Actuator for flanged globe valve AVFF

AVFF

Description

The AVFF actuator series has been designed to control the flanged globe valves of the VFF series and is available in ON-OFF, floating, proportional and Modbus RS485 (RTU) control versions. The 1500 N actuator is equipped with a high-efficiency brushless DC motor, while the 3000 N actuator is equipped with a bidirectional synchronous motor. Fast and easy assembly.
All AVFF actuators are fitted with a manual override for manual operation in the event of power failure.

Technical specifications

Power supply	see schedule
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	III 24 V AC/DC, I 230 V AC, ±10%
Working range °C	-10...+55°C
Storage temperature and humidity	-15...+55°C, 1...95% RH, non-condensing
Fluid temperature	< 130°C
Maintenance	free



Model	Torque N	Action	Stroke mm	Power supply	Consump. VA	DN	Running time s/mm
AVFF15 **AVFF15B**	1500	on-off	22	24 V AC/DC 230V AC	12	50-80	1,5 or 3,8
AVFF15M **AVFF15BM**	1500	proportional	22	24 V AC/DC 230V AC	12	50-80	1,5 or 3,8
AVFF30 **AVFF30B**	3000	on-off	50	24 V AC 230 V AC 50/60 Hz	18	100-200	3,1 (50 Hz)
AVFF30M **AVFF30BM**	3000	proportional	50	24 V AC 230 V AC 50/60 Hz	20	100-200	3,1 (50 Hz)

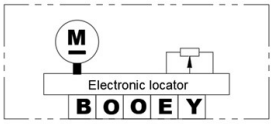
Suffix: **S** for 2x SPDT microswitches (excluding modulating version)

MOD Only for proportional models. Actuators with RS485 (RTU) control also include built-in analog control capability. The control mode, either Modbus RS485 RTU or analog, can be selected via RS485 (RTU) communication commands. When RS485 control is active, the analog input is disabled, while the analog output remains functional.

Electrical wiring

1 - AVFF15M... proportional version

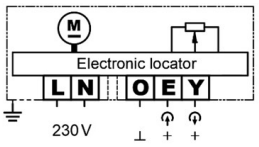
AVFF15M
(power supply 24 V AC/DC)



B	System potential 24 V	∽ | +
O	System neutral 0 V	∽ | + | ⊥
O	Signal neutral (-)	
E	Positioning signal	(+)
Y	Position feedback	(+)

Wiring: max. 1.5 mm²

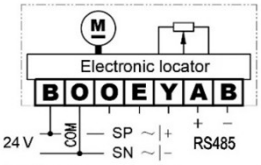
AVFF15BM
(power supply 230 V AC)



L	System potential 230 V	∽ | +
N	System neutral 0 V	∽ | -
O	Signal neutral (—)	⊥
E	Positioning signal (+)	
Y	Position feedback (+)	

Wiring: max. 1.5 mm²

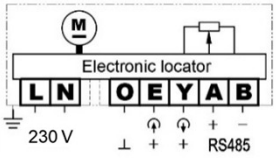
AVFF15M/MOD, modbus RS485
(power supply 24 V AC/DC)



B	System potential 24 V	∽ | +
O	System neutral 0 V	∽ | - | ⊥
O	Signal neutral (—)	
E	Positioning signal (+)	
Y	Position feedback (+)	
A	485 Forward signal input (+)	
B	485 Reverse signal input (—)	

Wiring: max. 1.5 mm²

AVFF15BM/MOD, modbus RS485
(power supply 230 V AC)

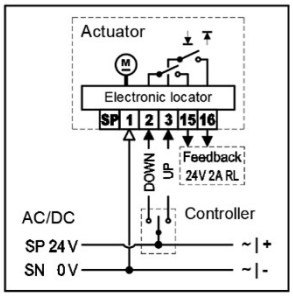


L	System potential 230 V	∽ | +
N	System neutral 0 V	∽ | -
O	Signal neutral (—)	⊥
E	Positioning signal (+)	
Y	Position feedback (+)	
A	485 Forward signal input (+)	
B	485 Reverse signal input (—)	

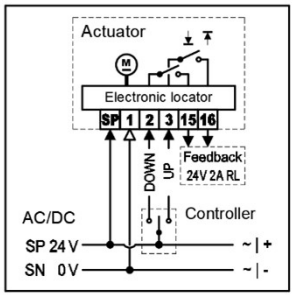
Wiring: max. 1.5 mm²

2 - AVFF15... on-off floating version

AVFF15
(power supply 24 V AC/DC)



Optional: Connected as 3 wire



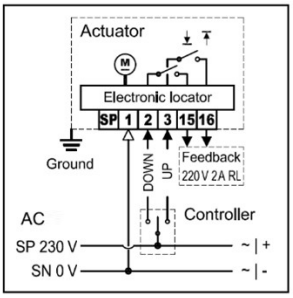
Optional: Connected as 4 wire

SP	System Potential 24 V AC/DC	
1	System Neutral 0 V AC/DC	
2	Stem extends ↓	Power Supply 24 V AC/DC
3	Stem retracts ↑	
15	Bottom limit	Output Power Supply Max. 3 A
16	Top limit	

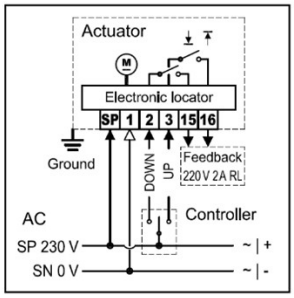
For Precise control and fast response in 3-point mode (0. 02s)

Wiring: max. 1.5 mm²

AVFF15B
(power supply 230 V AC)



Optional: Connected as 3 wire



Optional: Connected as 4 wire

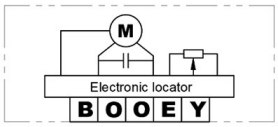
SP	System Potential 230 V AC	
1	System Neutral 0 V AC	
2	Stem extends ↓	Power Supply 230 V AC
3	Stem retracts ↑	
15	Bottom limit	Output Power Supply Max. 3 A
16	Top limit	

For Precise control and fast response in 3-point mode (0. 02s)

Wiring: max. 1.5 mm²

3 - AVFF30M... proportional version

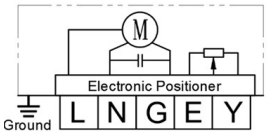
AVFF30M
(power supply 24 V AC)



B	System potential 24 V AC	∽
O	System neutral 0 V AC	∽
O	Signal neutral (—)	⊥
E	Positioning signal (+)	
Y	Position feedback (+)	

Wiring: max. 1.5 mm²

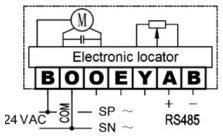
AVFF30BM
(power supply 230 V AC)



L	Power supply 230 V AC	∽
N	Power neutral 0 V AC	∽
G	Signal neutral (—)	⊥
E	Input | 0-10 V or 4-20 mA (+)	
Y	Output | 0-10 V or 4-20 mA (+)	

Wiring: max. 1.5 mm²

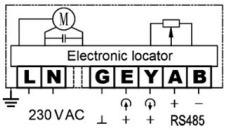
AVFF30M/MOD, modbus RS485
(power supply 24 V AC)



B	System potential 24 V	∽
O	System neutral 0 V	∽ | - | ⊥
O	Signal neutral (—)	
E	Positioning signal (+)	
Y	Position feedback (+)	
A	485 Forward signal input (+)	
B	485 Reverse signal input (—)	

Wiring: max. 1.5 mm²

AVFF30M/MOD, modbus RS485
(power supply 230 V AC)

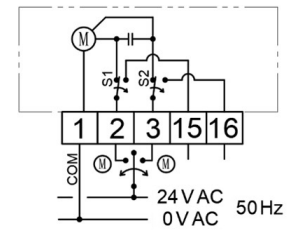


L	System potential 230 V	∽
N	System neutral 0 V	∽
G	Signal neutral (—)	⊥
E	Positioning signal (+)	
Y	Position feedback (+)	
A	485 Forward signal input (+)	
B	485 Reverse signal input (—)	

Wiring: max. 1.5 mm²

4 - AVFF30... on-off floating version

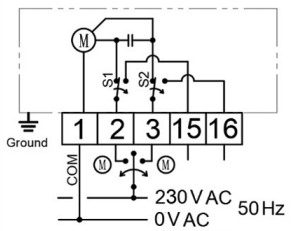
AVFF30
(power supply 24 V AC)



1	Power Neutral 0 V AC	
2	Stem extends ↓	Power Supply 24 V AC 50 Hz
3	Stem retracts ↑	
15	Bottom limit	Output Power Supply Max. 3 A
16	Top limit	

Wiring: max. 1.5 mm²

AVFF30B
(power supply 230 V AC)



1	Power Neutral 0 V AC	
2	Stem extends ↓	Power Supply 230 V AC 50 Hz
3	Stem retracts ↑	
15	Bottom limit	Output Power Supply Max. 3 A
16	Top limit	

Wiring: max. 1.5 mm²

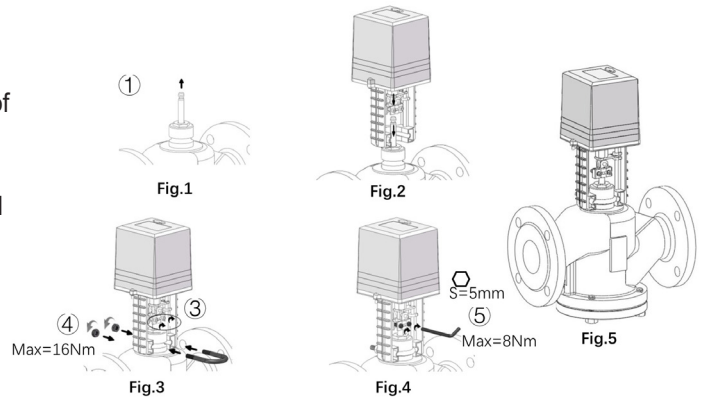
Installation

As shown in the steps in the figure beside, install the electric actuator onto the control valve body:

Fig.1: First, use a tool (pliers or a wrench) to pull the valve stem of the control valve out of the valve body to its highest position (*1*).

Fig.2: Remove the U-bolt from the actuator and loosen the clamp on the actuator rod. Align the actuator rod with the valve stem and push them down together until the bottom surface of the actuator rests on the valve body mounting plane (*2*).

Fig. 3: Connect the actuator rod to the valve stem (*3*). Before assembly, ensure that the actuator rod and the valve stem are tightly butted against each other with no gaps. Using a 5 mm hex key, pre-connect the clamp clips, but do not fully tighten the screws yet.



Note: The clamp clips of AVFF15.. and AVFF30.. differ slightly. For AVFF30.., ensure the clamp is oriented so that the direction of the clamp relative to the notch aligns correctly with the side of the actuator rod.
Insert the U-bolt into the mounting hole between the actuator and the valve body, and tighten it using two M8 nuts (max torque = 16 Nm) (*4*).

Fig. 4: Tighten the two clamp screws with a 5 mm hex wrench, applying a maximum torque of 8 Nm (*5*).

Fig. 5: Finally, slide the two pointer rings (one red, one blue) along the actuator bracket until they are close to the pointer position.

Setting AVFF15… ON/OFF, FLOATING

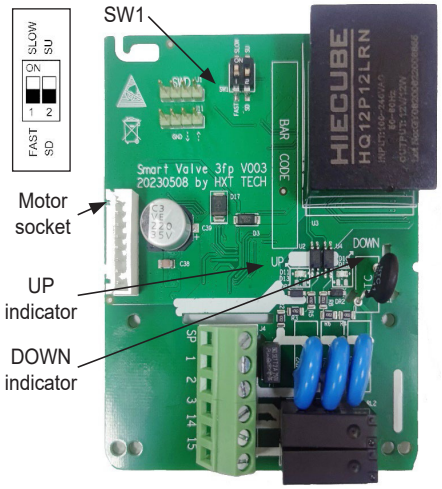
The floating actuator is equipped with an electronic positioner, as shown in the figure beside:

1. Fully connect the actuator to the valve body
Install according to the diagram and the steps described in “Complete Machine Assembly”.

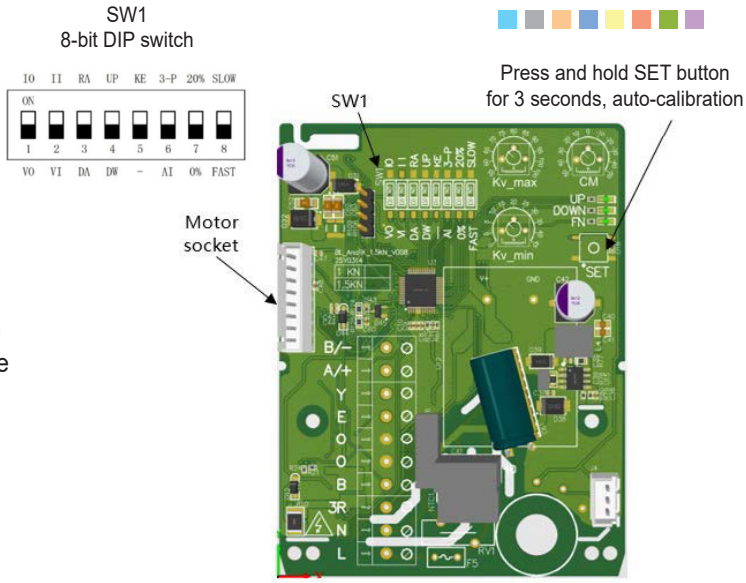
2. Correctly connect the power cable or control wiring
Perform wiring according to the “Wiring Diagram” included with the product.

3. Set the DIP switch to the required configuration
Adjust the DIP switch only after disconnecting the power supply.

4. Operate the actuator through the controller to perform a full run test
Once the test run is completed, the equipment commissioning is finished.



Setting AVFF15… PROPORTIONAL



DIP 1 – Feedback Signal Type
ON: DC current signal
OFF: DC voltage signal

DIP 2 – Input (Control) Signal Type
ON: DC current signal
OFF: DC voltage signal

DIP 3 – Positioner Action Mode (Direct / Reverse Acting)
OFF – Direct Acting: When the input signal increases, the actuator rod moves upward.
ON – Reverse Acting: When the input signal increases, the actuator rod moves downward.

DIP 4 & DIP 5 – Signal Loss Response Mode (Applicable only when the input signal is DC 4–20 mA or DC 2–10 V)

> When DIP 5 = OFF:
DIP 4 = ON: Upward fail-safe – on input signal loss, the actuator rod moves to the upper limit position.
DIP 4 = OFF: Downward fail-safe – on input signal loss, the actuator rod moves to the lower limit position.

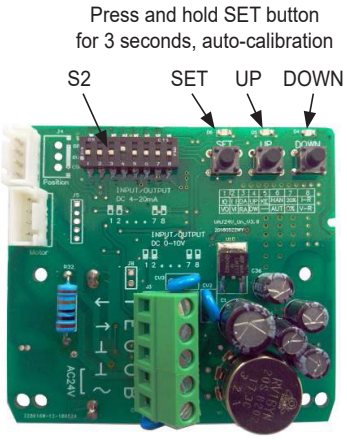
> When DIP 5 = ON:
Position Hold – regardless of DIP 4, on input signal loss the actuator rod remains at its current position.
Note: This function is not available with DC 0–10 V or DC 0–20 mA input signals.
For these signal types, if the input signal is lost, the actuator defaults to operating according to the 0% signal level.

DIP 6 – Positioning Mode (Refer to the wiring diagram for system connections)
OFF: Modulating signal control mode
ON: 3-position control mode or manual control (manual operation possible using the mechanical handle)

DIP 7 – Starting Point of Input and Feedback Signals (0% / 20%)
OFF: 0% (e.g., DC 0–10 V, DC 0–20 mA)
ON: 20% (e.g., DC 2–10 V, DC 4–20 mA)

DIP 8 – Running Speed Selection
OFF: High-speed mode – 1.5 s/mm
ON: Low-speed mode – 3.8 s/mm

Setting AVFF30M… PROPORTIONAL 24 V AC



The proportional actuator is equipped with an electronic positioner, as shown above:

1. Connect the actuator to the valve body
Install according to the diagram and the steps described in “Complete Assembly”.

2. Perform correct wiring
Follow the “Wiring Diagram” provided inside the product.

3. Set the DIP switches to the required configuration
Refer to “Positioner Setting” below; make all adjustments with the power disconnected.

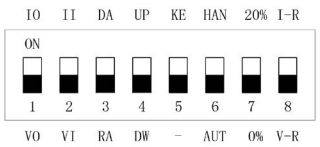
4. Turn on the actuator power supply
All three indicators will illuminate simultaneously and then turn off, indicating that the positioner self-test is complete.

5. Start the auto-calibration procedure
Press and hold the **SET** button for more than 3 seconds to initiate the full auto-calibration sequence:
> The actuator rod first moves **downward**: During downward movement, the **SET** and **UP** indicators flash, while the **DOWN** indicator remains steadily lit. Once the rod reaches the valve’s lower end position and the position is recorded, it begins to move upward.
> The actuator rod then moves **upward**: During upward movement, the **SET** and **DOWN** indicators flash while the **UP** indicator remains steadily lit. After reaching the valve’s upper end position and recording it, all indicators stop flashing and turn off.

Auto-calibration is now complete, and the system returns to the normal control state.

Switch S2 – DIP Function Overview (Compact Table)

S2



S2	Setting status														
	Output signal		Input signal		Positioner Action modes		Signal loss response			Manual/ Auto selection		Starting point		Resi-stance matching	
	Voltage	Current	Voltage	Current	Direct Acting	Reverse acting	Down	Up	Position hold	Auto	Manual	0%	20%	Voltage signal	Current signal
	VO	IO	VI	II	DA	RA	DW	UP	KE	AUT	HAN	0%	20%	V-R	I-R
1	OFF	ON													
2			OFF	ON											
3					OFF	ON									
4							OFF	ON	-						
5							OFF	OFF	ON						
6										OFF	ON				
7												OFF	ON		
8														OFF	ON

DIP 1 – Feedback Signal Type
ON: Current (DC mA)
OFF: Voltage (DC V)

DIP 2 – Input (Control) Signal Type
ON: Current (DC mA)
OFF: Voltage (DC V) Use together with DIP 7 and DIP 8.

DIP 3 – Action Mode
OFF: Direct acting (signal ↑ → rod up)
ON: Reverse acting (signal ↑ → rod down)

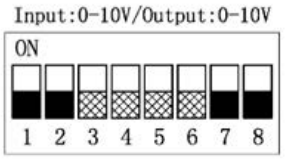
DIP 4 & DIP 5 – Signal Loss Response
(For 0–10 V / 2–10 V / 4–20 mA)
DIP 5 OFF + DIP 4 ON: Fail-safe Up (rod → upper limit)
DIP 5 OFF + DIP 4 OFF: Fail-safe Down (rod → lower limit)
DIP 5 ON: Position Hold (rod stays in place)
Note: Not functional for 0–20 mA (defaults to 0 mA behavior).

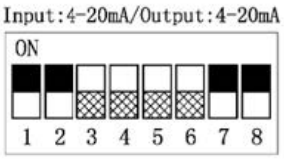
DIP 6 – Manual / Auto Mode
OFF: Auto (follows input signal)
ON: Manual (operate via handle or UP/DOWN buttons)

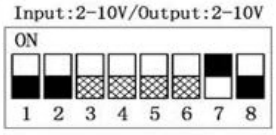
DIP 7 – Signal Start Point
OFF: 0% (0–10 V, 0–20 mA)
ON: 20% (2–10 V, 4–20 mA)

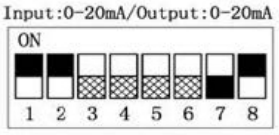
DIP 8 – Signal Resistance Matching
ON: Current input matching
OFF: Voltage input matching

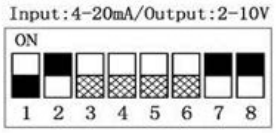
Standard signal DIP switch status Setting map

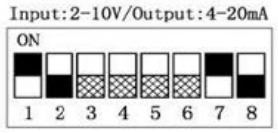


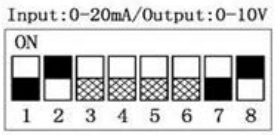


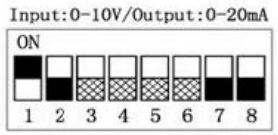








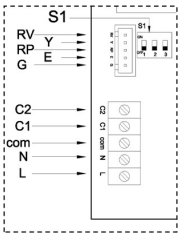


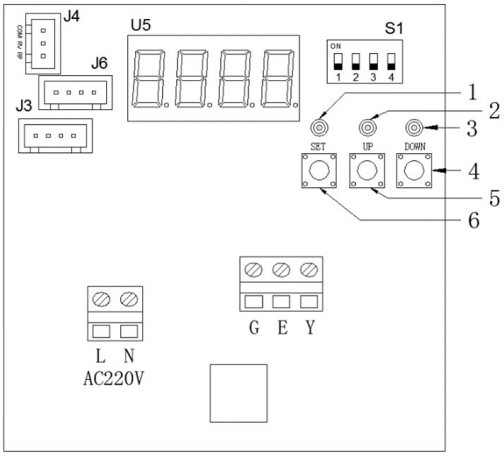


Proportional 230 V AC (AVFF…B)

Instructions for the actuator panel with an electronic locator

Press and hold
SET button
for 3 seconds,
auto-calibration

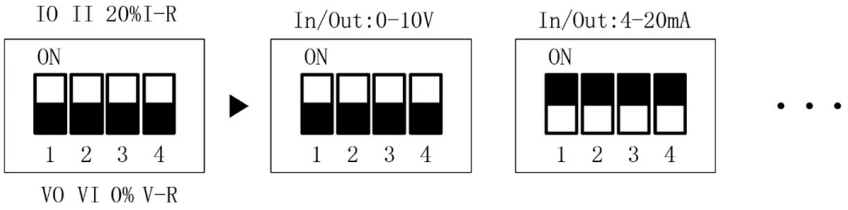




U5: Display
1: “SET” Indicator light
2: “UP” Indicator light
3: “DOWN” Indicator light
4: “DOWN” button
5: “UP” button
6: “SET” button

S1: Signal type selector
J3: Motor socket
J4: Power socket
J6: Limit switch socket

Status and setting of 4-digit DIP switch S1



DIP1: Feedback signal type
ON: current output
OFF: voltage output

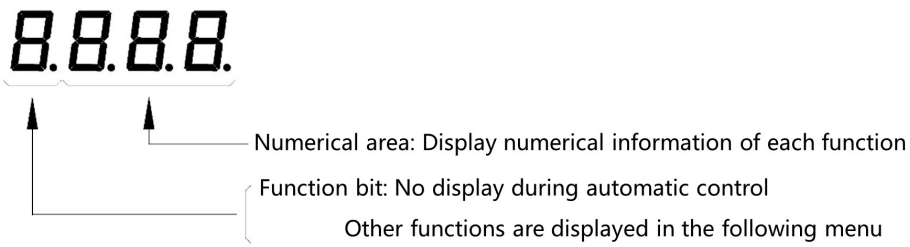
DIP2: input signal type:
ON: current output
OFF: voltage input

DIP3: Starting point selector, i.e., percentage of the starting point and full point of input and output signals.
OFF: 0%; e.g., DC0-10V–DC0-20mA etc.
ON: 20%; e.g., DC2-10V–DC4-20mA etc.

DIP4: Resistance matching for input signals (The same as the DIP2)
ON-Perform resistance matching for the current input signal
OFF- Perform resistance matching for the voltage input signal

S1-DIP	Signal type selector							
	Output signal		Input signal		Starting point selector		Resi-stance matching for input signals	
	Voltage	Current	Voltage	Current	0%	20%	at voltage	at current
DIP1	OFF	ON						
DIP2			OFF	ON				
DIP3					OFF	ON		
DIP4							OFF	ON

Proportional 230 V AC (AVFF…B)



1. Quick debugging (Auto-calibration of valve stroke):

After each power - on of the device, it directly enters the “automatic control” state. In the “automatic control” state, press and hold the [“SET”] key for three seconds, then the auto-calibration program will be started:

> The actuator rod moves downward first. The “SET indicator light” and “UP indicator light” flash, and the “DOWN indicator light” is always on.

> Stop slightly at the bottom dead center, memorize it and then move upward. The “SET indicator light” and “DOWN indicator light” flash, and the “UP indicator light” remains on. Move upward to the limit position, stop slightly, memorize it, and then all indicator lights stop flashing. The auto-calibration is completed.

2. Manual/Auto control status

In the normal “automatic control” state, when the [“SET” + “UP”] two keys are pressed simultaneously for three seconds, the “automatic control” and “manual control” states can be switched alternately.
In the “manual control” state, the function bit displays “H”, and at this time, the up and down actions of the actuator can be operated through the [“UP”] key or the [“DOWN”] key.

3. Automatic control state

3.1. Feedback signal display
Under the normal “automatic control” state, there is no display of the function bit. At this time, the value displayed in the numerical area of the display screen is the percentage value of the valve position feedback signal.

3.2. Input Signal Display
In the normal “automatic control” state, by switching the [“DOWN”] key, the percentage value of the valve position feedback signal and the percentage value of the input signal can be alternately displayed in the numerical area of the display screen. When the percentage value of the input signal is displayed in the numerical area, the function position shows “ ”. After the percentage value of the input signal is displayed for 10 seconds without any operation, it will automatically return to the normal “automatic control” state.

4. Overload alarm function

For the actuator, stalling (when the resistance value of the potentiometer does not change within 30 seconds) at non - extreme positions (near the two dead - point positions, that is, within 5% of approaching zero and full scale) is regarded as a fault. At this time, the current feedback value and E01 are displayed alternately, and the output of the thyristor is cut off. Then, try to output again after 30 seconds, and repeat this process.

Engineers set parameters

In the “Automatic Control” state, press and hold the three keys [“SET” + “UP” + “DOWN”] simultaneously for three seconds to enter the engineer parameter setting state. Press the [“SET”] key in sequence, and the function bit and the value area will flash alternately. When the function bit is flashing and the value area is not flashing, you can change the function bit through the [“UP”] and [“DOWN”] keys. When the value area is flashing and the function area is not flashing, you can change the value in the value area through the [“UP”] and [“DOWN”] keys. In the parameter setting state, if there is no operation for more than 10 seconds, it will return to the “Automatic Control” state.

Conventional “Function Bit” Display Table			
Function description	**Function bit**	**Display**	**Explanation**
Position feedback	No display	0 ▼ 100	Numeric range: 0% - 100% In automatic mode, only the position feedback value is displayed. In the automatic state, if you need to view the input signal values, you can use the DOWN key to switch between the position feedback values and the input signal values. Note: After 10 seconds of no operation while the input signal value is displayed, the positioner automatically reverts to the state of displaying the position feedback value.
Input signal	P	P0 ▼ P100	
Manual function	H	H0 ▼ H100	Numeric range: 0% - 100% Only display the position feedback value. It is not allowed to switch to the input signal display state. In this state, the actuator can be operated to run by pressing the “UP” key or the “DOWN” key. Phenomenon: Flashing the current feedback value;
Stroke calibration alarm	E	E00	E00 = Warning that the stroke calibration has not been completed correctly. Phenomenon: The UP and DOWN indicator lights flash alternately with an interval of 1 second.
Locked Rotor Alarm		E01	E01 = Locked Rotor Alarm (The overload switch has been triggered) 1. Upward rotation blocking alarm Phenomenon-The alarm code E01 flashes, and the SET and UP indicator lights flash together with a cycle of 1 second. 2. Downward blocking alarm Phenomenon-The alarm code E 01 flashes, and the SET and DOWN indicator lights flash together with a cycle of 1 second.
Lost signal alarm		E02	E02= Lost signal alarm In the automatic state, if the input signal line is disconnected, the positioner determines it as a lost signal alarm.
Potentiometer Upper Limit Alarm		E03	E03= Potentiometer upper limit alarm In the automatic state, when the output shaft of the mechanism moves upward to the potentiometer protection position, the positioner determines it as an upper limit alarm.
Potentiometer Lower Limit Alarm		E04	E04= Potentiometer lower limit alarm In the automatic state, when the output shaft of the mechanism descends to the potentiometer protection position, the positioner judges it as a lower limit alarm.
Operating failure		E05	E05 = Actuator running failure, such as abnormal transmission system, or abnormal potentiometer operation, etc. 1. Downward failure Phenomenon: Display E05, and the DOWN indicator light flashes 3 times and pauses for 1s. 2. Upward failure Phenomenon: Display E05, and the UP indicator light flashes 3 times and pauses for 1s.

Level 1 parameter table			
Function description	**Function bit**	**Display**	**Factory values**
Starting point selector	1	1 00 1 01	Selection of the starting point of the input signal. Value range: 00 = 0%, 01 = 20% Note: The DIP switch settings take precedence. This parameter does not need to be set and can use the default value.
Direct or inverse acting selector	2	2 00 2 01	Value range: 00, 01 00= Direct acting (Signal increases, the output shaft of the actuator moves upward) 01= Inverse acting (Signal increases, the output shaft of the actuator moves downward) Note: When not specified, the factory default is “00”.
The working mode of the lost signal	3	3 00 3 02	Value range: 00, 01, 02 00= Downward movement 01= Upward movement 02= Hold the position, Note: The default setting at the factory is “00”.
Lower limit value of the stroke Kv-min	4	Value range: 0-55	Stroke limit setting when the input signal is at 0% 00= Disable The factory default is “00”.
Upper limit value of the stroke Kv-max	5	Value range: 55-100	Stroke limit setting when the input signal is at 100% 100= Disable; The factory default is “100”.
Flow characteristic	6	Value range: 00, 01, 02	The curve relationship between the percentage of the input signal and the percentage of the stroke: 00= Linear, 01= Equal percentage, 02= Reverse equal percentage The factory default is “00”.
Rangeability	7	Value range: 25, 30, 33, 50, 60, 80, 100	Only available when the equal percentage characteristic is used. Note: The factory default is “30”.
Level 2 parameters unlocking bit	8		Users cannot change it at will. Note: The default factory setting is “08”. Set it to “16”, and after confirmation, enter the level 2 parameters setting.

Level 2 parameter table			
Function description	**Function bit**	**Display**	**Factory values**
Signal dead zone setting	9	9 05 9 100	Value range: 0.4-10.0 !! Please change with caution. Note: The default facto ry setting is “0.6”, and the dead zone parameter is 0.6%. If it is set to “2.0”, after confirmation, the dead zone parameter will be 2.0%.

Content of the standard RS485 communication Modbus RTU protocol

1. Basic description of the agreement

No	Parameter name	Communication protocol stipulates
1	Working mode	Master-slave mode
2	baud rate	2400/4800/9600/19200 // Default: 9600
3	Byte format	No parity (default) / odd parity / even parity,8-bit data bits, 1 stop bit
4	CRC check code	CRC-16 (Standard Modbus) 0x8005
5	CRC check method	CRC-16 (Standard Modbus)
6	Data frame interval	more than 3.5 bytes

2. Protocol format

2.1 Multiple register read - Function code: 0x03

Master to slave transmission format

Definition	Slave address	Function code	Starting address of the register		Register length		CRC16 checksum	
Bytes occupied	1	1	2		2		2	
Endianness	1	1	H	L	H	L	H	L

Device address (slave address): 0x01
Function code: 0x03 - Register reading

Starting register address: The starting address of the register to be read
Register length: The number of registers to be read

Slave to Master response format

Definition	Slave address	Function code	Num. of Bytes	The content of register 1		The content of register 2		The content of register N		CRC16 checksum	
Bytes occupied	1	1	1	2		2		2		2	
Endianness	1	1	1	H	L	H	L	H	L	H	L

Device address (slave address): 0x01
Function Code: 0x03 - Register Reading

Number of Bytes: Refers to the number of bytes contained in registers 1 to N
Contents of Registers 1 to N: The consecutive contents starting from the first address of the register and with a length equal to the register length N

2.2 Single Register Write - Function Code: 0x06

Master to slave transmission format

Definition	Slave address	Function code	Address of the register		The written content		CRC16 checksum	
Bytes occupied	1	1	2		2		2	
Endianness	1	1	H	L	H	L	H	L

Device address (slave address): 0x01
Function Code: 0x06 - Single Register Write

Register Address: Address of the register to be written
Register Content: Data content to be written

Slave to Master response format

Definition	Slave address	Function code	Address of the register		The written content		CRC16 checksum	
Bytes occupied	1	1	2		2		2	
Endianness	1	1	H	L	H	L	H	L

Device address (slave address): 0x01
Function Code: 0x06 - Single Register Write

Register Address: Address of the register to be written
Register Content: The written data content

2.3 Multiple register writing - Function code: 0x10

Master to slave transmission format

Definition	Slave address	Func-tion code	Starting address of the register	Register length	Num. of Bytes	The content of register 1	The content of register 2	The content of register N	CRC16 checksum
Bytes occupied	1	1	2	2	1	2	2	2	2
Endianness	1	1	H L	H L	1	H L	H L	H L	H L

Device address (slave address): 0x01
Function Code: 0x10 - Multiple Register Write
Starting Register Address: The starting address of the register to be written

Register Length: The number of registers to be written
Number of Bytes: Refers to the number of bytes contained in registers 1 to N

Slave to Master response format

Definition	Slave address	Function code	Starting address of the register	Register length	CRC16 checksum
Bytes occupied	1	1	2	2	2
Endianness	1	1	H L	H L	H L

Slave address: 0x01
Function code: 0x10 - Multiple register write

Starting address of register: Starting address of the register to be written
Register length: Number of registers to be written

2.4 Custom function code: 0x45

-- Change communication address according to electronic serial number

Example of instructions:

Master to slave transmission format:

00 45 0beb ecf9 08 07 d3 // Set the slave address of the device with the electronic serial number 0x0BEB ECF0 (decimal 2 0001 1 001) to 0x08.

- 07 d3: CRC - 16 (Standard Modbus) 0x8005 polynomial
- 08: The new Modbus address is rewritten as 0x08
- 0beb ecf9: A 4 - byte device electronic serial number 0x0b eb ec f9 (decimal 2 0001 1 001)
- 45: 0x45 Custom Function Code: Change the new slave address according to the device's electronic serial number
- 00: If the slave address is 00, it is a broadcast

Slaves that meet the conditions update the address and reply to the information format:

08 45 0beb ecf9 08 8e 13 // The slave address of the device with the electronic serial number 0x0BEB ECF0 (decimal 2 0001 1 001) has been set to 0x08.

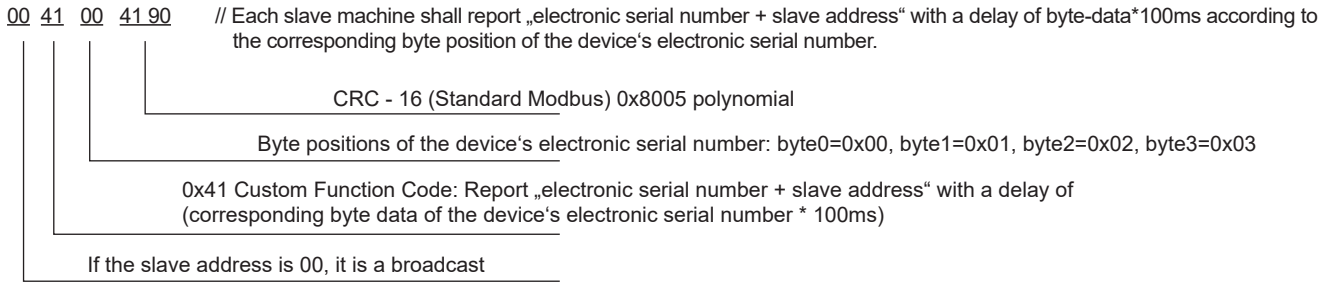
- 8e 13: CRC - 16 (Standard Modbus) 0x8005 polynomial
- 08: The new Modbus address is 0x08
- 0beb ecf9: Device electronic serial number 0x0b eb ec f9 (decimal 2 0001 1 001)
- 45: 0x45 Custom Function Code: Change the new slave address according to the device's electronic serial number
- 08: The newly changed address of the slave device is 08

2.5 Custom function code: 0x41

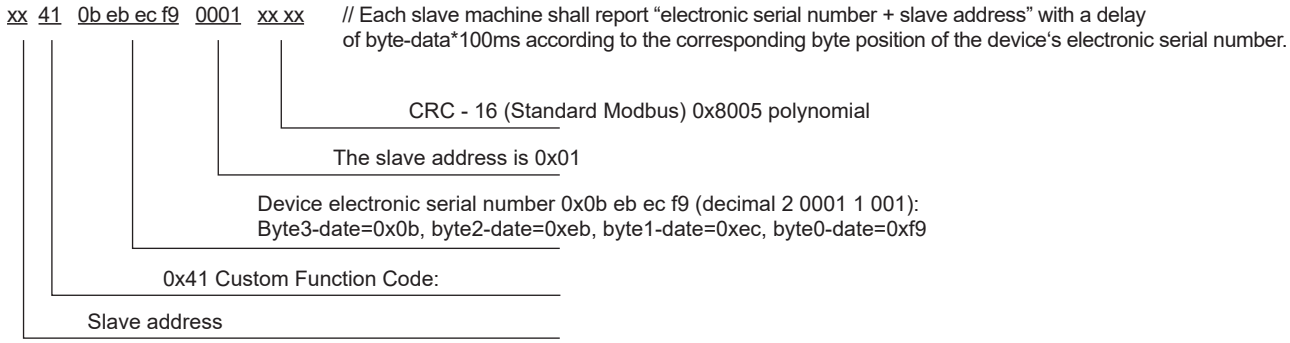
-- Each slave device reports “electronic serial number + slave address” with a delay according to its electronic serial number

Example of instructions:

Master to slave transmission format:



All slaves report “electronic serial number + slave address” with separate delayed reporting and reply to the information format:



2. MODBUS-RTU Register Address Table

Read and write device communication configuration parameter information

Address	Function code	Register length	Variable name or meaning	Description	Remarks
0x0080	0x03/0x06	1	Communication configuration parameters	Bit15 Bit8 :0x00 (To be used) Bit7: 0 - 2 stop bits 1 - 1 stop bit (default) Bit6 - Bit5: 11 - odd parity 10 - even parity 01 - No verification (default) 00 - No verification Bit4 - Bit0: baud rate 00000 - 300bps 00001 - 600bps 00010 - 1200bps 00011 - 2400bps 00100 - 4800bps 00101 - 9600bps (default) 00110 - 19200bps 00111 - 115200bps	
0x0081 - 0 x 0082	0x03/0x06	2	Electronic Serial Number of this Device (Meter Number)	Factory default values, which users can modify by themselves. (Please note that the higher bits come first)	
0x0083	0x03/0x06	1	Slave address	Bit15-Bit8 :0x00 (To be used Bit7-Bit0 : Slave address Default address 0x01, broadcast address 0x00, addresses can be set from 1 to 247	

Read device status information - a total of 3 registers

Address	Function code	Register length	Variable name or meaning	Description	Remarks
0x0208	0x03	1	Position feedback	0-1000 corresponds to 0-100.0%	
0x0209 - 0x020A	0x03	2	Fault code	Fault information is represented by bit status, where 0 indicates no fault and 1 indicates a fault. Except for the locked-rotor fault, other faults can only be cleared by powering on. Bit0: Upward locked-rotor (upward overload) Bit1: Downward locked-rotor (downward overload) Bit2: Upward stall alarm Bit3: Downward stall alarm Bit4: Upward fault alarm Bit5: Downward fault alarm Bit6: Potentiometer upper limit alarm Bit7: Potentiometer lower limit alarm Bit8: Signal loss alarm Bit9: Hardware failure Bit10: Self-calibration not completed Bit11: 0 Bit12: 0 Bit13: 0 Bit14: 0 Bit15: 0 Bit16: 0	

Example:

Reading device status information - Register start address: 0x0208, total of 3 (0x03) registers:

xx 03 0208 0003 xx // Command to read device status information

CRC - 16 (Standard Modbus) 0x8005 polynomial

Slave address: such as 0x01, etc. (hexadecimal number)

Write a valve opening command

Address	Function code	Register length	Variable name or meaning	Description	Remarks
0x01FF	0x06	1	Set the valve position	0-1000 corresponds to 0-100.0%	Opening control with immediate command given applicable to all working conditions.

Example:

Write a device opening command - Register address: 0x01FF:

xx 06 01FF 01F4 xx // Set the valve opening to 50% (50% -> decimal 500 -> hexadecimal 0x01F4)

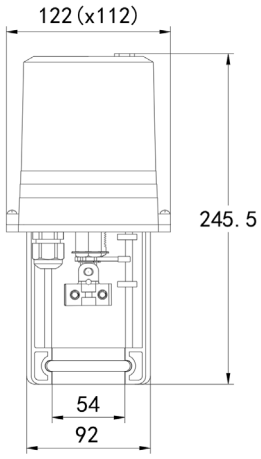
CRC - 16 (Standard Modbus) 0x8005 polynomial

Slave address: such as 0x01, etc. (hexadecimal number)

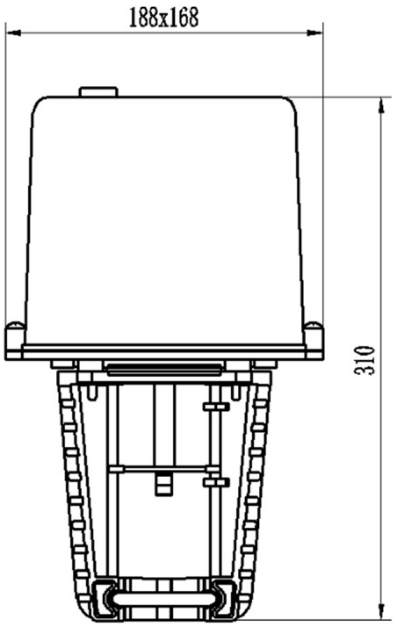
Advanced Parameter Settings - Engineer Parameters

Address	Function code	Register length	Variable name or meaning	Description	Remarks
0x0404	0x06	1	Stroke self-calibration	Bit15-Bit1: reserved Bit0: Bit0=0 Disable Bit0=1 Enabled	
0x0405	0x06/0x03	1	Whether to enable the 485 function (not enabled by default)	0: Disable 1: Enabled	
0x0406	0x06	1	Input of the access password for the engineer parameter register	Default password 0x0531	When the password written in the instruction is the same as the default password, the engineering parameter writable mode will be activated. This mode remains active until a power outage occurs or a 2-hour timeout is reached.
0x0407-0x040F		9	Reserved		

Dimensions (mm)



AVFF15...



AVFF30...

The contents are subject to revision or change without notice.