medium Pressure: 10KPa
Pressure Medium: air, nonflammable and non-corrosive gases
Switch Capacity: 1.5 A, (0.4 A) / 250 vac
Working Temperature: - 20 ¯ + 85℃
Storage Temperature Range: - 40 ¯ + 85 ℃
Electrical Connections: AMP connector or screw terminals
Protection: IP54

4. Dimension



Differential Pressure Switch ILH350

1. General Information

ILH350 Differential pressure switch is pressure electric switch operation, can be used to measure air and non-corrosive gas with diaphragm material compatible of the absolute pressure, differential pressure, gauge pressure and vacuum negative pressure.

LIH350 Differential pressure switch in the ventilation duct is used as a switch or differential pressure switch to monitor the air filter and fan start-stop state, also applies to the primary and secondary level of wind valve control system.

ILH350 Differential pressure switch is also very suitable for prevent heating coil overheating and monitor industrial air cooling circuit.

2. Features

- Simple installation, provide a full range of accessories, long service life
- Applicable medium and wide measuring range

3. Specifications

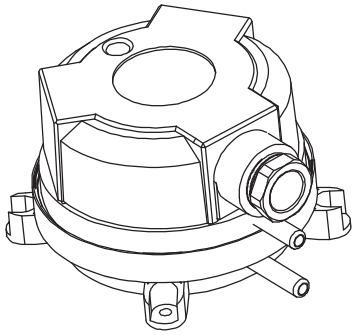
Model	**ILH350**
Media	**Air, non-combustible and ono aggressive gass**
Max Operating Pressure	**10KPa**
Mounting Position	**Diaphragm in any vertical plane**
Degree of Protection	**IP54 (with cover), IP00 (without cover)**
Operating Temperature	**-40'C to +85'C**
Contact Arrangement	**SPDT**
Terminal	**6.3mm*0.8 blade or screw terminal**
Connection	**Dia 6.4mm for tube connection**
Electrical Rating	**Resistance : initaial< 100 milliohms Current: 1.5A (0.4A)/250V**

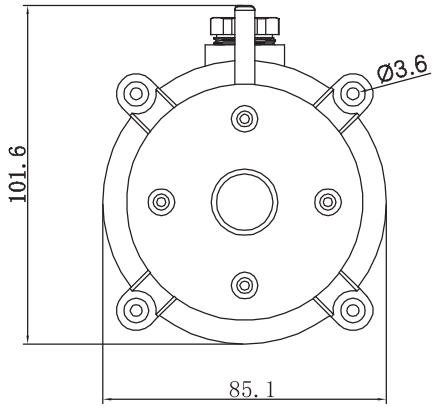
Conversion: 1in W·C·=249Pa 1mbar=100Pa

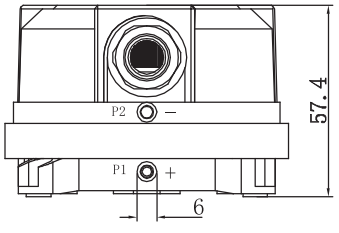
4. ILH350 Pressure Range

Model	Pressure Range	Differential	Tolerances
ILH350-02	20-200Pa	10Pa	<= ±15%
ILH350-03	30-300Pa	10Pa	<= ±15%
ILH350-04	40-400Pa	20Pa	<= ±15%
ILH350-05	50-500Pa	20Pa	<= ±15%
ILH350-10	200-1000Pa	100Pa	<= ±15%
ILH350-25	500-2500Pa	150Pa	<= ±15%
ILH350-11	100-1000Pa	50Pa	<= ±15%
ILH350-50	1000-5000Pa	250Pa	<= ±15%

5. Bracket Dimension (mm)







Sensors & Transmitters

Air Duct Humidity & Temperature Transmitter ILH301-C

1. Sensor without displaying function ILH301-NC
2. Sensor with displaying function ILH301-CC

Capacitive-type humidity and temperature transmitter/sensor for Duct Mounting

1. Feature & Application

Full range temperature compensated
Good price, Fast delivery
RS485 signal output
Humidity Accuracy +-2.0%
Range 0 to 99.99% RH
Light weight, easy installation

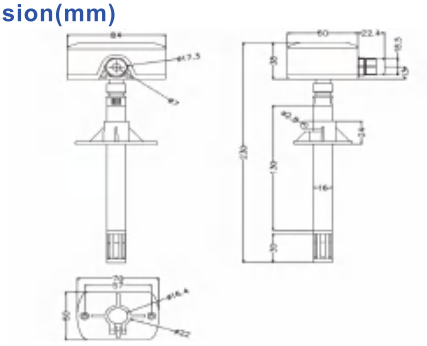
2. Description

The model ILH301-C temperature compensated humidity transmitter/sensor has been designed to meet the demand of energy-care, environmental protection, and air quality control.
The polymer capacitive element based sensor is one of the most stable sensor available and no recalibration required.
The high accuracy cover full range from 0 to 99.99% RH, allowing precise measurement of the humidity over the operating temperature from-40~80Celsius. Even condensation on the sensor will not harm it.
Each transmitter is calibrated in our computer operated atmospheric simulation chamber. The outstanding accuracy over the entire range is based on very precise calibration methods and on the latest microprocessor technology. Our well-proven polymer capacitive humidity sensor ensure excellent long-term stability.

3. Menu Function and Operation

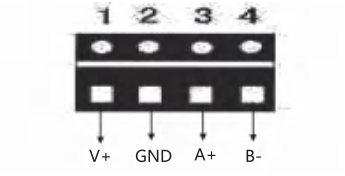
Model	ILH301-C
Power supply	12-36V DC (12-24VAC)
Measuring humidity range	0 - 99.99%RH
Sensing element	Polymer capacitor
Signal output	RS485 signal
Accuracy of humidity	+-2%RH(at 25Celsius)
Sensitivity	0.1%RH / 0.1℃
Drift rate per year	<0.1℃ or <0.5%RH
Accuracy for temperature	+-0.3Celsius(at 25Celsius)
Instrument working temperature	-20~60Celsius
Sensor operating temperature	-40~80Celsius
Case	ABS
Electrical connection	Screw connector Max1.5mm2

4.Dimension(mm)

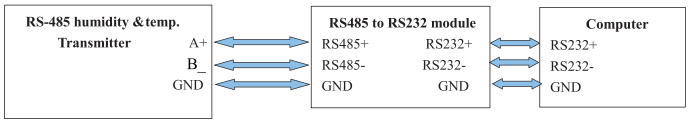


5. Electrical Connection Diagram

(1): Connection terminal



(2): Connection diagram between humidity transmitter and computer(example diagram)



6.Communication

(1). Set up Baud rate

Set up Baud rate via dial switch located on humidity sensor's PCB board

1	2	bps
OFF/0	OFF/0	9600
ON/1	OFF/0	1200
OFF/0	ON/1	2400
ON/1	ON/1	19200

(2). Set up humidity sensor's address

Set up humidity sensor's address via dial switch located on humidity sensor's PCB board , from left side to right sight, it's 8 7 6 5 4 3 2 1 on dial switch. Black color means to which direction the switch should be moved to Below is example of address from 1 to 255.

Air Duct Humidity & Temperature Transmitter
ILH301-I/ILH301-V

1.Feature & Application

ILH301-I

Full range temperature compensated
Good price, Fast delivery
4-20mA output
Humidity Accuracy +-2.0%
Range 0 to 99.99 % RH
Light weight, easy installation

ILH301-V

Full range temperature compensated
0-1/0-5/0-10V DC output
Humidity Accuracy +-2.0%
Range 0 to 99.99 % RH

2.Description

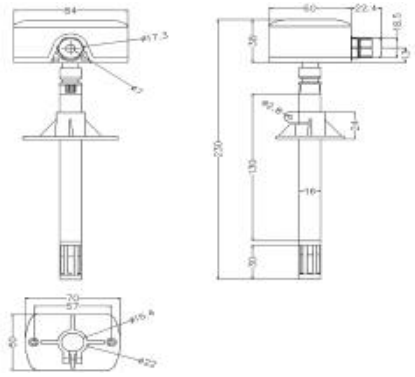
The model ILH301-I temperature compensated humidity transmitter/sensor has been designed to meet the demand of energy-care, environmental protection, and air quality control The polymer capacitive element based sensor is one of the most stable sensor available and no recalibration required.
The 4-20mA design provides an easy installation, decreasing cost of field wiring .
The high accuracy cover full range from 0 to 99.99% RH, allowing precise measurement of the humidity over the operating temperature from-40~80Celsius. Even condensation on the sensor will not harm it.
Each transmitter is calibrated in our computer operated atmospheric simulation chamber. The outstanding accuracy over the entire range is based on very precise calibration methods and on the latest microprocessor technology. Our well-proven polymer capacitive humidity sensor ensure excellent long-term stability.

3.Technical Specification

Model	ILH301-I
Power supply	20~36VDC
Operating humidity range	0.. 99.99 %RH
Sensing element	Polymer capacitor
Signal output for humidity	4-20mA
Accuracy	± 0.3℃/± 2%RH (at 25℃)
Output for temperature	4-20mA
Sensitivity	0.1%RH / 0.1℃
Drift rate per year	<0.1℃ or <0.5%RH
Instrument working temperature	-20~60Celsius
Sensor operating temperature	- 40~80Celsius
Case	ABS
Electrical connection	Screw connector Max1.5mm2

Model	ILH301-V
Power supply	15-36VDC/AC12-24V
Operating humidity range	0.. 99.99 %RH
Sensing element	Polymer capacitor
Signal output for humidity	0-10V/0-5V/0-1
Accuracy	± 0.3℃/± 2%RH (at 25℃)
Output for temperature	0-10V/0-5V/0-1
Sensitivity	0.1%RH / 0.1℃
Drift rate per year	<0.1℃ or <0.5%RH
Instrument working temperature	-20~60Celsius
Sensor operating temperature	- 40~80Celsius
Case	ABS
Electrical connection	Screw connector Max1.5mm2

4.Dimensions(mm)



5.Electrical Connection Diagram

ILH301-I

1 DC 20-36 V (Red Line)
2 GND (Black Line)
3 Humidity output current 4-20 mA (Yellow Line)
4 Temperature output current 4-20 mA (White Line)

ILH301-V

1 DC15-36V/AC12-24V (Red Line)
2 GND/AC12-24V (Black Line)
3 Humidity output voltage (Yellow Line)
4 Temperature output voltage (White Line)

Cautions

Place the duct humidity sensor/transmitter in an area of the duct that has good air flow. The sensor/transmitter should be mounted away from fans, corners, heating and cooling coils, sparying valves and other equipment that will affect the relative humidity measurement.

Room Humidity & Temperature Transmitter ILH311-C

1. Sensor without displaying function
ILH311-NC

2. Sensor with displaying function
ILH311-CC

Capacitive-type humidity and temperature transmitter/sensor for Wall Mounting

1. Feature & Application

Full range temperature compensated

RS485 signal output

Humidity Accuracy +-2.0%

Range 0 to 99.99% RH

2. Description

The model ILH311-C temperature compensated humidity transmitter/sensor has been designed to meet the demand of energy-care, environmental protection, and air quality control.

The polymer capacitive element based sensor is one of the most stable sensors available and no recalibration required.

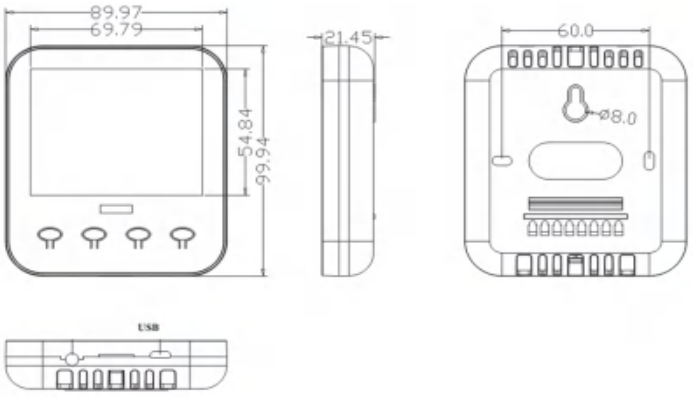
The high accuracy is cover full range from 0 to 99.99% RH, allowing precise measurement of the humidity over the operating temperature from-40~80Celsius. Even condensation on the sensor will not harm it.

Each transmitter is calibrated in our computer operated atmospheric simulation chamber. The outstanding accuracy over the entire range is based on very precise calibration methods and on the latest microprocessor technology. Our well-proven polymer capacitive humidity sensor ensures excellent long-term stability.

3. Technical Specification

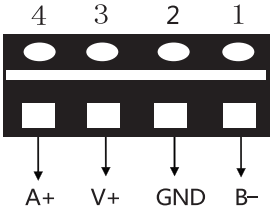
Model	ILH311-C
Power supply	9-36V DC
Measuring humidity range	0..99.99%RH
Sensing element	Polymer capacitor
Signal output HUM. and TEM.	RS485 signal
Accuracy of humidity	+-2%RH(25Celsius)
Drift rate per year	< 0.1 ℃ or < 0.5% RH
Accuracy for temperature	+-0.3Celsius(at 25Celsius)
Working temperature range	-20~60Celsius
Case	ABS

4. Dimensions(mm)

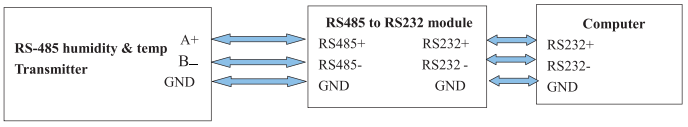


5. Electrical Connection Diagram

(1): Connection terminal



(2): Connection diagram between humidity transmitter and computer(example diagram)



6. Communication

(1). Set up Baud rate

Set up Baud rate via dial switch located on humidity sensor's PCB board

1	2	bps
OFF/0	OFF/0	9600
ON/1	OFF/0	1200
OFF/0	ON/1	2400
ON/1	ON/1	19200

(2). Set up humidity sensor's address

Set up humidity sensor's address via dial switch located on humidity sensor's PCB board, from left side to right sight, its 8 7 6 5 4 3 2 1 on dial switch. Black color means to which direction the switch should be moved to Below is example of address from 1 to 255.

Room Humidity & Temperature Transmitter
ILH311-I/ILH311-V

1. Feature & Application

ILH311-I	ILH311-V
Full range temperature compensated	Full range temperature compensated
4-20mA output	0-1/0-5/0-10V DC output
Humidity Accuracy +-2.0%	Humidity Accuracy +-2.0%
Range 0 to 99.99% RH	Range 0 to 99.99% RH

2. Description

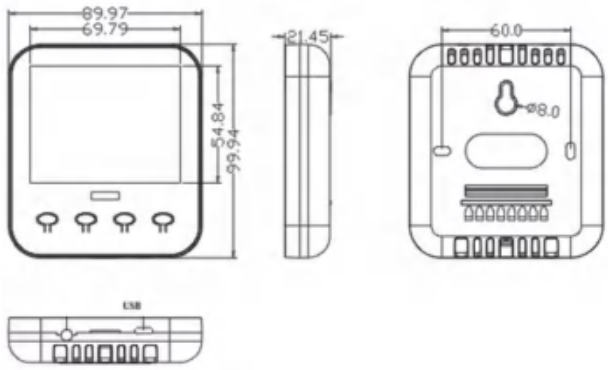
The model ILH311-I ILH311-V temperature compensated humidity transmitter/sensor has been designed to meet the demand of energy-care, environmental protection, and air quality control.
The polymer capacitive element based sensor is one of the most stable sensors available and no recalibration required.
The design provides an easy installation, decreasing cost of field wiring.
The high accuracy is cover full range from 0 -99.99% RH, allowing precise measurement of the humidity over the operating temperature from-40~80Celsius. Even condensation on the sensor will not harm it.
Each transmitter is calibrated in our computer operated atmospheric simulation chamber.
The outstanding accuracy over the entire range is based on very precise calibration methods and on the latest microprocessor technology. Our well-proven polymer capacitive humidity sensor ensures excellent long-term stability.

3. Technical Specificati

Model	ILH311-I
Power supply	20~36V DC
Measuring humidity range	0.. 99.99%RH
Sensing element	Polymer capacitor
Signal output	4-20mA
Accuracy of humidity	+-2%RH (at 25Celsius)
Accuracy for temperature	+-0.3Celsius(at 25Celsius)
Drift rate per year	Temperature: < 0.1 ℃;Humidity: < 0.5% RH
Measuring temperature	-40..80Celsius(-20~60Celsius)
Case	ABS
Electrical connection	Screw connector Max1.5mm2

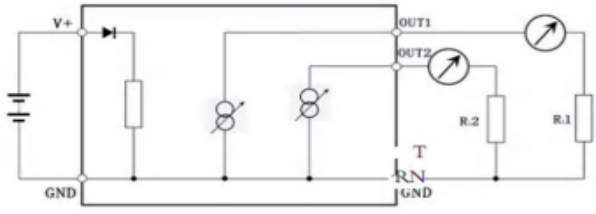
Model	ILH311-V
Power supply	15~36V DC
Measuring humidity range	0..99.99%RH
Sensing element	Polymer capacitor
Signal output	0~5V DC or 0~10V DC 0-1V DC
Accuracy of humidity	+-2%RH (at 25Celsius)
Accuracy for temperature	+-0.3Celsius(at 25Celsius)
Drift rate per year	Temperature: < 0.1 ℃;Humidity: < 0.1% RH
Measuring temperature	-40..80Celsius(-20~60Celsius)
Case	ABS
Electrical connection	Screw connector Max1.5mm2

4. Dimensions (mm)

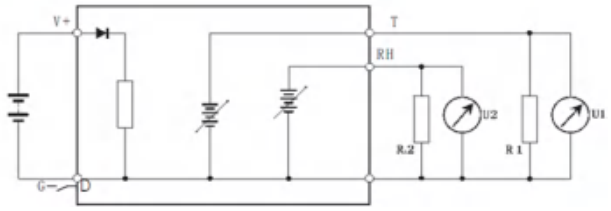


5. Electrical Connection Diagram

ILH311-I



ILH311-V

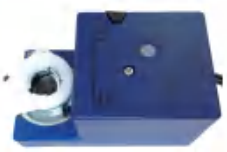


6. Cautions

Proper location of the room humidity sensor is important to ensure accurate measurement of representative air samples. Place the sensor in an area of room that has good air circulation. Install the sensor on a flat interior surface, approximately 1.4m from the floor. Avoid locating the sensor:

* In areas blanketed by air from diffuser
* On surfaces with an uncooled or unheated area behind them, such as outside wall or the wall of an unoccupied store room
* Near heat sources, such as radiant heat from the sun, heat from appliances, or from concealed pipe or chimneys
* In areas subject to draft
* Behind doors, draperies, or in corners
* On walls having excessive vibration
* In corrosive environments such as swimming pools or hospital rooms

Damper Actuators & Ball Valves



3005-N Series Spring Return Damper Actuator

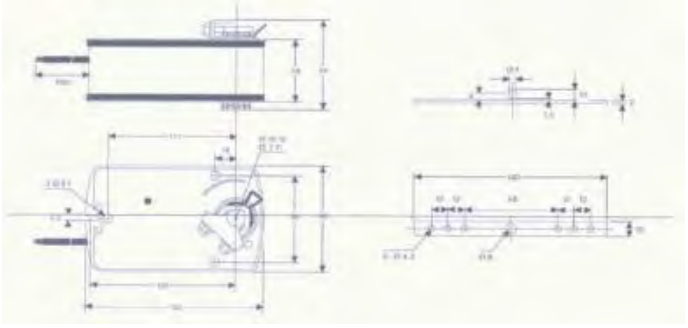
1. General Information

- PHC 3005N Series Spring Return damper actuator Series are designed specifically for application into the HVAC market.
- PHC high quality damper actuators are devel-oped for use with air damper, butterfly valve, charac- terized ball valve and other devices that required a fail safe function.
  The actuator motorized the damper or other devices when power on and spring back to it original position when power is cut off.
- For the operation of air dampers that perform safety functions (e.g. frost and smoke protection, hygiene, etc.).
  The actuator moves the damper to its normal working position while tensioning the return spring at the same time. If the power supply is interrupted, the damper back to its safe position.

2. Product Features

- 2 points on/off control
- Damper Size up to 1.0 m²
- Voltage AC/DC 24V and AC 230V available
- Universal Spindle Clamp for easy direct mounting
- Shaft dimension Ø10...16 mm / 7...11 mm square
- Minimum Shaft Length 40mm
- Anti-rotation bracket provided for stability
- Adjustable angle of rotation
- Selectable direction of rotation by reversing actuator
- 1 adjustable SPDT auxiliary switches when requested
- Energy saving at end stops
- Actuators with 1m cable connection
- Customised version available on request

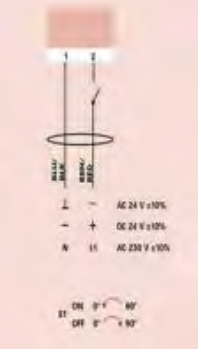
3. Actuator Dimensions (mm)



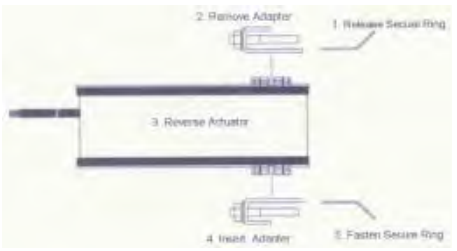
4. Technical Specification

	3005-N (24V AC/DC)	3005-N (230V AC)
Torque — Motor (Rated Voltage) — Spring	Min. 5 Nm Min. 5 Nm	Min. 5 Nm Min. 5 Nm
Damper Size	1 m²	1 m²
Power Supply	AC/DC 24 V	AC 230V
Frequency	50...60Hz	50...60Hz
Consumption Operating	5.0W	5.0 W
Consumption At the end stops	2.5 W	2.5 W
For wire sizing	7.0 VA	7.0 VA
Auxiliary Switches Rating (Amp and Voltage)	3 (1.5) A / 230 V (for 24 Vand 230 V)	3 (1.5) A / 230 V (for 24 V and 230 V)
Protection Class	III (Safety Low Voltage)	II (Completely Insulation)
Controls Signal	2 Point On/Off	2 Point On/Off
Angle of Rotation	90˚ (95˚ mechanical)	90˚ (95˚ mechanical)
Angle of Rotation Limiting	5˚...85˚ in 5˚ step	5˚...85˚ in 5˚ step
Weight	1.8 Kg	1.9 Kg
Life Cycle	60,000 rotation	60,000 rotation
Sound Level	Below 62 dB	Below 62 dB
IP Protection	IP54	IP54
Ambient Temperature	-20˚...50˚ as per IEC 721-3-3	-20˚...50˚ as per IEC 721-3-3
Ambient Humidity	5...95% RH	5...95% RH
Inventory Temperature	+70˚ as per 721-3-2	+70˚ as per 721-3-2
Maintenance	Maintenance free	Maintenance free
Certification	CE	CE

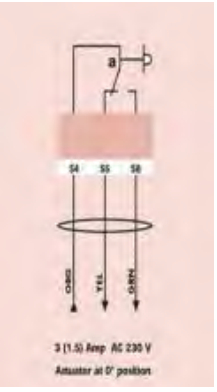
Wiring Diagram



Changing Direction of Rotation

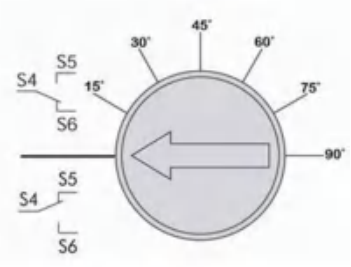


⚠ AC/DC 24V: Connect via safety isolating transformer.
AC 230V: To isolate from the main power supply, the system must incorporate a device which disconnects the phase conductors (with a least a 3mm contact gap)



Auxiliary Switches adjustment

Switch a adjustable 0˚....90˚



Built-in Micro Switch Adjustment
Turn the screw from 0˚....90˚ according to the scale

Angle of Rotation Limiting

For 5˚ to 45˚ Adjustment (Diagram 1)
1. Loosen Screw of the mechanical limiter plate.
2. Move the limiter plate to the appropriate position.
3. Tighten the screw .

For 45˚ to 85˚ Adjustment (Diagram 2)
1. Release the secure ring of the adapter.
2. Remove the adapter and turn negative 45˚ as shown.
3. Insert adapter and secure the adapter ring.
4. Loosen Screw of the mechanical limiter plate
5. Move the limiter plate to the appropriate position
6. Tighten the screw

Angle of Rotation Limiting 5˚ to 85˚ adjustment

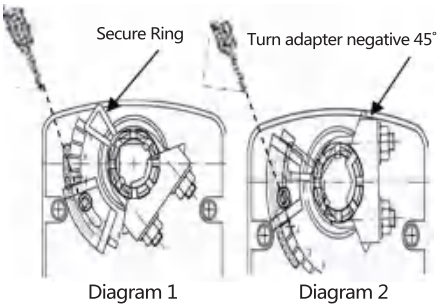
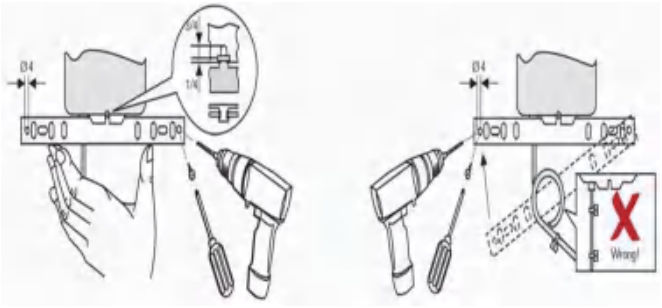


Diagram 1 — 5˚ to 45˚ Adjustment
Diagram 2 — 45˚ to 85˚ Adjustment

5. EM—Customized Version

PHC offer actuators in customized version on request in your own brand name.
Please contact us for further information.



3010-N Series of Spring Return Damper Actuator

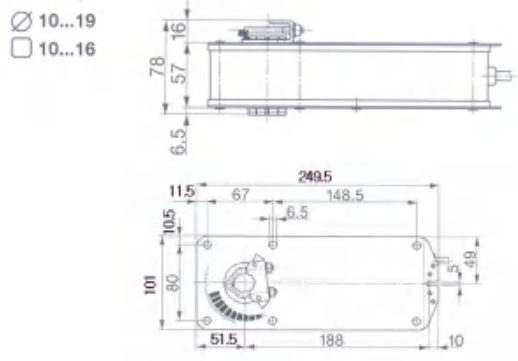
1. General Information

PHC 3010-N series Spring Return damper actuator Series are designed specifically for application into the HVAC market.

2. Product Features

- 2 point on/off control
- Damper Size up to 2.0 m²
- Voltage AC/DC 24V and AC 230V available
- Shaft dimension Ø 10....19mm / 10...16 square
- Anti-rotation bracket provided for stability
- Customized version available
- Adjustable angle of rotation
- Selectable direction of rotation by reversing actuator
- 2 adjustable SPDT auxiliary switches when requested
- Energy saving at end stops
- Actuators with 1m cable connection

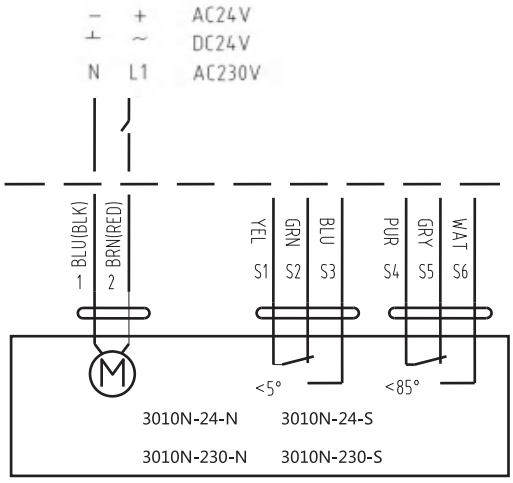
3. Actuator Dimensions(mm)

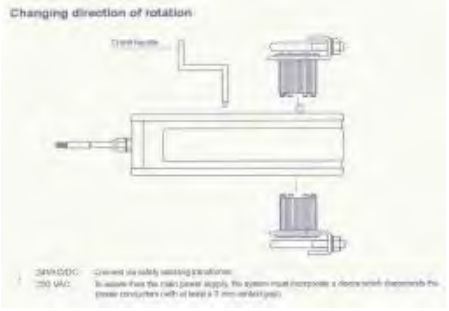


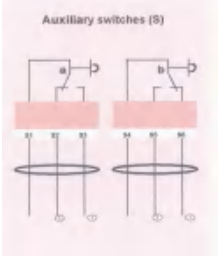
4. Technical Specification

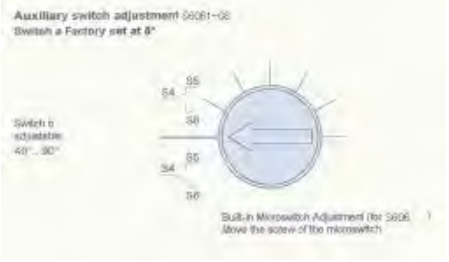
Model	3010N-24-N	3010N-24-S	3010N-230-N	3010N-230-S
Torque	10Nm			
Damper Size	2m²			
Power Supply	AC/DC 24V		AC 230V	
Frequency	50....60Hz		50....60Hz	
Power Consumption	5W Operation /2.5W Stop		6.5W Operation /2.5W Stop	
For wire sizing	10VA			
Runtime	Motor 100s ; Spring Return < 25s			
Electric Level	Ⅲ(Safety Low Voltage)		Ⅱ (Completely Insulation)	
Controls Signal	2 Point On/Off			
Angle of Rotation	90˚ (95˚ mechanical)			
Angle of Rotation Limiting	5˚...85˚ in 5˚ step			
Weight	2.7Kg			
Life Cycle	>60 , 000 times			
Noise	50dB(A) and 62dB(A)			
IP Protection	IP54			
Ambient Temperature	-20˚...50˚ as per IEC 721-3-3			
Ambient Humidity	5...95% RH			
Inventory Temperature	+70˚ as per 721-3-2			
Maintenance	Maintenance free			
Certification	CE			

5. Wiring Diagram and Shape

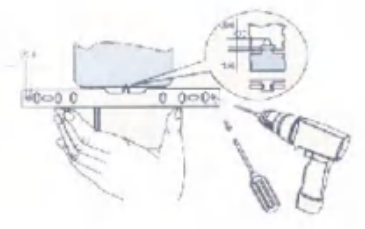


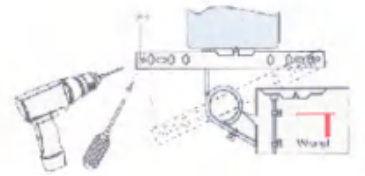






6. Installation / Mounting





3015N Series of Spring Return Damper Actuators

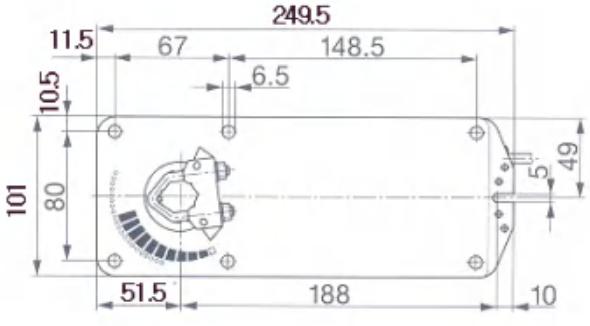
1. General Information

3015N Spring Return damper actuator Series are designed specifically for application into the HVAC market.

2. Product Features

- 2 point on/off control
- Damper Size up to 3.0 m²
- Voltage AC/DC 24V and AC 230V available
- Shaft dimension Ø 10....19mm / 10...16 square
- Anti-rotation bracket provided for stability
- Customized version available
- Adjustable angle of rotation
- Selectable direction of rotation by reversing actuator
- 2 adjustable SPDT auxiliary switches when requested
- Energy saving at end stops
- Actuators with 1m cable connection

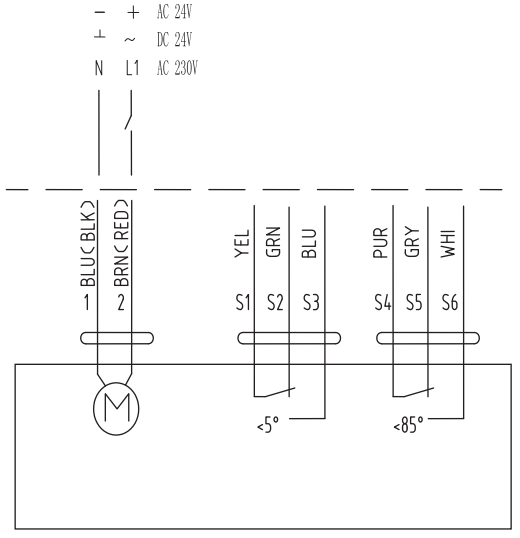
3. Actuator Dimensions(mm)



4. Technical Specification

Model	3015N-24-N	3015N-24S	3015N-230-N	3015N-230-S
Torque	15Nm			
Damper Size	3m2			
Power Supply	AC / DC24V		AC230V	
Frequency	50....60Hz			
Power Consumption	6W Operation/2.5W Stop		6.5W Operation /2.5W Stop	
For wire sizing	10VA			
Electric Level	Ⅲ(Safty Low Pressure)		Ⅱ(Isolation)	
Controls Signal	2 Point On/Off			
Angle of Rotation	90° (95° mechanical)			
Rotation Limiting	5°...85° in 5° step			
Weight	Around 3.0Kg			
Life Cycle	>60，000 times			
Noise	Mortor Max 50dB(A)；Spring Max 62dB(A)			
IP Protection	IP54			
Ambient Temperature	-20°...50° as per IEC 721-3-3			
Ambient Humidity	5...95% RH			
Inventory	+70° as per 721-3-2			
Maintenance	Maintenance free			
Certification	CE			

5. Wiring Diagram and Shape



4005-N Series Fire Smoke Damper Actuator

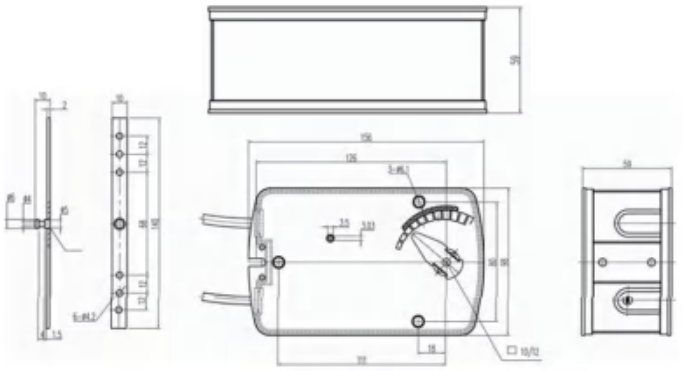
1. General Information

- Pric 4005-N Series Fire Smoke damper actuator Series are designed specifically for Fire and Smoke application.
- PHC high quality damper actuators are developed for use with fire and smoke damper. The actuator motorized the damper or other devices when power on and spring back to it original position when power is cut off or trip by the thermal sensor.
- For the operation of air dampers that perform safety functions(e.g. frost and smoke protection, hygiene, etc.). The actuator moves the damper to its normal working position while tensioning power supply is interrupted, the damper back to its safe osition.

2. Product Features

- 2 points on/off control
- Damper Size up to 1.0 m²
- Voltage AC/DC 24V and AC 230V available
- Shaft dimension Form Fit 12mm square
- Adapter supplied for Form Fit 8 or 10 mm square
- Manual Over ride by crank handle when required
- Anti-rotation bracket provided for stability
- Selectable direction of rotation by reversing actuator
- 2 SPDT Fixed auxiliary switches as Standard
- Energy saving at end stops
- Actuators with 1m cable connection
- Thermal Sensor when requested
- Customized version available on request

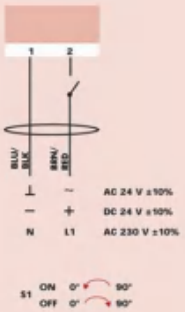
3. Actuator Dimensions (mm)



4. Technical Specification

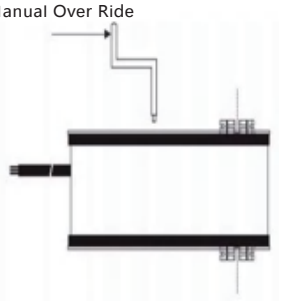
	4005-N (24V AC/DC)	4005-N (230V AC)
Torque — Motor (Rated Voltage) — Spring	Min. 5 Nm Min. 5 Nm	Min. 5 Nm Min. 5 Nm
Damper Size	1 m²	1 m²
Power Supply	AC/DC 24 V	AC 230V
Frequency	50...60Hz	50...60Hz
Consumption Operating	6 W	6W
Consumption At the end stops	2.5 W	2.5 W
For wire sizing	7.0 VA	7.0 VA
Auxiliary Switches Rating (Amp and Voltage)	3 (1.5) A / 230 V (for 24 V and 230 V)	3 (1.5) A / 230 V (for 24 V and 230 V)
Protection Class	III (Safety Low Voltage)	II (Completely Insulation)
Controls Signal	2 Point On/Off	2 Point On/Off
Angle of Rotation	90˚ (95˚ mechanical)	90˚ (95˚ mechanical)
Thermal Temperature Trip	>72˚ Celsius	>72˚ Celsius
Weight	1.8 Kg	1.9 Kg
Life Cycle	60,000 rotation	60,000 rotation
Sound Level	Below 62 dB	Below 62 dB
IP Protection	IP54	IP54
Ambient Temperature	-20˚...50˚ as per IEC 721-3-3	-20˚...50˚ as per IEC 721-3-3
Ambient Humidity	5...95% RH	5...95% RH
Inventory Temperature	+70˚ as per 721-3-2	+70˚ as per 721-3-2
Maintenance	Maintenance free	Maintenance free
Certification	CE	CE

Wiring Diagram



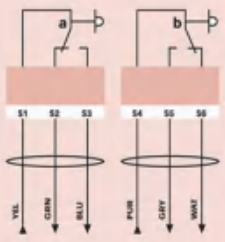
Changing Direction of Rotation

Crank Handle for
Manual Over Ride



AC/DC 24V: Connect via safety isolating transformer.
AC 230V: To isolate from the main power supply, the system must incorporate a device which disconnects the phase conductors (with a least a 3mm contact gap)

Auxiliary Switches



Auxiliary Switches

Auxiliary are fixed at 5˚ for switch (a) and 85˚ for switch (b)
Auxiliary Switches are Non adjustable.

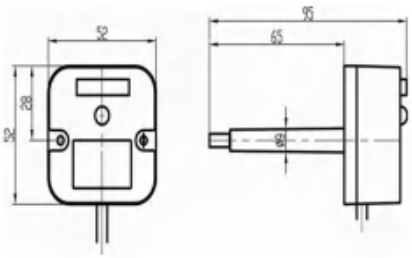
Thermal Sensor

Thermal Sensor consist of bothAmbient (TS1) and Duct sensor (TS2).

TS1 will trip open when the ambient temperature rise above 72˚.

TS2 will trip open when the duct temperature rise above 72˚.

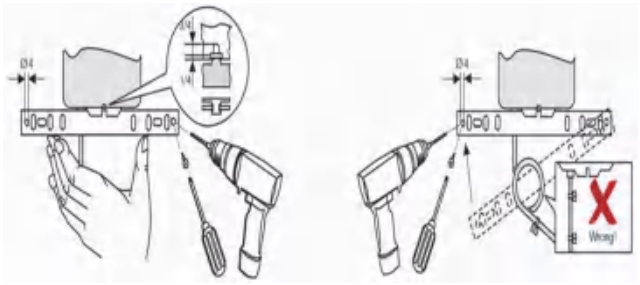
Thermal Sensor



5.Notice: Manual Operation Instruction

Insert the hand handle into the hex hole, smoothly and slowly turn around the handle by clockwise (or counter clockwise) rotation, according to the diagram of the product label. At the same time, the outputshaft will follow and turn by clockwise (or counter clockwise) rotation. When the outputshaft moves to the required position, then turn the handle conversely by counter clockwise (or clockwise) with 90 ℃, the outputshaft will be blocked. Then turn slightly the handle by another clockwise (or counter clockwise), the outputshaft will move again.
[Attention]:Please do not operate manually when the actuator is speedly rebounding, otherwise it causes easily unlocking by manual or assembly damage.

Installation / Mounting Instruction



4010-N Series of Fire Smoke Damper Actuator

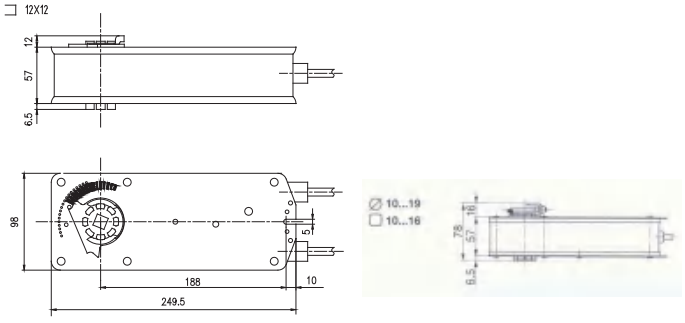
1. General Information

- Special designed for Fire and Smoke application.
- PHC high quality damper actuators are developed for use with fire and smoke damper. The actuator motorized the damper or other devices when power on and spring back to it original position when power is cut off or trip by the thermal sensor.

2. Product Features

- 2 points on/off control
- Voltage AC/DC 24V and AC 230V available
- Circular Shaft dimension Form Fit 10-19mm(diameter) or Square Shaft 10mm-16mm
- Manual Over ride by crank handle when required
- Anit-rotation bracket provided for stability
- Selectable direction of rotation by reversing actuator
- 2 SPDT Fixed auxiliary switches as Standard
- Energy saving at end stops
- Thermal Sensor when requested
- Customized version available on request

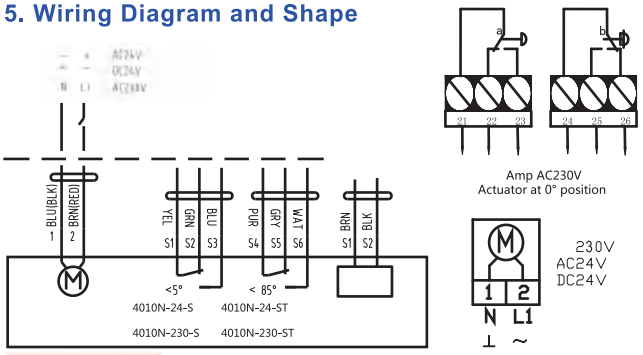
3. Actuator Dimensions(mm)



4. Technical Specification

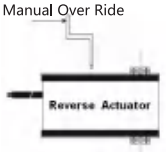
Models	4010N-24-S	4010N-24-ST	4010N-230-S	4010N-230-ST
Torque	10Nm			
Damper Size	$2m^2$			
Power Supply	AC /DC24V		AC230V	
Frequency	50...60Hz		50...60Hz	
Power Consumption	5W Operation/2.5W Stop		6.5W Operation /2.5W Stop	
For wire sizing	10VA			
Running Time	100 second and Spring Back<25 second			
Electric Level	III (Safety Low Voltage)		II (Completely Insulation)	
Controls Signal	2 Point on/off			
Angle of Rotation	90° (95° mechanical)			
Thermal Temperature Trip	>72° Celsius			
Weight	2.7 Kg			
Life Cycle	60,000 rotation			
Noise Level	Motor Max 50dB(A);Spring Max 62dB(A)			
IP Protection	IP54			
Ambient Temperature	-20°...50° as per IEC 721-3-3			
Ambient Humidity	5...95% RH			
Inventory Temperature	+70° as per 721-3-2			
Maintenance	Maintenance free			
Certification	CE			

5. Wiring Diagram and Shape

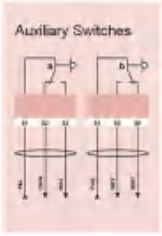


Changing Direction of Rotation

Crank Handle for Manual Over Ride

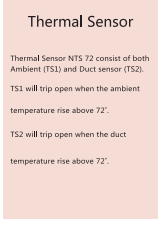


AC/DC 24V: Connect via safety isolating transformer.
AC 230V: To isolate from the main power supply, the system must incorporate a device which disconnects the phase conductors (with a least a 3 mm contact gap)

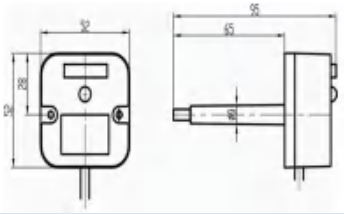


Auxiliary Switches

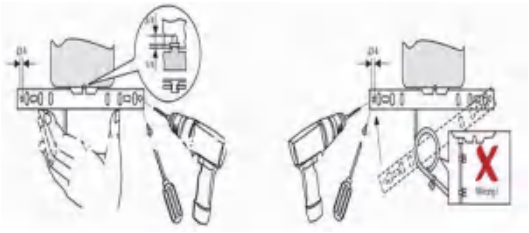
Auxiliary are fixed at 5° for switch (a) and 85° for switch (b)
Auxiliary Switches are Non adjustable.



Thermal Sensor



6. Installation / Mounting



7. Notice: Manual Operation Instruction

Insert the hand handle into the hex hole, smoothly and slowly turn around the handle by clockwise (or counter clockwise) rotation, according to the diagram of the product label. At the same time, the output shaft will follow and turn by clockwise (or counter clockwise) rotation. When the output shaft moves to the required position, then turn the handle conversely by counter clockwise (or clockwise) with 90 ℃, the output shaft will be blocked. Then turn slightly the handle by another clockwise (or counter clockwise), the output shaft will move again.

[Attention]: Please do not operate manually when the actuator is speedy rebounding, otherwise it causes easily unlocking by manual or assembly damage.

4015N Series of Fire Smoke Damper Actuators

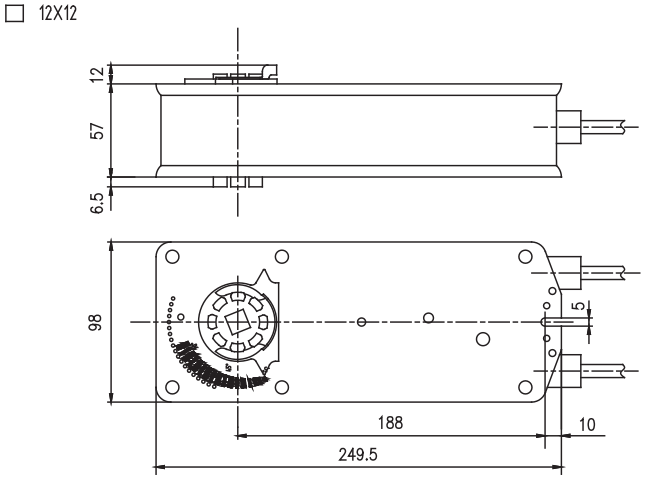
1. General Information

- 15NM Fire Smoke damper actuator Series are designed specifically for Fire and Smoke application.
- high quality damper actuators are developed for use with fire and smoke damper. The actuator motorized the damper or other devices when power on and spring back to it original position when power is cut off or trip by the thermal sensor.

2. Product Features

- 2 points on/off control
- Voltage AC/DC 24V and AC 230V available
- Manual Over ride by crank handle when required
- Anit-rotation bracket provided for stability
- Selectable direction of rotation by reversing actuator
- 2 SPDT Fixed auxiliary switches as Standard
- Energy saving at end stops
- Thermal Sensor when requested
- Customized version available on request
- Circular Shaft dimension Form Fit 10-19mm(diameter) or Square Shaft 10mm-16mm

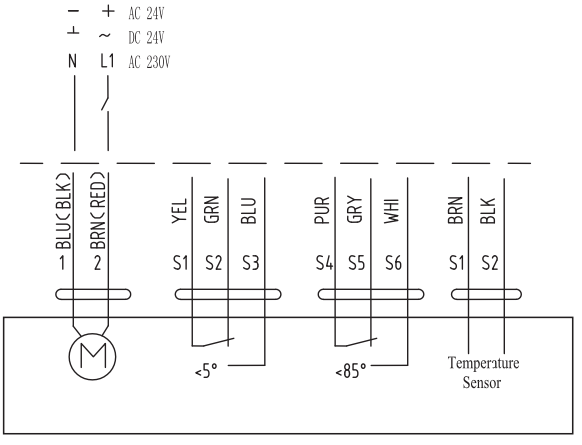
3. Actuator Dimension(mm)



4. Technical Specification

Model	4015N-24-S	4015N-24-ST	4015N-230-S	4015N- 230-ST
Torque	15Nm			
Damper Size	3m2			
Power Supply	AC / DC24V		AC230V	
Frequency	50....60Hz		50....60Hz	
Power Consumption	6W Operation/2.5W Stop			
For wire sizing	10VA			
Electric Level	Ⅲ(Safty Low Pressure)		Ⅲ(Safty Low Pressure)	
Controls Signal	2 Point On/Off			
Angle of Rotation	90° (95° mechanical)			
Rotation Limiting	>72° Celsius			
Weight	Around 3.0Kg			
Life Cycle	60,000 rotation			
Noise	Mortor Max 50dB(A) ; Spring Max 62dB(A)			
IP Protection	IP54			
Ambient Temperature	-20°...50° as per IEC 721-3-3			
Ambient Humidity	5...95% RH			
Inventory	+70° as per 721-3-2			
Maintenance	Maintenance free			
Certification	CE			

5. Wiring Diagram and Shape



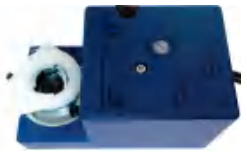
6. Notice: Manual Operation Instruction

Insert the hand handle into the hex hole, smoothly and slowly turn around the handle by clockwise (or counter clockwise) rotation, according to the diagram of the product label. At the same time, the outputshaft will follow and turn by clockwise (or counter clockwise) rotation. When the outputshaft moves to the required position, then turn the handle conversely by counter clockwise (or clockwise) with 90 °C, the outputshaft will be blocked. Then turn slightly the handle by another clockwise (or counter clockwise), the outputshaft will move again.

[Attention]:Please do not operate manually when the actuator is speedly rebounding, otherwise it causes easily unlocking by manual or assembly damage.

5002 Series Damper Actuator

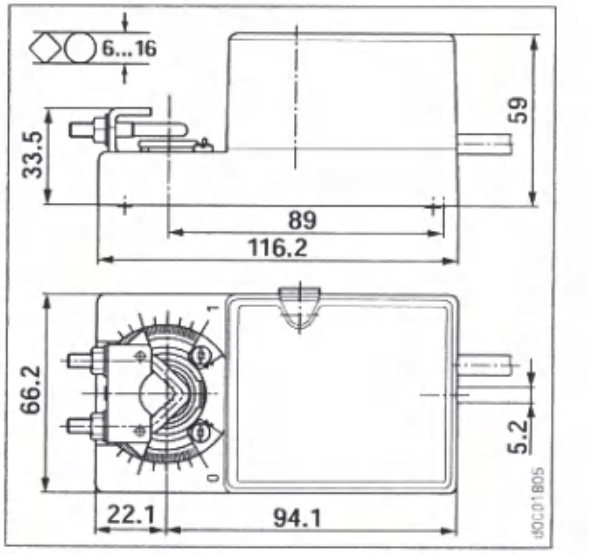
This Damper Actuator used in
Heating/Ventilation conditioning
Automation control.



1.Product Features

- Convenient install: Fix on throttle axis through universal holding device
- Manual control: Manual control through buttons available in case。
- High reliability: Actuator itself has ability of over-loading protect.
- It stops automatically without a limit switch
- Mechanical limit： A mechanical limit operator is placed inside
- Output signal：Output a signal amount 0-100%

2.Actuator Dimensions (mm)



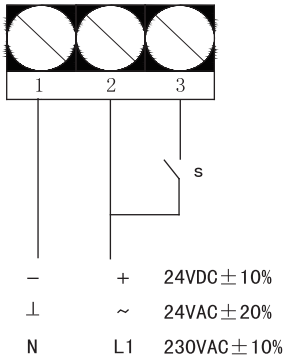
3.Technical Specification

Project	5002M-24-N	5002N-24-N	5002N-230-N
Torque	Not less than 2Nm		
Damper Area	0.5m^2		
Running Time	80-110S	25-35S	
Power Supply	AC/DC24V 50/60 Hz		AC220V
Operating Power	2.5W	2W	1.5W
Wiring Size	4.5VA	3VA	1.5VA
Shipping Weight	0.6Kg		
Control Signal	2-10V	Signal Line	
Rotation Angle	MAX 95°		
Rotation Ways	L/R switch		
Auxiliary Switch Rating	1×SPDT 5 (2.5) A, AC250V		
Life Cycle	60 , 000 cycles		
Noise Level	MAX 45dB		
Protection Level	IP54		
Ambient	-20~+50℃ and -30~+50℃		
Ambient Humidity	5~95%RH		
Storage	-40~+70℃		
Certificate	CE		

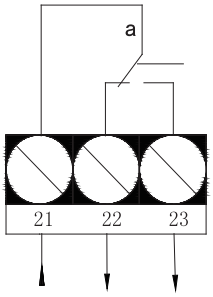
4.Wiring Diagram

5002N Wiring Diagram

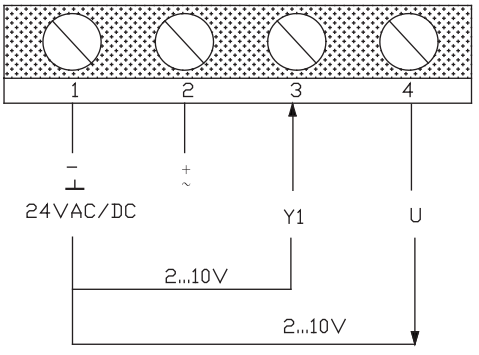
2- point



Auxiliary Switches



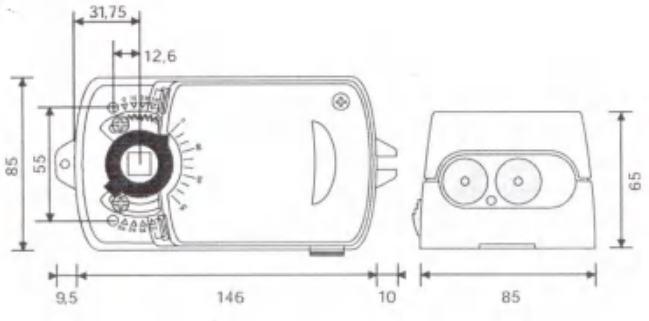
5002M Wiring Diagram



5004 Series Rotary Damper Actuator

This compact, non-spring return actuator has a 4Nm running torque in a compact easy-to-install package. It has a nominal 35-second travel time for 90° of rotation.

1. Actuator Dimensions (mm)

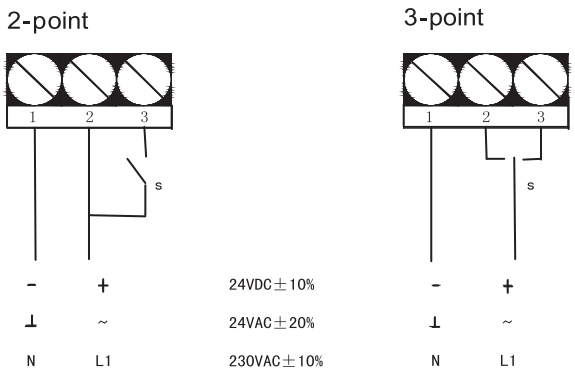


2. Technical Specifications

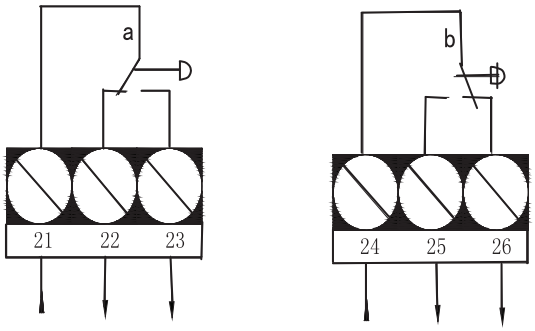
Model	5004N-24	5004N-230	5004M-24
Torque	4Nm		
Damper Area	1m ^{2}		
Running Time	35s		
Power Supply	24VAC/DC	230VAC	24VAC/DC,4~20mA
Frequency	50/60Hz		
Power Consumption	Operating: 2.5W(24V) 4.0W(230V)		
	At the end stops: 0.85W(24V) 3.0W(230V)		
Wiring Size	4.1 VA	5.0VA	4.1 VA
Shipping Weight	0.9Kg	1.0Kg	0.9Kg
Control Signal	2point and 3point		0~10 VDC
Rotation Angle	0~90°		
Limit Angle	5~85°(5°increment)		
Auxiliary Switch Rating	3（1.5）Amp 230V		
Life Cycle	60,000 cycles		
Noise Level	45dB(A)		
Protection Class	II		
IP Protection	IP44or IP54		
Ambient Temperature	-20~+50℃		
Ambient Humidity	5~95%RH		
Storage	-40~+70℃		
Certificate	CE		

Notice:Drawing out the actuator wiring through the PG joint, the protection level can reach to IP54.

3. Wiring Diagram



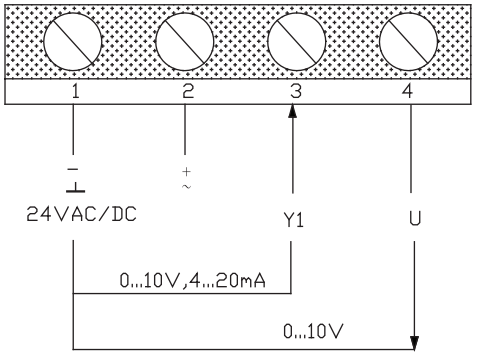
Auxiliary Switches



3(1.5) Amp 230v

Actuator at 0° position

4-1



4-2

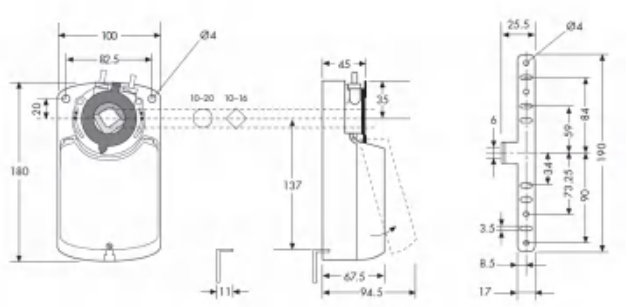
5008/16/24 Rotary Damper Actuator

High quality damper actuators have been designed for use with air damper, butterfly valve, characterized ball valve and globe valve with the use of special adapter.

1. Product Future

- 0(2)…10 VDC and 0(4)…20 mA control
- Universal Spindle Clamp for easy direct mounting
- Anti-rotation bracket provided for stability
- Manual over ride by push button when required
- Adjustable angle of rotation
- Parallel connection up to 10 actuators
- 2 adjustable SPDT auxiliary switches when requested
- Power saving at end stops
- Customized version available, on request

2.Actuator Dimensions (mm)



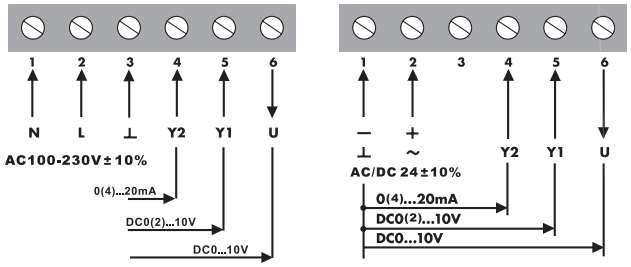
3.Technical Specifications

Item	5008N	5016N	5024N
Torque	8Nm	16Nm	24Nm
Damper Area	1.5m^2	3m^2	4.5m^2
Running Time	30s	80s	125s
Power Supply	AC/DC24V;AC100-230V		
Frequency	50/60Hz		
Power Consumption	Operating: 3.5W(24V) 4W(230V)		
	At the end stops:0.3W(24V) 0.5W(230V)		
Wiring Size	6.5 VA		
Shipping Weight	1.1Kg（24V）; 1.2Kg（230V）		
Control Signal	2point and 3point		
Rotation Angle	0~90°		
Limit Angle	5~85°(5°increment)		
Auxiliary Switch	3（1.5）Amp 230V		
Life Cycle	60,000 cycles		
Noise Level	45dB(A)		
Protection Class	II		
IP Protection	IP44 or IP54		
Ambient	-20~+50℃		
Ambient Humidity	5~95%RH		
Storage	-30~+60℃		
Certificate	CE		

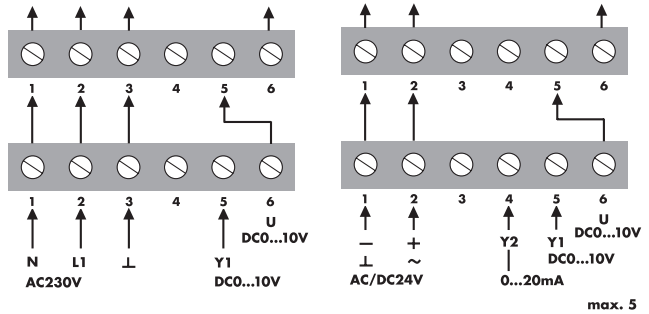
Item	5008M	5016M	5024M
Torque	8Nm	16Nm	24Nm
Damper Area	1.5m^2	3m^2	4.5m^2
Running Time	30s	80s	125s
Power Supply	AC/DC24V;AC100-230V		
Frequency	50/60Hz		
Power Consumption	Operating: 3.5W(24V) 4W(230V)		
	At the end stops:0.3W(24V) 0.5W(230V)		
Wiring Size	6.5 VA		
Shipping Weight	1.1Kg（24V）; 1.2Kg（230V）		
Control Signal	0(2)...10 VDC 0(4)..20 mA		
Rotation Angle	0~90°		
Limit Angle	5~85°(5°increment)		
Auxiliary Switch	3（1.5）Amp 230V		
Life Cycle	60,000 cycles		
Noise Level	45dB(A)		
Protection Class	II		
IP Protection	IP44or IP54		
Ambient	-20~+50℃		
Ambient Humidity	5~95%RH		
Storage	-30~+60℃		
Certificate	CE		

Notice: Drawing out the actuator wiring through the PG joint, the protection level can reach to IP54.

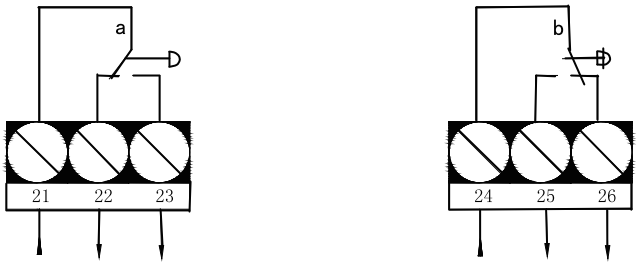
4.Wiring Diagram



5008/16/24 A master/sub-control

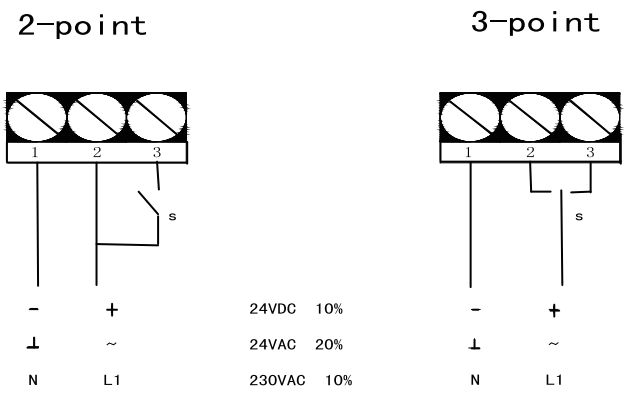


Auxiliary switches

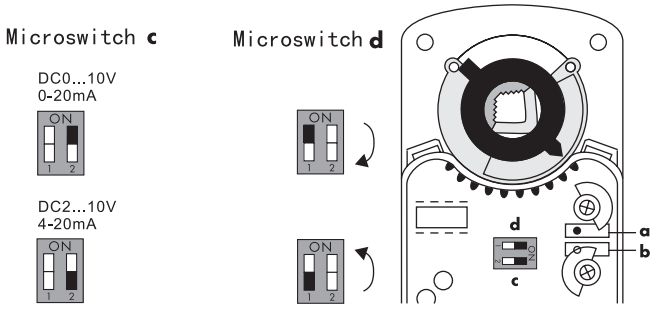


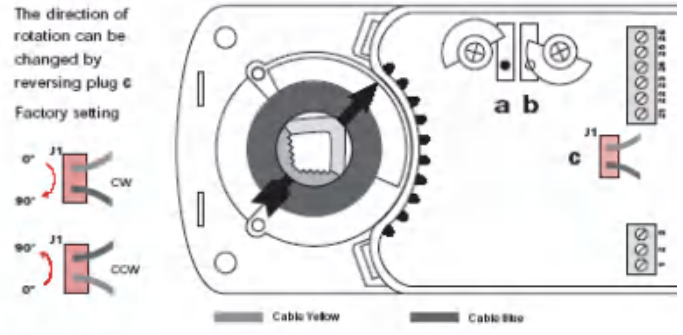
3(1.5) Amp 230v

Actuator at 0° position

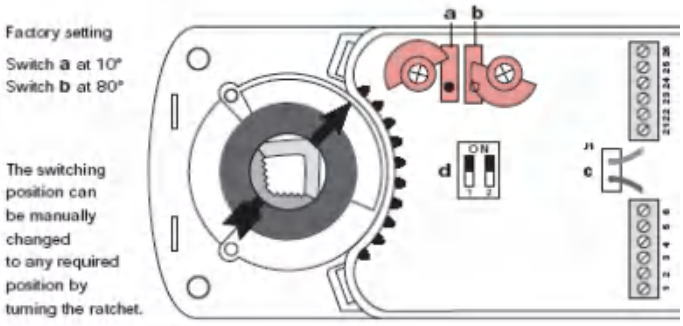


5.Selection of Rotating Direction





6.Auxiliary Switch Adjustment



5102 Series Damper Actuator

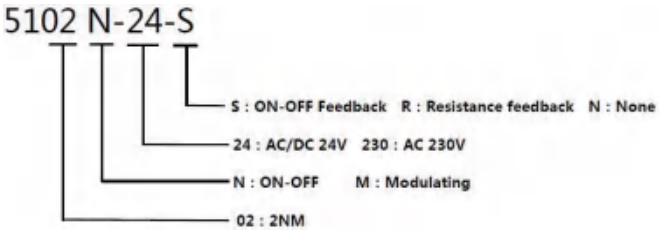
1. Description

This damper actuator is for small and medium - sized air damper and the air volume system terminal control unit of the special design,small size and flexible control ; it is suitable for the position of the narrow space.

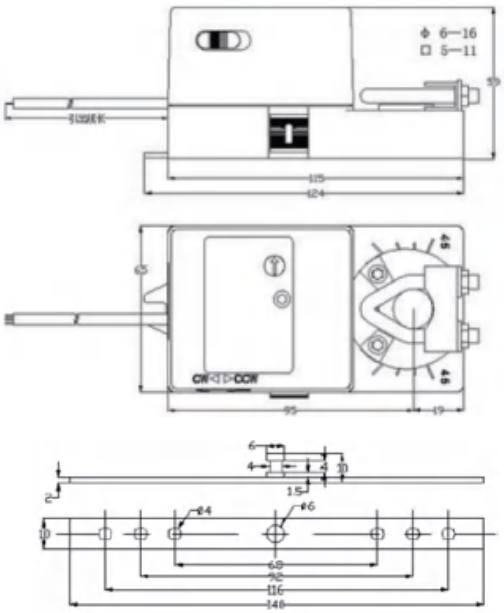
2. Features

Proportional control
Setup independen trunning time
Shaft terminal connection
Universal joint transform: circular shaft φ 6-16 mm, square shaft □ 5-11 mm
It can choose rotation Angle
It can choose an auxiliary switch
It can effectively set in advance

3. ModelAnnotation



4. Dimension

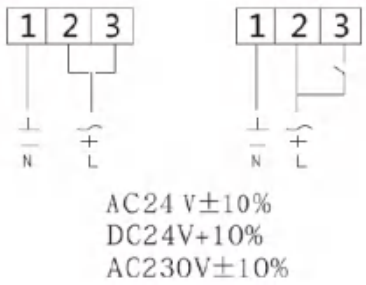


5. Technical Parameters

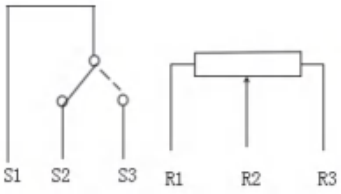
Model	5102N - 24-N 5102N - 24-S	5102N - 230-N 5102N - 230-S
Torque	2NM	
Damper Area	0.5 ㎡	
Running Time	50 ~ 70S	
Working Voltage	AC/DC 24V±10% 50/60Hz	AC 230V±10% 50/60Hz
Operating Power	2.5W	
Standby Power	0.5W	
Weight	0.5KG	
Control Type	2 / 3 Floating-Point	
Rotation Angle	0 ~ 90°	
Limit Angle	10 ~ 80°	
Life	60000 Times	
Aux. Switch Rating	3 (1.5) A, AC 250V; 2A, DC 30V	
Noise	40dB (A)	
Electrical Level	Ⅱ (Fully insulated)	
Protection Level	IP54	
Working Temperature	-20 ~ +50 ℃	
Storage Temperature	-30 ~ +60 ℃	
Environment Humidity	5 ~ 95% RH	
Certification	CE	

Model	5102M-24-N/ 5102M-24-S
Torque	2NM
Damper Area	0.5 ㎡
Running Time	50 ~ 70S
Working Voltage	AC/DC 24V±10% 50/60Hz
Operating Power	2.5W
Standby Power	0.5W
Weight	0.5KG
Control Type	Modulating Y : DC 0(2)...10V
Feedback Type	U : DC 0...10V
Rotation Angle	0 ~ 90°
Limit Angle	10 ~ 80°
Life	60000 Times
Aux. Switch Rating	3 (1.5) A, AC 250V; 2A, DC 30V
Noise	40dB (A)
Electrical Level	II (Fully insulated)
Protection Level	IP54
Working Temperature	-20 ~ +50 ℃
Storage Temperature	-30 ~ +60 ℃
Environment Humidity	5 ~ 95% RH
Certification	CE

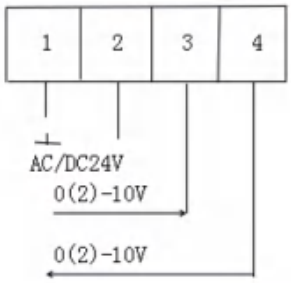
6. 2 / 3 Floating-Point Wiring Diagram



Auxiliary switch and feedback resistor

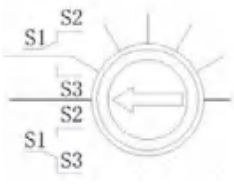


7. Modulating Wiring Diagram

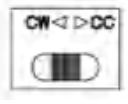


Auxiliary switch and feedback resistor

8. Internal Micro Switch Adjustment Knob



9. Rotational Direction Adjustment



Note: Pushthe direction switch on the shell, it can change the direction of rotation.

5104 Series Damper Actuator

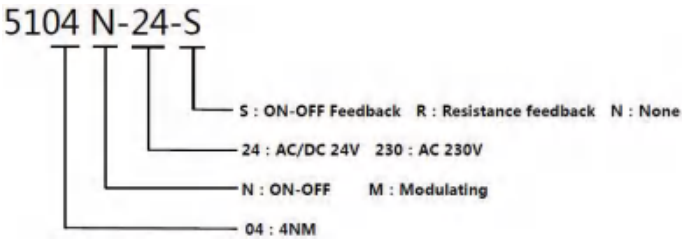
1. Description

This damper actuator is for small and medium-sized air damper and the air volume system terminal control unit of the special design,small size and flexible control; it is suitable for the position of the narrow space.

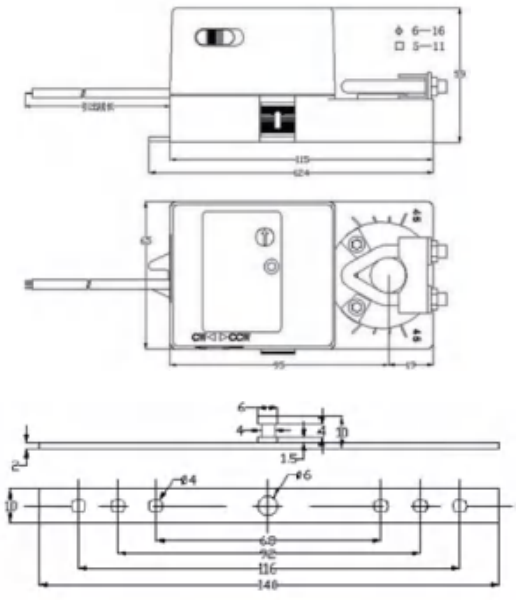
2. Features

Proportional control
Setup independent running time
Shaft terminal connection
Universal joint transform: circular shaft φ 6-16 mm, square shaft □ 5-11 mm
It can choose rotation Angle
It can choose an auxiliary switch
It can effectively set in advance

3. Model Annotation



4. Dimension

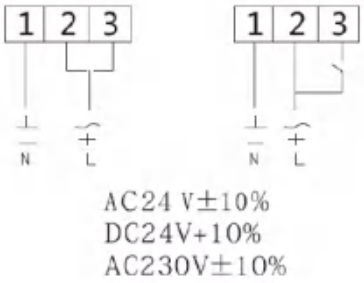


5. Technical Parameters

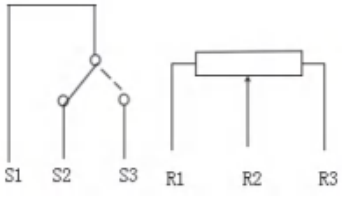
Model	5104N-24-N 5104N-24-S	5104N-230-N 5104N-230-S
Torque	4NM	
Damper Area	1 ㎡	
Running Time	50 ~ 70S	
Working Voltage	AC/DC 24V±10% 50/60Hz	AC 230V±10% 50/60Hz
Operating Power	2.5W	
Standby Power	0.5W	
Weight	0.55KG	
Control Type	2 / 3 Floating-Point	
Rotation Angle	0 ~ 90°	
Limit Angle	10 ~ 80°	
Life	60000 Times	
Aux. Switch Rating	3 (1.5) A, AC 250V; 2A, DC 30V	
Noise	40dB (A)	
Electrical Level	Ⅱ (Fully insulated)	
Protection Level	IP54	
Working Temperature	-20 ~ +50 ℃	
Storage Temperature	-30 ~ +60 ℃	
Environment Humidity	5 ~ 95% RH	
Certification	CE	

Model	5104M-24-N/ 5104M-24-S
Torque	4NM
Damper Area	1 ㎡
Running Time	50 ~ 70S
Working Voltage	AC/DC 24V±10% 50/60Hz
Operating Power	2.5W
Standby Power	0.5W
Weight	0.55KG
Control Type	Modulating Y : DC 0(2)...10V
Feedback Type	U : DC 0...10V
Rotation Angle	0 ~ 90°
Limit Angle	10 ~ 80°
Life	60000 Times
Aux. Switch Rating	3 (1.5) A, AC 250V; 2A, DC 30V
Noise	40dB (A)
Electrical Level	II (Fully insulated)
Protection Level	IP54
Working Temperature	-20 ~ +50 ℃
Storage Temperature	-30 ~ +60 ℃
Environment Humidity	5 ~ 95% RH
Certification	CE

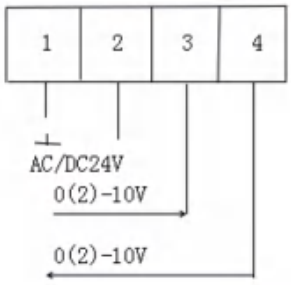
6. 2 / 3 Floating - Point Wiring Diagram



Auxiliary switch and feedback resistor

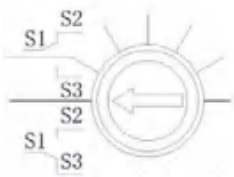


7. Modulating Wiring Diagram



Auxiliary switch and feedback resistor

8. Internal Micro Switch Adjustment Knob



9. Rotational Direction Adjustment

Note: Pushthe direction switch on the shell, it can change the direction of rotation.

5105 Series Damper Actuator

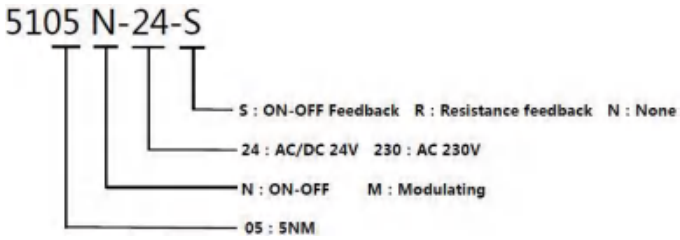
1. Description

This damper actuator is for small and medium-sized air damper and the air volume system terminal control unit of the special design,small size and flexible control; it is suitable for the position of the narrow space.

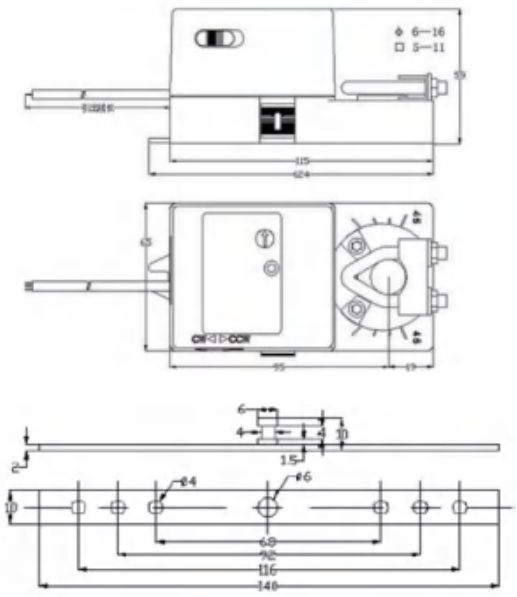
2. Features

Proportional control
Setup independent running time
Shaft terminal connection
Universal joint transform: circular shaft φ 6-16 mm, square shaft □ 5-11 mm
It can choose rotation Angle
It can choose an auxiliary switch
It can effectively set in advance

3. Model Annotation



4. Dimension

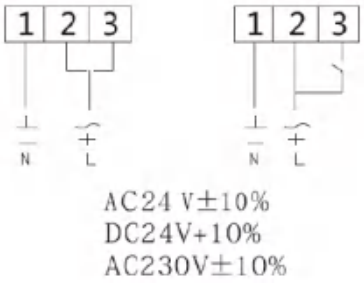


5. Technical Parameters

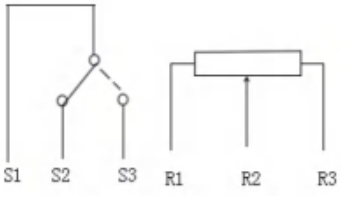
Model	5105N-24-N 5105N-24-S	5105N-230-N 5105N-230-S
Torque	5NM	
Damper Area	1 ㎡	
Running Time	50 ~ 70S	
Working Voltage	AC/DC 24V±10% 50/60Hz	AC 230V±10% 50/60Hz
Operating Power	2.5W	
Standby Power	0.5W	
Weight	0.55KG	
Control Type	2 / 3 Floating-Point	
Rotation Angle	0 ~ 90°	
Limit Angle	10 ~ 80°	
Life	60000 Times	
Aux. Switch Rating	3 (1.5) A, AC 250V; 2A, DC 30V	
Noise	40dB (A)	
Electrical Level	Ⅱ (Fully insulated)	
Protection Level	IP54	
Working Temperature	-20 ~ +50 ℃	
Storage Temperature	-30 ~ +60 ℃	
Environment Humidity	5 ~ 95% RH	
Certification	CE	

Model	5105M-24-N/ 5105M-24-S
Torque	5NM
Damper Area	1 ㎡
Running Time	50 ~ 70S
Working Voltage	AC/DC 24V±10% 50/60Hz
Operating Power	2.5W
Standby Power	0.5W
Weight	0.55KG
Control Type	Modulating Y : DC 0(2)...10V
Feedback Type	U : DC 0...10V
Rotation Angle	0 ~ 90°
Limit Angle	10 ~ 80°
Life	60000 Times
Aux. Switch Rating	3 (1.5) A, AC 250V; 2A, DC 30V
Noise	40dB (A)
Electrical Level	II (Fully insulated)
Protection Level	IP54
Working Temperature	-20 ~ +50 ℃
Storage Temperature	-30 ~ +60 ℃
Environment Humidity	5 ~ 95% RH
Certification	CE

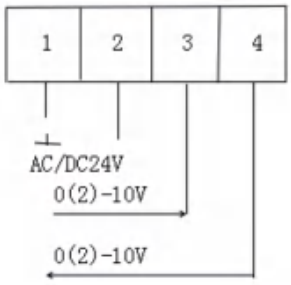
6. 2 / 3 Floating - Point Wiring Diagram



Auxiliary switch and feedback resistor

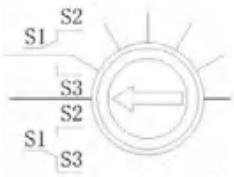


7. Modulating Wiring Diagram



Auxiliary switch and feedback resistor

8. Internal Micro Switch Adjustment Knob



9. Rotational Direction Adjustment

Note: Pushthe direction switch on the shell, it can change the direction of rotation.

6010N Series Fire Smoke Damper Actuator

1. Summary

6010N Series Fire Smoke Damper Actuators (Non-spring return) could be used to adjust and control damper in HVAC systems.
The actuator motorized the damper or other devices when power on.

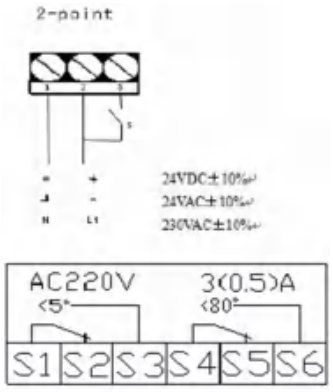
2. Functions

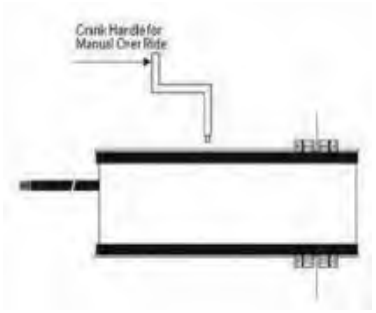
- 2 and 3 Points on / off control
- Setting up running time independently.
- Screw terminal connection
- Square shaft: 12×12mm (at most)
- Manual control by pressing slider.
- 2 SPDT fixed auxiliary switches as standard.
- Manual over ride by crank handle when required.
- Steel housing with anti-shock, compact and stability.
- Permanent sealed housing meets IP 54 Standard.
- Selectable direction of rotation by reversing actuator.
- Thermal sensor when requested.
- Actuators with 1m cable connection.
- Adapter supplied for Form Fit 8 or 10 mm square.

3.Specification

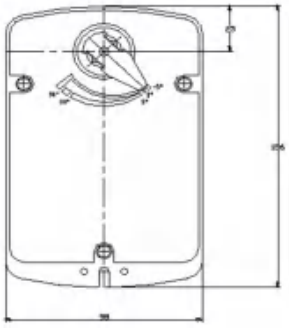
Items	Unit	6010N-24-S	6010N-230-S
Torque	Nm	10Nm	10Nm
Damper size	m2	2 ㎡	2 ㎡
Running time	sec	Motor running time :45 S	
Power	V	AC24V 50/60Hz	AC230V 50/60Hz
Operating power	W	7.5W	5W
Maintaining Power	W	2.5W	2.5W
For wire sizing	VA	10	
Connection Cables		Power : 1m Cable 2*0.75 m2	
		Auxiliary switch (F) : 1m Cable 6*0.5 m2	
		Thermal sensor (S) : 1m Cable 2*0.5 m2	
Weight	Kg	1.68	1.75
Control signal		2 and 3 Point ON/OFF	
Rotation angle		At most 95°	
Limited angle		5~85° (per step 5°)	
Auxiliary switch rated		1mA...3 (0.5) A, AC250V	
Life Cycle		60 , 000 cycles	
Noise		50dB(A)	
Protection Level		Ⅱ	Ⅱ
Protection standard		IP54	
Ambient temperature		-20~+50℃	
Ambient humidity		5~95%RH	
Inventory temperature		-40~+70℃	
Certificate		CE	
Thermal sensor		>72℃	

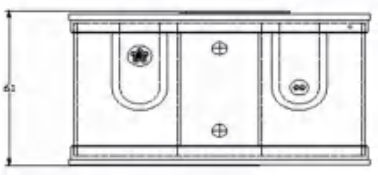
4. Wiring Diagram





5. External Dimension and Installation (mm)





Electronics Control Ball Valve ILH500(DN15~DN50)

1、General Information

ILH500 series electronics control ball valve are de-signed to regulate the flow of hot or chilled water and for some models, low-pressure steam in response to the demand of a controller in HVAC system.

2. Features and Characteristics

1 - ILH500 electronics control ball valve has a wide selection for several applications:
- ✓ From DN15 To DN50, NPT Connection
- ✓ 2-way & 3-way, mix & diversion
- ✓ Maintenance-Free Design
- ✓ Maintains equal percentage flow
- ✓ Adjustable flow proportion
- ✓ Blowout-Proof Stem

2 - ILH500 electronics control ball valve is designed for heavy working pressure and fit
- ✓ all kind of HVAC working system requirements
- ✓ Pressure Drop with no noise: up to 2.5 bar.
- ✓ Maximum Pressure Drop: 3.5 bar.
- ✓ Close Off: 13 bar.
- ✓ Maximum Pressure Valve Body: 25 bar.
- ✓ Assembling must follow the direction shown on valve body marks: A ⟶ B.

3 - Valve Material:
- ✓ Stainless Steel for valve interior and ball.
- ✓ Forged Brass for valve body.
- ✓ Options: Chrome-Plated Brass or Stainless Steel ball and stem assemblies available upon request.

4 - Media:
- ✓ Working Temperature -5 °C to 120 °C
- ✓ Can be used in 50% Glycol Liquor
- ✓ Can be used in 1bar Steam
- ✓ Can be used in rust water system

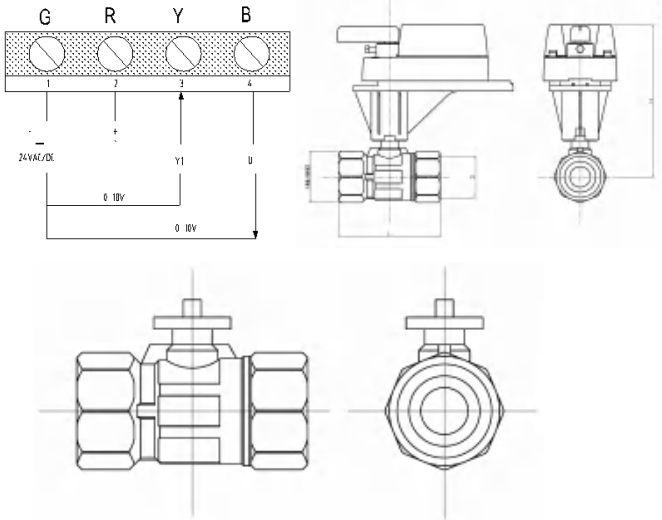
5 - Actuators:
- ✓ Non-spring return.
- ✓ Power supply: 24 or 220 V.
- ✓ Frequency: 50/60Hz
- ✓ Operating power: 2.5W (Depends on actuator' s toque).
- ✓ Standstill power: 0.85W (Depends on actuator' s toque)
- ✓ Control Signal: F (floating), M (modulating,0-10v or 4-20mA). For 4Nm actuators the control signal must be selected in advance. For other sizes it can be selected on the field.
- ✓ Protection class IP54 / NEMA2 with cables.
- ✓ Running time: 35s
- ✓ Rotation angle: 0-90

3. Parameter Chart

Ilamps Model	Remarks	Kvs	DN	With Disc	By-Pass Kvs
ILH500-2015A	2-way	2.5	15	Y	-
ILH500-2015B		4		Y	-
ILH500-2015C		6.3		Y	-
ILH500-2015D		10		N	-
ILH500-2020A		4	20	Y	-
ILH500-2020B		6.3		Y	-
ILH500-2020C		10		N	-
ILH500-2025A		10	25	Y	-
ILH500-2025B		16		N	-
ILH500-2032A		16	32	Y	-
ILH500-2032B		25		N	-
ILH500-2040A		25	40	Y	-
ILH500-2040B		40		N	-
ILH500-2050A		40	50	Y	-
ILH500-2050B		63		N	-

Ilamps Model	Remarks	Kvs	DN	With Disc	By-Pass Kvs
ILH500-3015A	3-way	2.5	15	Y	1.6
ILH500-3015B		4		Y	2.5
ILH500-3015C		6.3		Y	4
ILH500-3015D		10		N	5
ILH500-3020A		4	20	Y	2.5
ILH500-3020B		6.3		Y	4
ILH500-3020C		10		N	5
ILH500-3025A		10	25	Y	6.3
ILH500-3025B		16		N	8
ILH500-3032A		16	32	Y	10
ILH500-3032B		25		N	12.5
ILH500-3040A		25	40	Y	16
ILH500-3040B		40		N	20
ILH500-3050A		40	50	Y	25
ILH500-3050B		63		N	31.5

4. Wiring Diagram & Dimension (mm)



Specification	G	L	H	S
DN15/DN20	G1/2 / G3/4	75	44	32
DN25	G1	168	94	39
DN32	G1-1/4	175	108.5	49
DN40	G1-1/2	173.3	116.5	45.1
DN50	G2	184.9	136.5	56.8

Electronics Control Ball Valve ILH500 (DN65~DN150)

1.General Information

ILH500 electronics control ball valve is designed to regulate the flow, high reliability and life. It adopts PTFE graphite enhanced valve body O-ring and double EPDM valve rod O-ring. Set Distribution Butterfly Valve, stands reverse pressure. Percentage flow Close off is 13 bar. Rating working pressure is PN16. Maximum Pressure Drop: 3.5 bar. It has manual enforcement short circuit button. Working temperature is -5C to 121C. Application: water, steam or 50% glycol and water.

2. Features and Characteristics

1 - ILH500 electronics control ball valve wide selection for a variety of applications

- ✓ Set Distribution Butterfly Valve
- ✓ Percentage flow.
- ✓ Flow adjustable for valve
- ✓ Different torque can be selected from actuator
- ✓ On/off, floating-point, modulating control

2 - ILH500 series electronics control ball valves have a high rate adjustable float percentage. It ensures preci-sion control of flow in any load situation. A rectification plate of high intensity material is placed inside to avoid shed.

3 - ILH500 electronics valves use stainless steel ball valve spool and stem, applied in HVAC projects :

- ✓ Applied working temperature:-5 ºC to 121 ºC
- ✓ Applied in 50% glycol
- ✓ Applied in 1 bar saturation steam
- ✓ Applied in ferruginous water system

4 - ILH500 electronics valves can use the following actuators On-Off or Modulating:

Connecting piece	DN65 DN80	DN100, DN125 DN150
Non-spring	16Nm	32Nm

5 - ILH500 valve connecting pieces are made from high intensity material.

- ✓ Applied in high or low temperature situation
- ✓ Anti-chemical corrosion
- ✓ Save space for pipe connection
- ✓ Match with actuator. Only 4 screws needed to contact connect pieces with valves

6 - O-ring of spool of the valve is made from lead with PTFE. Double stem is made from EPDM

- ✓ Extremely anti-wear
- ✓ Lower torque needed when open/close
- ✓ Double anti-leak stem
- ✓ PTFE Teflon stem orientation circle

7 - ILH500 valves are facile, applied broadly:

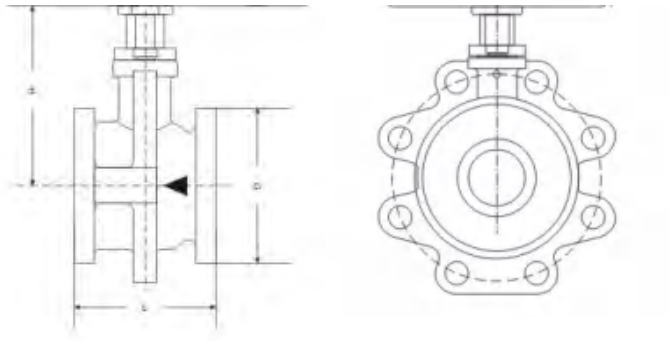
- ✓ various processor group
- ✓ VAV, dehumidify - fan coil
- ✓ Single fan coil group
- ✓ Warm-up coil equipment
- ✓ Roof conditioning group
- ✓ Boiler system• cooling facility group

3. Technical Specification

Model	DN	(A-B) Way KV(m³/h)	Bypass KV(m³/h)	Angle of rotation	Rating Pressure difference	2-Way (Kg)
ILH500-2065A	65	63		0-90	0.35	4.5
ILH500-2080A	80	100	---			6.8
ILH500-2100A	100	160	---			8.84
ILH500-2125A	125	250	---			12.54
ILH500-2150A	150	400	---			18.64

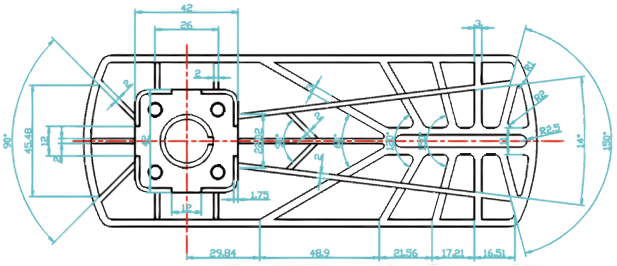
4. Housing Size

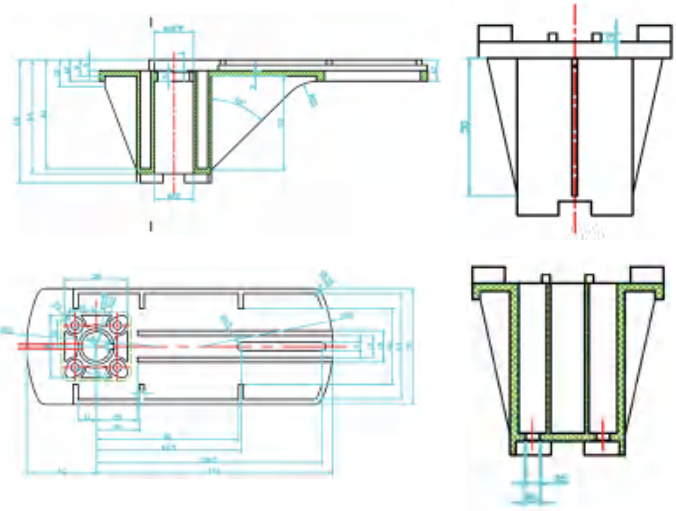
Model	flange reference circle	L(mm)	D(mm)	H(mm)
ILH500-2065	145	93	105	136
ILH500-2080	160	108	125	140
ILH500-2100	180	120	148	149
ILH500-2125	210	145	179	163
ILH500-2150	240	167	215	171.5



5. Ball Valves Kvs Chart

Ilamps Model	Remarks	Kvs	DN	With Disc	
ILH500-2065A	2-way	63	65	Y	-
ILH500-2080A		100	80	N	-





Electronics Control Ball Valve ILH501-B (DN15~DN25)

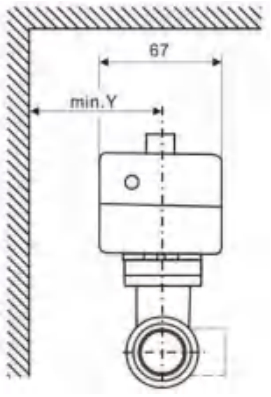
1.General Information

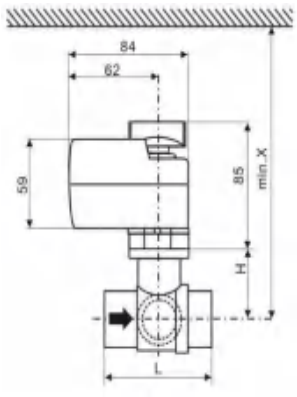
ILH501-BK is ON/OFF type

ILH501-BM is Modulating type

ILH501 electronics control ball valve is available for ending waterway control. The thermostat can control motor, make the valve power off / on by motor to make the medium current or disconnected, and make the fan coil blow to control the temperature automatically.

Model	DN (mm)	2/3-Way	L	H	X	Y
ILH501-BM215	15	2	60	30	190	75
ILH501-BM220	20	2	68	34	190	75
ILH501-BM225	25	2	89	38	193	75
ILH501-BM315	15	3	60	30	190	75
ILH501-BM320	20	3	67	35	190	75
ILH501-BM325	25	3	89	38	193	75





2. Features and Characteristics

- ✓ Water proof, dustproof function, leakproofness and tightness.
- ✓ Short power-on time, energy-efficient, the motor has long using life.
- ✓ Easy to dismantle or install the actuator.
- ✓ Large close pressure difference, tight closing.
- ✓ Direct water flow, KVS value is much larger than common 2-way value.
- ✓ Soft value opening.

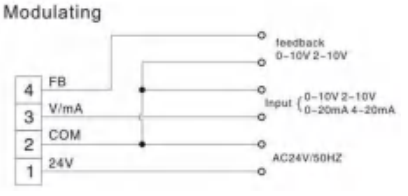
3. Techinical Data

- ✓ ILH501-BK: 220VAC± 10%, 50/60Hz, or 24VAC± 10%, 50/60Hz
  ILH501-BM: 24VAC± 10%, 50/60Hz
- ✓ Power : 2W torque 2N.m
- ✓ Nominal pressure : 1.6MPa
- ✓ Running time : 40-50s
- ✓ Working medium : water, fluid temperature 5~95℃

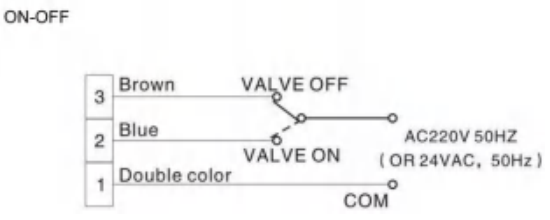
4. Housing Size

Model	DN (mm)	2/3-Way	L	H	X	Y
ILH501-BK215	15	2	60	30	190	75
ILH501-BK220	20	2	68	34	190	75
ILH501-BK225	25	2	89	38	193	75
ILH501-BK315	15	3	60	30	190	75
ILH501-BK320	20	3	67	35	190	75
ILH501-BK325	25	3	89	38	193	75

5. Wirings



AC24V



AC220V / 24V

Electronics Control Ball Valve ILH501-D (DN32~DN50)

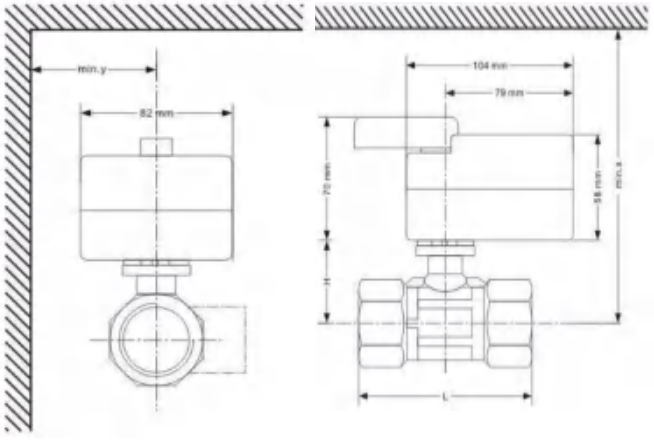
1.General Information

ILH501-DK is ON / OFF type

ILH501-DM is Modulating type

ILH501 electronics control ball valve is available for ending waterway control. The thermostat can control motor, make the valve power off / on by motor to make the medium current or disconnected, and make the fan coil blow to control the temperature automatically.

Model	DN (mm)	2/3-Way	L	H	X	Y
ILH501-DM232	32	2	102	43.5	208	83
ILH501-DM240	40	2	113	48	213	83
ILH501-DM250	50	2	127.5	53	218	83
ILH501-DM332	32	3	98.5	43.5	208	83
ILH501-DM340	40	3	106	48	213	83
ILH501-DM350	50	3	123	53	218	83



2. Features and Characteristics

- ✓ Water proof, dustproof function, leakproofness and tightness.
- ✓ Short power-on time, energy-efficient, the motor has long using life.
- ✓ Easy to dismantle or install the actuator.
- ✓ Large close pressure difference, tight closing.
- ✓ Direct water flow, KVS value is much larger than common 2-way value.
- ✓ Soft value opening.

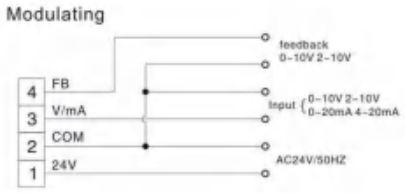
3. Techinical Data

- ✓ ILH501-DK: 220VAC± 10%, 50/60Hz, or 24VAC± 10%, 50/60Hz
  ILH501-DM: 24VAC± 10%, 50/60Hz
- ✓ Power : 2W torque 10N.m
- ✓ Nominal pressure : 1.6MPa
- ✓ Running time : 95-105s
- ✓ Working medium : water, fluid temperature 5~95℃

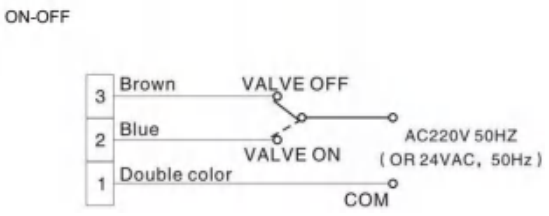
4. Housing Size

Model	DN (mm)	2/3-Way	L	H	X	Y
ILH501-DK232	32	2	102	43.5	208	83
ILH501-DK240	40	2	113	48	213	83
ILH501-DK250	50	2	127.5	53	218	83
ILH501-DK332	32	3	98.5	43.5	208	83
ILH501-DK340	40	3	106	48	213	83
ILH501-DK350	50	3	123	53	218	83

5. Wirings



AC24V



AC220V / 24V

Electronics Control Ball Valve ILH502

1.General Information

Electric ball valve is mainly used for central air conditioning hot and cold water system, precise control of cold and hot medium flow rate according to actual needs, not cause severe changes of temperature, achieve the goal of real-time precision control indoor temperature, the control valve by one-way motor drive, motor and thermostat through public side, open, close connection, the thermostat is on-site data sampling and processing, signal control, stop the motor running and the electric ball valve, control of electric valves open and close degree, cold water or hot water into the fan coil units, to provide room air conditioning or heating, when indoor temperature reaches the thermostat setting, temperature controller for electric power ball valve, the valve opening is in the best condition, at room temperature in a thermostat setting temperature range.

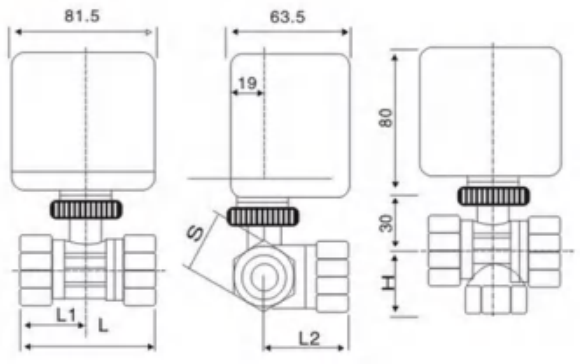
2. Features and Characteristics

Good waterproof and grey function and sealing (IP65).
Electricity a very short time, energy-saving products, motor longer life.
Actuator tear open outfit simple.
Closed differential pressure big, closed tightly.
Through the water, no blocking by the slag KVs value is greater than the average two-way valve.
Flexible valve open, can effectively prevent water hammer.

3. Techinical Data

Medium: cold water/ hot water/ 60% ethylene glycol
Style: 2-WAY / 3-WAY
Voltage: AC220/24V
Power: 6W
Run time: 15S
Nominal pressure: 2.0 MPa
Medium temperature: 1-95 .C
Maximum differential pressure: 1 MPa
Protection grade: IP65
Torque: 3NM
Material
Body: brass / Valve core: stainless steel / Stem: brass / Base: PTEE
Seal: EPDM

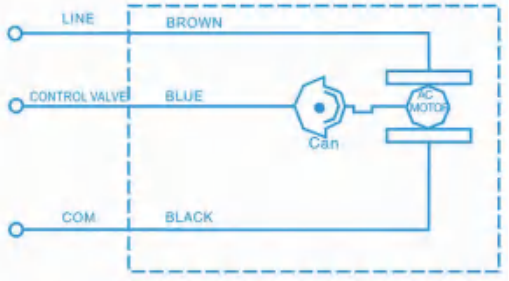
4. Housing Size



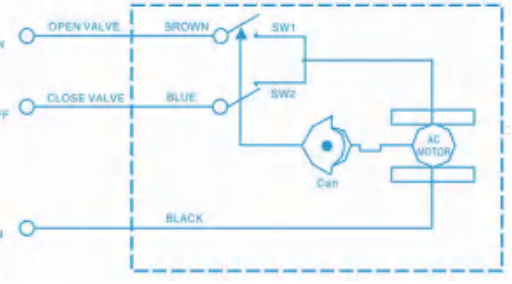
Model	Kvs	L	L1	L2	H	S
ILH502-215	4.62	67	33.5	-	34	27
ILH502-220	7.50	66	33	-	36	32.5
ILH502-225	13.02	88	44	-	40	40
ILH502-232	25.97	100	50	-	-	48
ILH502-315	4.62	67	33.5	39	34	27
ILH502-320	7.50	66	33	39	36	32.5
ILH502-325	13.02	88	44	48	40	40
ILH502-332	25.97	100	50	60	-	48

5. Wirings

ILH502...-A



ILH502...-B



Electronics Control Ball Valve ILH503

1.General Information

Motorized ball valve consists of on/off type or 3-point type actuator and ball valve, which have compact structure, stable operation, excellent capacity of water stoppage, large water flow rate, zero dirt block and low torque. Winner motorized ball valves are widely used in HVAC system, heating system, water treatment system and some industrial equipment.

2. Techinical Data

Medium: water, oil
Temperature of medium: 0°C...120°C
Rated pressure: PN25
Pipe connector: internal thread (BSP/NPT)
Size: DN15, DN20 and DN25
Valve type: 2-way and 3-way
Working environment: -5...60°C and 0...90%RH

Actuator

ILH503F: 24V/110V/220VAC,24V/12V/3VDC, 50/60Hz, 3-point
ILH503N: 24V/110V/220VAC,24V/12V/3VDC, 50/60Hz, on/off
Output torque: >3.5N.m
Angle of rotation: 90°
Protect rank: IP54
On/off time: 16S

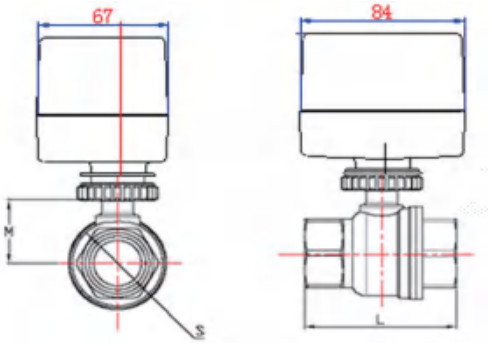
Material

Valve body: SS304 / Seal: ball: EPDM+PTFE / Ball: SS304
stem: EPDM O-rings

3. Function

This actuator is controlled by on/off or 3-point control signal, using reversible synchronous motor and gear speed reducer drive to fix and lock.

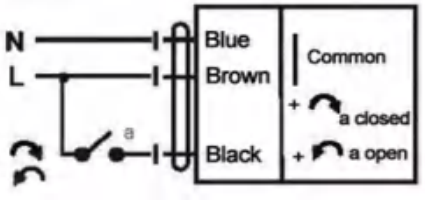
4. Housing Size



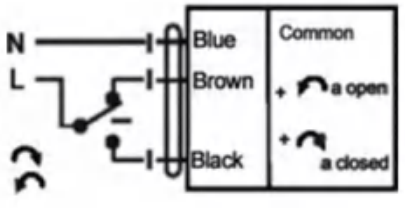
Model	Kvs	DN	TYPE	L	M
ILH503-215	9	15	2-WAY	57	31
ILH503-220	15.9	20	2-WAY	65	34
ILH503-225	24.9	25	2-WAY	79	38
ILH503-315	9	15	3-WAY	57	31
ILH503-320	15.9	20	3-WAY	65	34
ILH503-325	24.9	25	3-WAY	79	38

5. Wirings

ILH503N



ILH503F



Globe Valve and Actuator

ILJA-06 Actuator for Screwed Globe Valve

1. Description

The actuator series ILJA-06 has been designed to control the screwed globe valves series ILJV up to DN40. The actuator is equipped by a bidirectional synchronous motor at 600 N and available in ON-OFF, floating and proportional version. Fast and easy assembly. The actuator is equipped, for the proportional version, with a button for self-adjustment. The on-off switch is fitted with magnetic clutch.

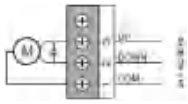
2. Technical Specifications

Power supply	24 V AC 50/60 Hz
Electrical connection	Screw terminal
Torque	600 N
Max. stroke	20 mm
Running time	See schedule
Materials	ABS cover, self-extinguishing
Protection degree	IP54
Protection class	II
Working range °C	-10...+50°C
Storage temperature and humidity	-40...+50°C, 1...95% RH, non-condensing
Fluid temperature	< 150°C
Maintenance	Free

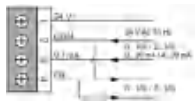
Models	Torque N	Action	Consumption	Running time
ILJA-06	600	on-off, floating	5,5 VA	70 sec. w/stroke 15 mm 92 sec. w/stroke 20 mm
ILJA-06M	600	proportional	5,5 VA	70 sec. w/stroke 15 mm 92 sec. w/stroke 20 mm

3. Electrical Wiring

ILJA-06 (on-off, floating)
1: 24 V AC (common)
2: 24 V AC Stem down (direct way open)
3: 24 V AC Stem up (direct way close)



ILJA-06M (proportional)
Terminal J1:
1: 24 V AC
2: Common
3: Input signal. 4...20 mA (2...10 V DC) / 0...20 mA (0...10 V DC). W1 e W2 must be set according to the input signal.
4: Feedback signal. There is a signal 0...10 V DC or 2...10 V DC depending on the setting of W2.



4. Installation

- Place motor on the valve and, having placed in seat, tighten the locking screw (1).
- Screw the brass nut of the motor shaft on the valve stem (2) and tighten the counter nut (3).
- Make the electrical connections as shown in the previous diagrams and (only for AVG6M) provide for the jumper settings.

5. Setting ILJA-06M

W1: mA / V DC. Allows to choose whether the input signal is in voltage or in current. This jumper must be set along with W2 to select the input signal to J1.

W2: 4...20 mA (2...10 V DC) / 0...20 mA (0...10 V DC). This jumper must be set with W1 to select the input signal to J1.

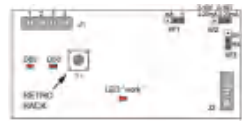
W3: Reverse operation. Moving the jumper inverts the logic of operation compared to the input signal.

LED Status indicator (work):

Normal operating status: flashes slowly (1 sec on, one sec off). During the self-adjustment of the actuator on the valve (after pressing S1 for at least 3 sec): flashing quickly (for 0.25 sec on , off 0.25 sec)

Self-adjustment in an error state: blinks twice quickly and off for a long time (on 0.25 sec, off for 0.25 sec,twice, then off by 1.25 sec)

Printed circuit board (ILJA-06M)



LED indication of the rotation direction of the motor:

When the LED D60 lights up, the valve shaft moves downward. When the valve shaft reaches the bottom and hold the position for 25 sec, the LED turns off.

When the LED D50 lights up, the valve shaft moves upward. When the valve shaft reaches the top and hold the position for 25 sec, the LED turns off.

Self-adjustment of the actuator to the valve. Each actuator must be adapted to the valve to which it is coupled.

Press and hold the “S1” key for 3 sec, the actuator automatically will enter the self-adjustment. The LED “work” is flashing rapidly (on 0.25 sec., off 0.25 sec.). The valve shaft moves down to the bottom, and then maintains the position for 25 sec and then move upward until the upper point. The self-adjustment does not end until the valve shaft does not hold the final position for 25 sec.

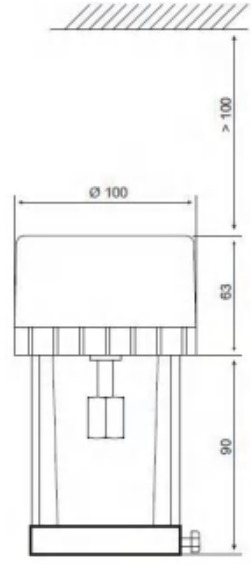
To self-adaptation occurred (the previous data is overwritten), the actuator returns to normal operation. Otherwise (the previous data is not overwritten),will be reported the failure of the state of self-adjustment (on 0.25 sec., off 0.25 sec., twice, then off by 1.25 sec.). You can hold down the “S1” key for 3 sec to retry the process of self-adjustment, or reboot (power cycle) of the actuator to return to normal working state.

Possible errors of self-adjustment:

1: It occurs in the case where the stroke is reached less than half the nominal stroke.

2: The connection of the potentiometer is wrong (terminal J2). Correct way: when the valve shaft is downward the potentiometer has the maximum value, when the valve shaft is upward the potentiometer has the minimum value.

6. Dimensions



ILJA-10 Actuator for Screwed Globe Valve

1. Description

The actuator series ILJA-10 has been designed to control the screwed globe valves series ILJV from DN50 up to DN80. The actuator is equipped by a bidirectional synchronous motor at 1000 N and available in ON-OFF, floating and proportional version.Fast and easy assembly. The actuator is fitted with manual override for the drive in case of power failure.

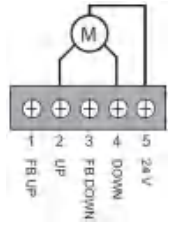
2. Technical Specifications

Power supply	24 V AC 50/60 Hz
Electrical connection	Screw terminal
Torque	1000 N
Max. stroke	20 mm
Running time	See schedule
Materials	ABS cover, self-extinguishing
Protection degree	IP54
Protection class	II
Working range °C	-10...+50°C
Storage temperature and humidity	-40...+50°C, 1...95% RH, non-condensing
Fluid temperature	< 150°C
Maintenance	Free

Models	Torque N	Action	Consumption	Running time
ILJA-10	1000	on-off, floating	12 VA	105 sec
ILJA-10M	1000	proportional	12 VA	105 sec

3. Electrical Wiring

ILJA-10 (on-off, floating)



1: Feedback with stem up (24 V AC)

2: 24 V AC Stem up (direct way close)

3: Feedback with stem down (24 V AC)

4: 24 V AC Stem down (direct way open)

5: 24 V AC (common)

ILJA-10M (proportional)

Terminal J1:

01: When short-circuiting with T2 (o -), then the stem goes completely down (direct way open).
The position of W3 has no effect.

02: When short-circuiting with T2 (o -), then the stem goes completely up (direct way close).
The position of W3 has no effect.

T1 T2: input terminal at 24 V AC. T2 is common terminal (T2 is connected with -).

- +: Input signal 4...20 mA (2...10 V DC) / 0...20 mA (0...10 V DC). W2 and W4 must be set according to the input signal.

F: Feedback signal. There is a signal 0...10 V DC or 2...10 V DC depending on the setting of W2.

4. Installation

W1: mA / V DC. Allows to choose whether the input signal is in voltage or in current. This jumper must be set along with W2 to select the input signal to J1.

W2: 4...20 mA (2...10 V DC) / 0...20 mA (0...10 V DC). This jumper must be set with W1 to select the input signal to J1.

W3: Reverse operation. Moving the jumper inverts the logic of operation compared to the input signal.

5. Setting ILJA-10M

W1: 0%, 50%, 100%. Set the position of valve stroke in case of misfunction or failure of input signal.
0% stem completely up 50% stem at halfway 100% stem completely down Moving the jumper W3, the situation is reversed.
0% stem completely down 50% stem at halfway 100% stem completely up

W2: 4...20 mA (2...10 V DC) / 0...20 mA (0...10 V DC). This jumper must be set according to W4 to select the input signal to J1.

W3: Reverse operation. Moving the jumper inverts the logic of operation as compared to the input signal.

W4: mA / V DC. This jumper must be set along with W2 to select the input signal to J1.

LED Status Indicator (work): Normal operating status: flashing slowly (1 sec on, one sec off).
During the self-adaptation of the actuator on the valve (after pressing S1
for at least 3 sec) flashes rapidly (0.25 sec on , 0.25 sec off).

Self-adjustment in an error state: blinks twice quickly and off for a long time (on 0.25 sec, off for 0.25 sec, twice, then off by 1.25 sec).

LED indication of the rotation direction of the motor:

When the LED D60 lights up, the valve rod moves downward. When the valve rod reaches the bottom and hold the position for 25 seconds, the LED turns off.

When the LED D50 lights up, the valve rod moves upward. When the valve rod reaches the top and hold the position for 25 seconds, the LED turns off.

Self-adjustment of the actuator to the valve. Each actuator must be adapted to the valve to which it is coupled.

Press and hold the “S1” key for 3 sec, the actuator automatically will enter the self-adjustment. The LED “work” is flashing rapidly (on 0.25 sec., off 0.25 sec.).
The valve shaft moves down to the bottom, and then maintains the position for 25 sec and then move upward until the upper point. The self-adjustment does not end until the valve shaft does not hold the final position for 25 sec.

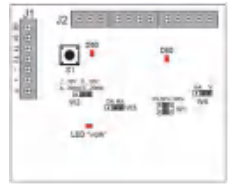
To self-adaptation occurred (the previous data is overwritten), the actuator returns to normal operation. Otherwise (the previous data is not overwritten), will be reported the failure of the state of self-adjustment (on 0.25 sec., off 0.25 sec., twice, then off by 1.25 sec.). You can hold down the “S1” key for 3 sec to retry the process of self-adjustment, or reboot (power cycle) of the actuator to return to normal working state.

Possible errors of self-adjustment:

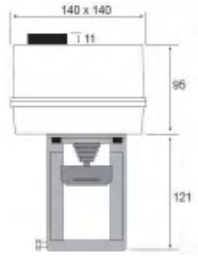
1: It occurs in the case where the stroke is reached less than half the nominal stroke.

2: The connection of the potentiometer is wrong (terminal J2). Correct way: when the valve shaft is downward the potentiometer has the maximum value,when the valve shaft is upward the potentiometer has the minimum value.

Printed circuit board (ILJA-10M)



6. Dimensions



Screwed Globe Valve ILJV

1.General Information

The globe valves in brass serie ILJV are used in heating, refrigeration and air-conditioning systems for the flow control of heated or chilled water for domestic and industrial applications. The valves are motorized by the electric actuators serie AVG at 600 and 1000 N.

2. Techinical Data

Fluids type:Hot and cold water (with glycol max. 50%)
Fluid temperature:-10...100°C
Nominal pressure:1600 kPa max (16 bar)
Control flow characteristics:Equal-percentage (linear on angle way)
Rangeability: 50 : 1
Leakage:< 0,05% of KVs
Connections:G female thread
Installation position:Horizontal or vertical
Body:Brass
Plug:Ottone
Valve stem:Stainless steel 302
Stem packing:PTFE

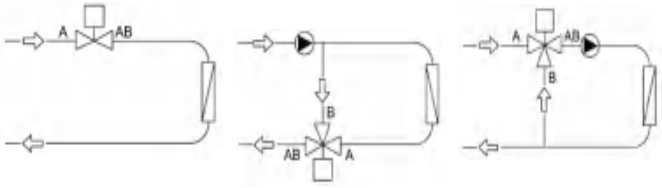
Model		Kvs	Max differential pressure(bar)(*)	Stroke (mm)	Actuator
ILJV215	ILJV315	4.0	2.5(6)	15	ILJA-06(M)
ILJV220	ILJV320	6.3	2.5(6)	15	ILJA-06(M)
ILJV225	ILJV325	8	2.5(6)	20	ILJA-06(M)
ILJV232	ILJV332	16	2.5(5.5)	20	ILJA-06(M)
ILJV240	ILJV340	25	2.5(4.5)	20	ILJA-06(M)
ILJV250	ILJV350	40	2(3)	20	ILJA-10(M)
ILJV265	ILJV365	63	2(2.5)	20	ILJA-10(M)
ILJV280	ILJV380	78	2(2)	20	ILJA-10(M)

(*) The values in the brackets are the max. dfferential pressure when valve is fully closed and actuator is still able to open or close the valve with security. In order to avoid wear between plug and seat, we recommend not to overcome the nominal values.

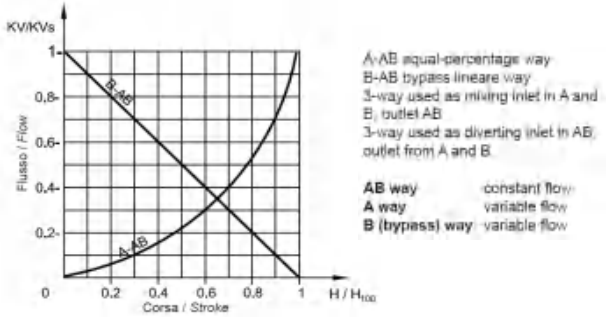
3. Caution

Before valves are mounted, make sure that pipes are clean, free from welding slags, that are perfectly lined up with valve body and not subjected to vibrations. The valve can be mounted in any position except upside-down.
While assembling, respect the ?ow directions indicated by the arrows located on the valve body.
In the 2-way valve, when stem is up, the direct way is open, with stem down direct way is closed. In the 3-way valve, when stem is up, the direct way is closed, with stem down direct way is open.

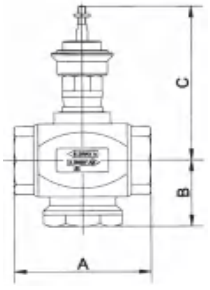
4. Installation



5. Control flow characteristics



6. Dimensions and weights



Models	Thread	Dimensions (mm)			Weight
		A	B	C	kg
ILJV215	G1/2	84	41	130	2.2
ILJV315	G1/2	84	53	130	2.4
ILJV220	G3/4	84	41	130	2.3
ILJV320	G3/4	84	53	130	2.5
ILJV225	G1	104	52.5	135.5	3.5
ILJV325	G1	104	64.5	135.5	3.8
ILJV232	G1 1/4	110	57.5	138	3.7
ILJV332	G1 1/4	110	65.5	138	4.2
ILJV240	G1 1/2	120	63	144.5	4.4
ILJV340	G1 1/2	120	76	144.5	5.0
ILJV250	G2	134	62.5	143.5	5.7
ILJV350	G2	134	77.5	143.5	6.7
ILJV265	G2 1/2	160	75	152.5	8.5
ILJV365	G2 1/2	160	91	152.5	9.5
ILJV280	G3	180	85	158.5	9.5
ILJV380	G3	180	98.5	158.5	10.5

ILHA-12 / 18 Actuator for Screwed Globe Valve

1. Description

The actuator series ILHA has been designed to control the screwed globe valves serie ILHV. The actuator is equipped by a double bidirectional synchronous motor at 1200 and 1800 N and available in ON-OFF, floating and proportional version.
Fast and easy assembly. The actuator is fitted with manual override for the drive in case of power failure.

2. Technical Specifications

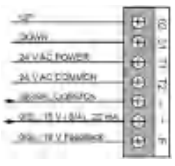
Power supply	24 V AC 50/60 Hz, 12 VA
Electrical connection	Screw terminal
Torque	See schedule
Max. stroke	See schedule
Running time	See schedule
Materials	ABS cover, self-extinguishing Aluminium bracket
Protection degree	IP54
Protection class	II
Working range °C	-10...+50°C
Storage temperature and humidity	-40...+50°C, 1...95% RH, non-condensing
Fluid temperature	< 150°C
Maintenance	Free

Models	Torque N	Action	Consumption	Running time
ILHA-12	1200	on-off, floating	20	114 sec. with 50 Hz 95 sec: with 60 Hz
ILHA-12M	1200	proportional	20	114 sec. with 50 Hz 95 sec: with 60 Hz
ILHA-18	1800	on-off, floating	40	210 sec. with 50 Hz 175 sec: with 60 Hz
ILHA-18M	1800	proportional	40	210 sec. with 50 Hz 175 sec: with 60 Hz

3. Electrical Wiring

ILHA (on-off, floating)
1: 24 V AC Stem down (direct way open)
4: Feedback with stem down (24 V AC)
5: 24 V AC (common)
6: 24 V AC Stem up (direct way close)
7: Feedback with stem up (24 V AC)

ILHA...M (proportional)
Terminal J1:
01: When short-circuiting with T2 (o -), then the stem goes completely down (direct way open).
The position of W3 has no effect.
02: When short-circuiting with T2 (o -), then the stem goes completely up (direct way close).
The position of W3 has no effect.
T1 T2: input terminal at 24 V AC. T2 is common terminal (T2 is connected with -).
- +: Input signal 4...20 mA (2...10 V DC) / 0...20 mA (0...10 V DC).
W2 and W4 must be set according to the input signal.
F: Feedback signal. There is a signal 0...10 V DC or 2...10 V DC depending on the setting of W2.



4. Installation

- Place motor on the valve and, having placed in seat, tighten the 4 locking screw (1).
- Push the steel plate (2) and raise the valve stem or, alternatively, drive down the actuator shaft by manual override (3).
- Make the electrical connections as shown in the previous diagrams and (only for ILHA..M) provide for the jumper settings. (3).

5. Setting ILHA...M

W1: 0%, 50%, 100%. Set the position of valve stroke in case of misfunction or failure of input signal.
0% stem completely up,50% stem at halfway,100% stem completely down,Moving the jumper W3, the situation is reversed.
0% stem completely down 50% stem at halfway 100% stem completely up

W2: 4...20 mA (2...10 V DC) / 0...20 mA (0...10 V DC). This jumper must be set according to W4 to select the input signal to J1.

W3: Reverse operation. Moving the jumper inverts the logic of operation as compared to the input signal.

W4: mA / V DC. This jumper must be set according to W2 to select the input signal to J1.

LED Status Indicator (work): Normal operating status: flashing slowly (1 sec on, one sec off). During the self-adaptation of
the actuator on the valve (after pressing S1 for at least 3 sec) flashes rapidly (0.25 sec on , 0.25 sec off).

Self-adjustment in an error state: blinks twice quickly and off for a long time (on 0.25 sec, off for 0.25 sec, twice, then off by 1.25 sec).

LED indication of the rotation direction of the motor:

When the LED D60 lights up, the valve rod moves downward. When the valve rod reaches the bottom and hold the position for 25 seconds, the LED turns off.

When the LED D50 lights up, the valve rod moves upward. When the valve rod reaches the top and hold the position for 25 seconds, the LED turns off.

Self-adjustment of the actuator to the valve. Each actuator must be adapted to the valve to which it is coupled.
Press and hold the “S1” key for 3 sec, the actuator automatically will enter the self-adjustment. The LED “work” is flashing rapidly (on 0.25 sec., off 0.25 sec.). The valve shaft moves down to the bottom, and then maintains the position for 25 sec and then move upward until the upper point. The self-adjustment does not end until the valve shaft does not hold the final position for 25 sec.

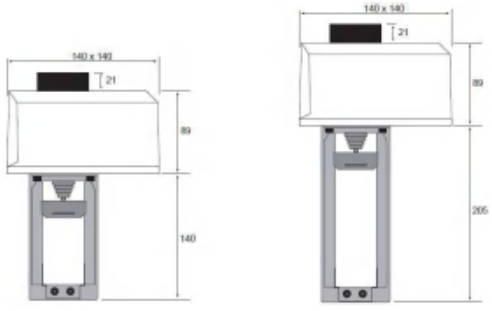
To self-adaptation occurred (the previous data is overwritten), the actuator returns to normal operation. Otherwise (the previous data is not overwritten), will be reported the failure of the state of self-adjustment (on 0.25 sec., off 0.25 sec., twice, then off by 1.25 sec.). You can hold down the “S1” key for 3 sec to retry the process of self-adjustment, or reboot (power cycle) of the actuator to return to normal working state.

Possible errors of self-adjustment:

1: It occurs in the case where the stroke is reached less than half the nominal stroke.

2: The connection of the potentiometer is wrong (terminal J2). Correct way: when the valve shaft is downward the potentiometer has the maximum value, when the valve shaft is upward the potentiometer has the minimum value.

6. Dimensions



ILXA-30 / 70 Actuator for Screwed Globe Valve

1. Description

The actuator series ILXA has been designed to control the screwed globe valves serie ILXV. The actuator is equipped by a double bidirectional synchronous motor at 3000 and 7000 N and available in ON-OFF, floating and proportional version.
Fast and easy assembly. The actuator is fitted with manual override for the drive in case of power failure.

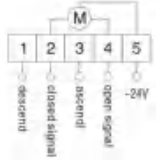
2. Technical Specifications

Power supply	24 V AC 50/60 Hz, 12 VA
Electrical connection	Screw terminal
Torque	See schedule
Max. stroke	See schedule
Running time	See schedule
Materials	ABS cover, self-extinguishing Aluminium bracket
Protection degree	IP54
Protection class	II
Working range °C	-10...+50°C
Storage temperature and humidity	-40...+50°C, 1...95% RH, non-condensing
Fluid temperature	< 150°C
Maintenance	Free

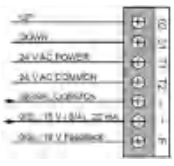
Models	Torque N	Action	Consumption	Running time
ILXA-30	3000	on-off, floating	40	240 sec. with 50 Hz 175 sec: with 60 Hz
ILXA-30M	3000	proportional	40	240 sec. with 50 Hz 175 sec: with 60 Hz
ILXA-70	7000	on-off, floating	40	240 sec. with 50 Hz 175 sec: with 60 Hz
ILXA-70M	7000	proportional	40	240 sec. with 50 Hz 175 sec: with 60 Hz

3. Electrical Wiring

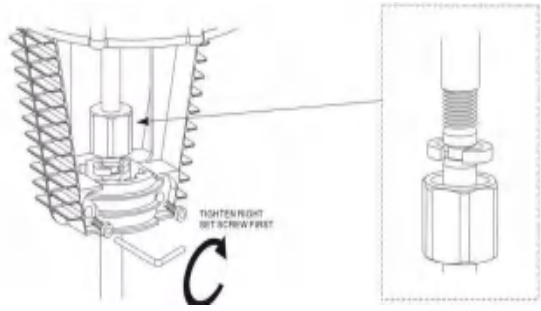
ILXA (on-off, floating)
1: 24 V AC Stem down (direct way open)
2: Feedback with stem down (24 V AC)
3: 24 V AC Stem up (direct way close)
4: Feedback with stem up (24 V AC)
5: 24 V AC (common)



ILXA...M (proportional)
Terminal J1:
01: When short-circuiting with T2 (o -), then the stem goes completely down (direct way open).
The position of W3 has no effect.
02: When short-circuiting with T2 (o -), then the stem goes completely up (direct way close).
The position of W3 has no effect.
T1 T2: input terminal at 24 V AC. T2 is common terminal (T2 is connected with -).
- +: Input signal 4...20 mA (2...10 V DC) / 0...20 mA (0...10 V DC).
W2 and W4 must be set according to the input signal.
F: Feedback signal. There is a signal 0...10 V DC or 2...10 V DC depending on the setting of W2.



4. Installation

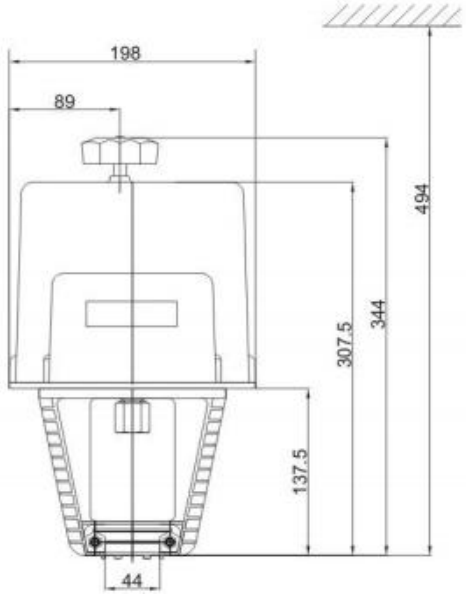


1,Set the actuator bracket on the brass valve connector, and tighten these screws by hexagonal spanners of 4mm.
2,Maintain it in the front of axial lever lid's stationary clamp.
3,Put the valve lever into its gap.
4,Loose the clamp and fasten the lever lid.
5,Make sure the clamp holds the lever lid.
6,Lift the knob, loose the actuator's housing screws, and open the actuator's lid.

Operation:The actuator is actuated by the 2-way synchronous motor.When the valve is open or closed,it will generate the counted force for the driver that can turn off the microswitch inside and the driver will stop working.When the driver receives the control signal,the valve will open a little and stop at any position without signal.The signal sent out by the increasing or proportional contraller of the actuator can make the motor running clockwise or anticlockwise.

Note:
1,When repair the actuator, the current must be cut off to prevented damaging the machine or hurt.
2,Do not connect or take down the wire when the power is on.
3,The actuator should be prevent from water to avoid damaging the parts inside and motor.
4,The actuator should not be covered by the heating insulating material.

6. Dimensions



Screwed Globe Valve ILHV and ILXV

ILHV

ILXV

1.General Information

The globe valves in cast-iron serie ILHV and ILXV are used in heating, refrigeration and air-conditioning systems for the flow control of heated or chilled water for domestic and industrial applications.

2. Techinical Data

Fluids type:Hot and cold water (with glycol max. 50%)
Fluid temperature:-10...120°C
Nominal pressure:1600 kPa max (16 bar)
Control flow characteristics:Equal-percentage (linear on angle way)
Rangeability: 50 : 1
Leakage:< 0,1% of KVs
Connections: Flange
Installation position:Horizontal or vertical
Body: Cast-iron G25
Plug: Brass
Valve stem:Stainless steel 302
Stem packing:PTFE

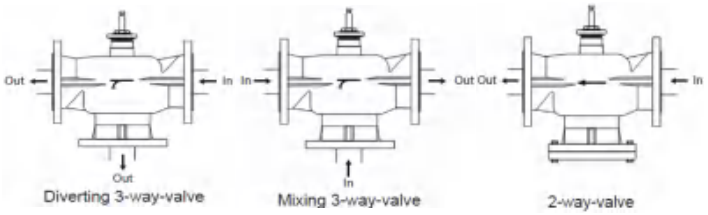
Model	Kvs	Max differential pressure(bar)(*)	Stroke (mm)	Match Actuator	Model	Kvs	Max differential pressure(bar)(*)	Stroke (mm)	Match Actuator
ILHV250	50	2.5(6)	20	ILHA-12(M)	ILHV350	50	2.5(6)	20	ILHA-12(M)
ILHV265	75	2.5(6)	20	ILHA-12(M)	ILHV365	75	2(4)	20	ILHA-12(M)
ILHV280	100	2.5(6)	20	ILHA-12(M)	ILHV380	100	2(4)	40	ILHA-18(M)
ILHV2100	125	2(4)	40	ILHA-18(M)	ILHV3100	125	1.5(3)	40	ILHA-18(M)
ILHV2125	200	1.5(3)	40	ILHA-18(M)	ILXV3125	200	2(4)	40	ILXA-30(M)
ILHV2150	285	1(2)	40	ILHA-18(M)	ILXV3150	285	2(4)	40	ILXA-70(M)
ILHV2200	400	1(2)	40	ILHA-18(M)	ILXV3200	400	1.5(3)	40	ILXA-70(M)

(*) The values in the brackets are the max. dfferential pressure when valve is fully closed and actuator is still able to open or close the valve with security. In order to avoid wear between plug and seat, we recommend not to overcome the nominal values.

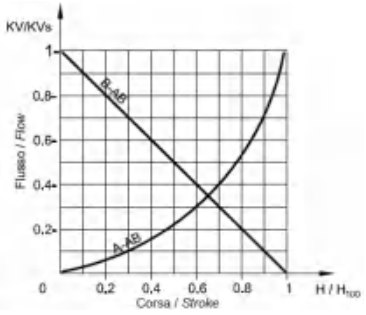
3. Caution

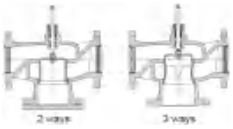
Before valves are mounted, make sure that pipes are clean, free from welding slags, that are perfectly lined up with valve body and not subjected to vibrations. The valve can be mounted in any position except upside-down.
While assembling, respect the ?ow directions indicated by the arrows located on the valve body.
When stem is up, the direct way is closed, with stem down direct way is open.

4. Installation



5. Control flow characteristics

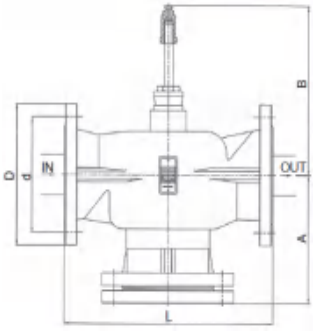




A-AB equal-percentage way
B-AB bypass lineare way
3-way used as mixing inlet in A and B, outlet AB
3-way used as diverting inlet in AB, outlet from A and B

AB way	constant flow
A way	variable flow
B (bypass) way	variable flow

6. Dimensions and weights



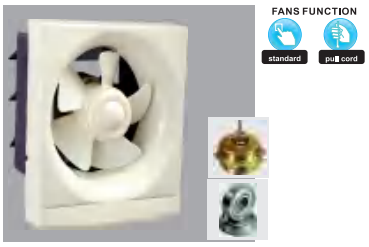
Models	Thread	Dimensions (mm)					Weight
	DN	D	d	L	A	B	kg
ILHV250	50	165	125	230	133	166	14
ILHV350	50	165	125	230	115	166	11,8
ILHV265	65	185	145	290	164	178	19,7
ILHV365	65	185	145	290	145	178	16,4
ILHV280	80	200	160	310	177	182	23,2
ILHV380	80	200	160	310	155	182	20,4
ILHV2100	100	220	180	350	200	264	39,5
ILHV3100	100	220	180	350	175	264	33,7
ILHV2125	125	250	210	400	228	275	54,5
ILXV3125	125	250	210	400	200	275	46
ILHV2150	150	285	240	480	268	290	76,3
ILXV3150	150	285	240	480	240	290	65
ILHV2200	200	340	290	600	330	315	135
ILXV3200	200	340	290	600	300	315	120

Full Plastic Exhaust Fan and Others





Full Plastic Exhaust Fan



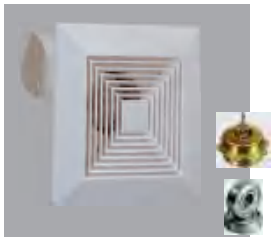
Can be used in wide range of applications, economic and durable

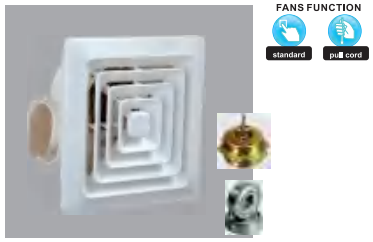
1 Using PP material from the renowned international brands for better quality and good appearance.

2 Using Capacitor induction motor, high-quality copper wire, ball bearing which make less noise and friction to ensure high performance and longer working life for lower energy consumption and stronger wind.

3 Wind Pressure type,cord type,2 way type are available.

Mode	Voltage (V)	Frequency (HZ)	Power (W)	Air-flow (M3/h)	Dimension (MM)
ILF-FP-6B	110/220	50/60	25	230	187×187
ILF-FP-8B	110/220	50/60	28	480	245×245
ILF-FP-10B	110/220	50/60	39	830	295×295
ILF-FP-12B	110/220	50/60	48	980	334×334





Can be used in wide range of applications, economic and durable

1 Using ABS, PP material from the renowned international brands for better quality and good appearance.

2 Using Capacitor induction motor, high-quality copper wire, ball bearing which make less noise and friction to ensure high performance and longer working life for lower energy consumption and stronger wind.

3 Special design of wind wheel is used for low noise and better air-flow.

4 Panel with the button design is more convenient & easier for installation.

Mode	Voltage (V)	Frequency (HZ)	Power (W)	Air-flow (M3/h)	Dimension (MM)
ILF-GD-6A	110/220	50/60	20	210	173×173
ILF-GD-8A	110/220	50/60	26	350	260×260
ILF-GD-10A	110/220	50/60	30	530	286×286
ILF-GD-12A	110/220	50/60	36	630	293×293

Can be used in wide range of applications, economic and durable

1 Using PP material from the renowned international brands for better quality and good appearance.

2 Using Capacitor induction motor, high-quality copper wire, ball bearing which make less noise and friction to ensure high performance and longer working life for lower energy consumption and stronger wind.

3 Wind Pressure type , cord type,2 way type are available.

4 Back side is metal coated with high quality anti-corrosion paint to enhance the life of product.

5 Deluxe mesh is used for safety, good appearance and for better protection.

Mode	Voltage (V)	Frequency (HZ)	Power (W)	Air-flow (M3/h)	Dimension (MM)
ILF-FP-6BTW1	110/220	50/60	25	210	187×187
ILF-FP-8BTW1	110/220	50/60	28	450	245×245
ILF-FP-10BTW1	110/220	50/60	39	800	295×295
ILF-FP-12BTW1	110/220	50/60	48	930	334×334

Can be used in wide range of applications, economic and durable

1 Using ABS, PP material from the renowned international brands for better quality and good appearance.

2 Using Capacitor induction motor, high-quality copper wire, ball bearing which make less noise and friction to ensure high performance and longer working life for lower energy consumption and stronger wind.

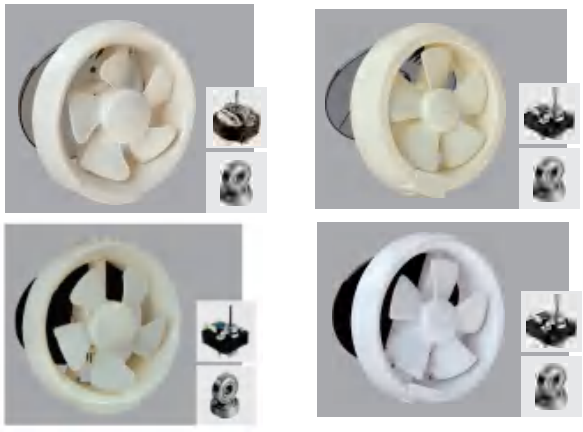
3 Special design of wind wheel is used for low noise and better air-flow.

4 Panel with the button design is more convenient & easier for installation.

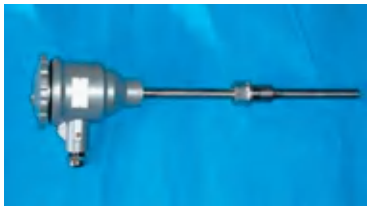
Mode	Voltage (V)	Frequency (HZ)	Power (W)	Air-flow (M3/h)	Dimension (MM)
ILF-GD-8D	110/220	50/60	26	350	260×260
ILF-GD-10D	110/220	50/60	30	480	286×286

Full Plastic Exhaust Fan

Round Shape Exhaust Fan



Explosion-proof Temperature Sensor



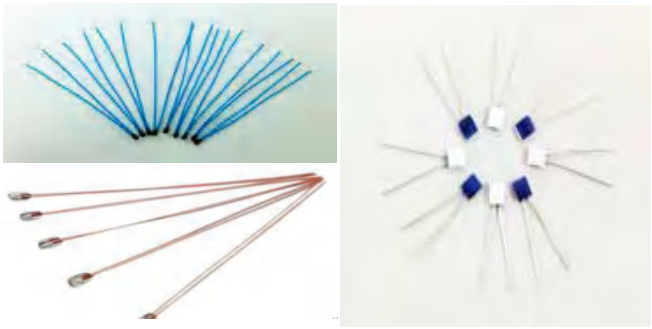
Measuring range: 0-100 ℃

Product structure: probe type structure

Function: measurement of flammable and explosive liquid

Insertion length: the sensor tube length according to the site installation requirements

Thermistor



Product Name: Thermistor
Product Model: PT-100/PT-500/PT-1000
Standard Size: 2/3.2 (mm)
Accuracy: A grade
Response Time: τ ≤ 6s
Dissipation Factor: δ ≥ 2mW/° C

Temperature Sensor

Accuracy: ± 0.5%

Measuring range: - 40-105 ℃

Product features: thermistor

Usage: used for the PH of the water temperature measurement

Working principle: the temperature of the sensor object can be converted to electrical signal output.

Portale Thermometer

Accuracy: ± 0.5%

Measuring range: - 40-105 ℃

Line length: 1-20 meters

Working principle: sensors

Purpose: designed to measure surface temperature

Features: LCD digital display, 9 V batteries, convenient to carry

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