# HFM510 LCD Display Thermal Flow Switch


Nanjing Hangjia Electronic Technology Co., Ltd.

# Overview

HFM510 digital explicit flow switch adopts the principle of thermal diffusion, which is applied in flow detection to show the value of regional temperature difference corresponds to the size of flow.Its working principle is to place a heating module and a temperature sensing module in the closed probe. The temperature difference value of the heat transfer of the probe is closely related to the velocity of the measured medium. When the medium in the pipe flows at a stable velocity, the sensor module receives a fixed value that the heating module senses.When the velocity of flow through the probe changes, the thermal sensing module will send out the temperature difference signal, and the processor will output the result of the corresponding velocity.

HFM510 digital explicit flow switch does not have any moving parts, so compared with mechanical flow switch, it will not fail due to corrosion, fracture, baffle deformation and other reasons.It is also suitable for flow monitoring of different media, including some impure liquid and gas media.Insert installation mode, meet various pipe diameter installation requirements.The product USES digital display medium flow state; Button setting parameters, easy to operate;Long service life combined with maintenance-free design.

The products are widely used in , machine tools, as well as large transformer and other fields.

# Application

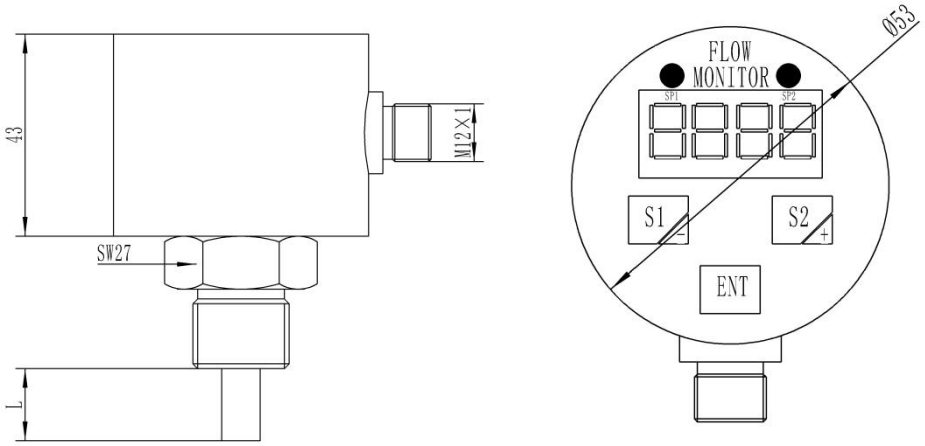
.Printing machinery,
.Welding equipment,
.Lubrication machinery,
.Glass machinery,
.Laser equipment,
.Microwave equipment,

# Technical Parameters

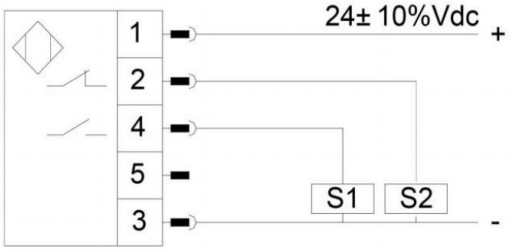
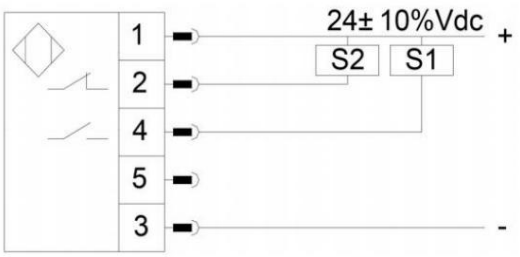
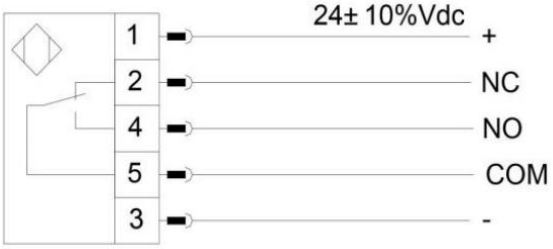
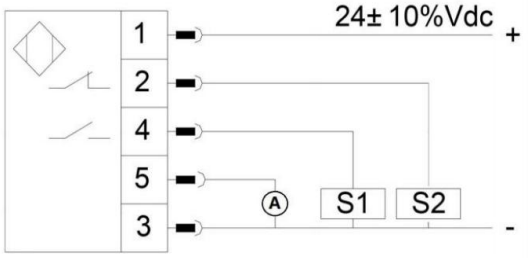
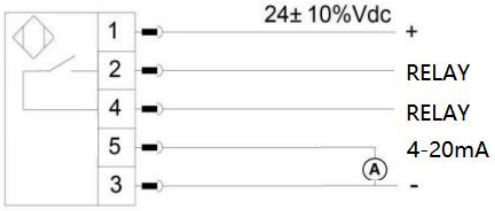
| **Measuring Range** | |
|---|---|
| Water | 1...150cm/s (Most sensitive range 1...60cm/s) |
| Oil | 3...300cm/s(Most sensitive range 3...100cm/s) |
| Air | 20...2000cm/s(Most sensitive range 20...700cm/s) |
| **Measuring Medium** | Water, Oil, Air |
| **Withstand Pressure** | 100bar |
| **Initialization Time** | 18s |
| **Response Time** | 1...15s, related to thermal conductivity of medium, typical value 2s |

| | |
|---|---|
| **Supply Voltage** | 24VDC(18～32VDC) |
| **No-load current** | <80mA |
| **Switched Output** | |
| Output type | PNP / NPN / Relay / PNP + Analog 4～20mA |
| Load Capacity | 150mA max(PNP)； 1A max(relay);500Ω max(4～20mA) |
| **Display** | |
| Alarm Indication | LED（Red ） |
| Status Indicator | 4 LED |
| **Temperature** | |
| Operating Temp | -20～80℃ |
| Medium Temp | -20～80℃ |
| Storage Temp | -20～100℃ |
| Material | |
| Shell | SUS304 |
| Probe | SUS304 (SS316L, Ti can be customized) |
| **Protection Grade** | IP67 |
| **Wiring Method** | M12 Connector |

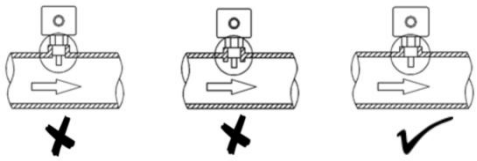
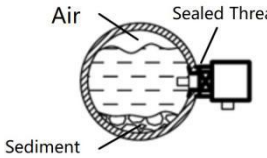
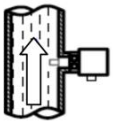
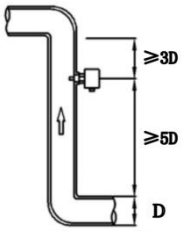
## Structure Drawings ( unit: mm )



## Electrical Connection

| | |
|---|---|
| PNP Output |  |
| NPN Output |  |
| Relay Output |  |
| PNP+4-20mA Output |  |
| Relay+4-20mA output |  |

## Field installation

| | | |
|---|---|---|
| The Probe Installation |  | The probe must be in full contact with the measured medium |
| Horizontal Pipe |  | When horizontal piping, consider side mounting as much as possible<br>1） When installed at the upper end of the horizontal pipe, the medium should be full so that the probe does not touch the medium but only the air<br>2） When installed at the lower end of the horizontal pipe, ensure that there is no sediment at the bottom of the pipe, lest the probe is covered by sediment and cannot fully contact with the probe |
| Vertical Pipe |  | When mounted vertically, it shall be mounted on the pipe segment flowing from the bottom to the top |
| Reducer Pipe |  | When installing with elbow pipe and intersection, the installation distance should be considered before and after, the front is 5 times the pipe diameter distance, and the back is 3 times the pipe diameter distance |

## Ordering Guide

| Item NO. | Type | | | | | |
|---|---|---|---|---|---|---|
| HFM510 | Digital explicit flow switch | | | | | |
| | Code | Thread Spec | | | | |
| | G14 | G1/4 | | | | |
| | G38 | G3/8 | | | | |
| | G12 | G1/2 | | | | |
| | G34 | G3/4 | | | | |
| | G1 | G1 | | | | |
| | | Code | Output Signal | | | |
| | | N | NPN output | | | |
| | | P | PNP output | | | |
| | | R | Relay output | | | |
| | | A | 4-20mA Anolog | | | |
| | | | Code | Supply Powe | | |
| | | | V1 | 24VDC | | |
| | | | V2 | 220VAC | | |
| | | | | Code | Probe Length | |
| | | | | L | Fill out X directly | |
| | | | | | Code | Electrical Connector |
| | | | | | M | M12 |
| HFM510 | G12 | RA | V1 | L=15 | M | |