

Technical Data

Item	Min	Typical	Max	Unit	Remark
Input DC Voltage	22	24	26	V	Note 1
Output DC Current	—	—	400	mA	Note 2
NPN Output Residual Voltage	—	—	1.0	V	400mA
PNP Output Residual Voltage	—	—	1.5	V	400mA
Response Time	20	100	—	ms	When air pressure is 5 bar
Air Valve Blowing Time Unit	10	—	—	ms	
Flow Regulation Range	0	—	20	L/min	
Digital Photoelectric Gain	—	7.8×10^5	—	No Unit	Note 3
Digital Photoelectric Resolution	—	1024:1	—	No Unit	
Standby Power	—	—	1.2	W	Note 4
Applicable Fiber Diameter	2.1	2.2	2.3	mm	
Input Air Pressure Range	—	5	7	Bar	Note 5
Input Air Pipe Outer Diameter	—	6	—	mm	
Output Air Pipe Outer Diameter	—	4	—	mm	
Anti-sunlight Interference	—	—	50000	Lux	
Anti-incandescent Interference	—	—	30000	Lux	Note 6
Ambient Temperature	0	25	45	°C	
Ambient Humidity	10	60	85	%	
Storage Temperature	-40	25	85	°C	No condensation

Note 1: If input power exceeds 30 V, display screen will go out to protect the controller.
Max input voltage must not exceed 36 V.

Note 2: Do not connect to capacitive load.

Note 3: The digital photoelectric gain is defined as the product of the average power of the emitted light and the receiving sensitivity.
Diameter of the optical sensor core is 0.5mm.

Note 4: Standby Power is the power consumption when the internal solenoid valves are not operating.

Note 5: The maximum air supply pressure must not exceed 10 Bar when the controller is not powered.

Note 6: Do not work under glare LED lighting.

Features

SDVS30 Series is a universal controller for material sorting in vibratory feeding systems. Its special features include:

- Dual independent optical fiber amplifiers and dual air valves sorting systems.(Single system for SDVS301)
- Sunlight and incandescent light immune optical fiber amplifiers.
- Auto generated dual threshold values can eliminate the influence of background luminance.
- Alarm signal output upon blow off failure.
- Dual independent air flow volume adjustment.(Single system for SDVS301)
- Dual self-adapting NPN/PNP switch sensor interfaces.
- Dual push-pull type 24V/400mA DC output.
- Comprehensive protection functions including undervoltage, overvoltage, inverse wiring, overcurrent and short-circuit protections.
- Parameter group quick switch.
- Input-output matrix combination and complex logical relation setting.
- Input-output timing sequence definable output mode selection.
- Independent parameter reset functions help to avoid resetting all parameters.
- Built-in air valve action counting function helps you evaluate the lifetime of the valves.
- Dual anti-jamming capability allows two fibers to work together in close proximity.
- The built-in ability to learn the distribution of material characteristics can significantly improve the reliability of feeding parts sorting.

Error Code Definition and Trouble Shooting Methods

Error Code	Definition	Trouble Shooting Methods
Err01	Input Overvoltage	Make sure input voltage value ranges between 22V and 26V
Err02	Input Undervoltage	
Err03	Port D high level output overcurrent	Make sure load current value does not exceed 400mA
Err04	Port P high level output overcurrent	
Err05	Port D low level output overcurrent	
Err06	Port P low level output overcurrent	
Err07	Port D high level output short-circuit	Make sure the load is not shorted
Err08	Port D low level output short-circuit	
Err09	Port P high level output short-circuit	
Err10	Port P low level output short-circuit	
Err20	Valve A input signal logical error	Make sure the rs trigger inputs are not valid at the same time (Note: SDVS301 has no air valve B)
Err21	Valve B input signal logical error	
Err22	Port D input signal logical error	
Err23	Port P input signal logical error	

Basic Operations

- [Short press] is defined as pressing the button for more than 0.1 seconds and less than 2 seconds.
[Long press] is defined as pressing the button for more than 2 seconds.
- Long press **SET** and **▲** to enter or exit parameter group A or B. Short press **□** to switch between parameter group A and B.
 - Long press **SET** and **▼** to enter or exit parameter group C or D. Short press **□** to switch between parameter group C and D.
 - In parameter setting interface, use **▲** or **▼** to switch among different parameters and use **⊕** or **⊖** to adjust parameter setting.
 - Long press **SET** and **□** to enter or exit air valve action counting. Use **▲** or **▼** to switch among units of counting number: hundred million, ten thousand and one. Short press **□** to switch between air valve A and B.
 - Each parameter group of A, B, C and D has its respective reset function. You can't reset all parameters at once.

Steps to rest one parameters group :

1. Enter parameter group interface and select the parameter group to be reset
2. Press **▼** repeatedly to switch to twinkling **88888**
3. Press **⊕**, the controller will display **----**, Then release **⊕** to finish parameter group resetting.

Note: SDVS301 has no parameter group B or air valve B.

Instructions

After getting the materials to be sorted, proceed as follows:

1. Looking for the material's luminance characteristics
2. Connect the optical fiber sensor
3. Feeding parts luminance recording:
 - a. Long press **SET** and **▲** to enter real-time luminance display status **R8888** ;
Switch between parameter group A and B by pressing **□** ;
 - b. Place the material to be passed under the light spot of the optical fiber sensor focus and press **⊕**. The controller will then display **R-F88** to confirm the **passing material luminance**.
 - c. Place the material to be rejected under the light spot of the optical fiber sensor focus and press **⊖**. The controller will then display **R-F88** to confirm the **rejecting material luminance**.
 - d. Remove the feeding material from the light spot and then press **⊕** and **⊖**. The controller will display **R-B88** to confirm **background luminance**.
- Afterwards, the controller will automatically generate high and low sorting threshold values **P8888** and **B8888**.

4. Check blowing logic.

5. Adjust blowing air flow.

After setting all 5 steps above, the controller can start sorting.

⚠ Note: During feeding parts luminance recording, the air valves will stop working. After recording, long press **SET** and **▲** or wait for 2 minutes to return to standby interface and the air valves' action will return to normal.

The installation position and angle of the optical fiber sensor should be adjusted so that the **passing brightness**, **rejecting brightness** and **background brightness** are recorded significantly different. Otherwise, the material to be rejected may be missed or the material to be passed may be too sensitively removed.

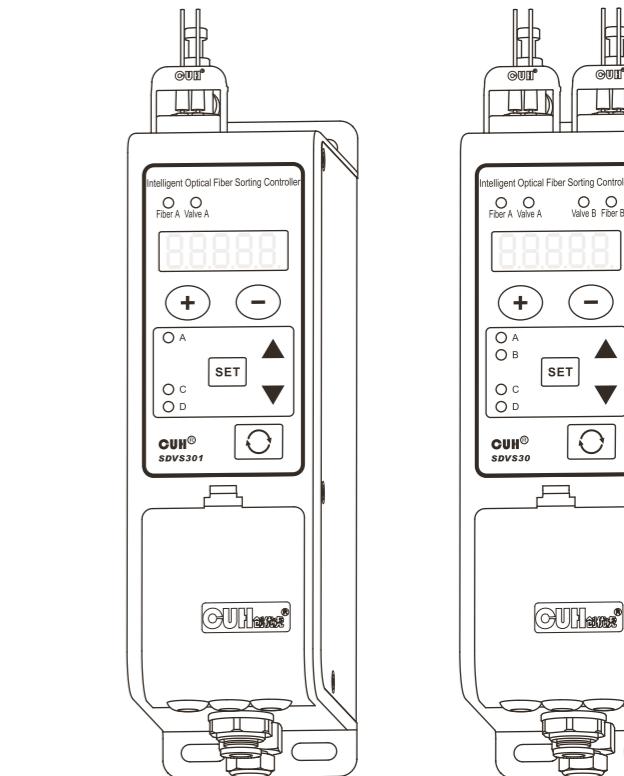
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The final interpretation of this specification page belongs to CUH



Simplified User Manual of SDVS30 Series

Intelligent Optical Feeding Parts Sorting Controller



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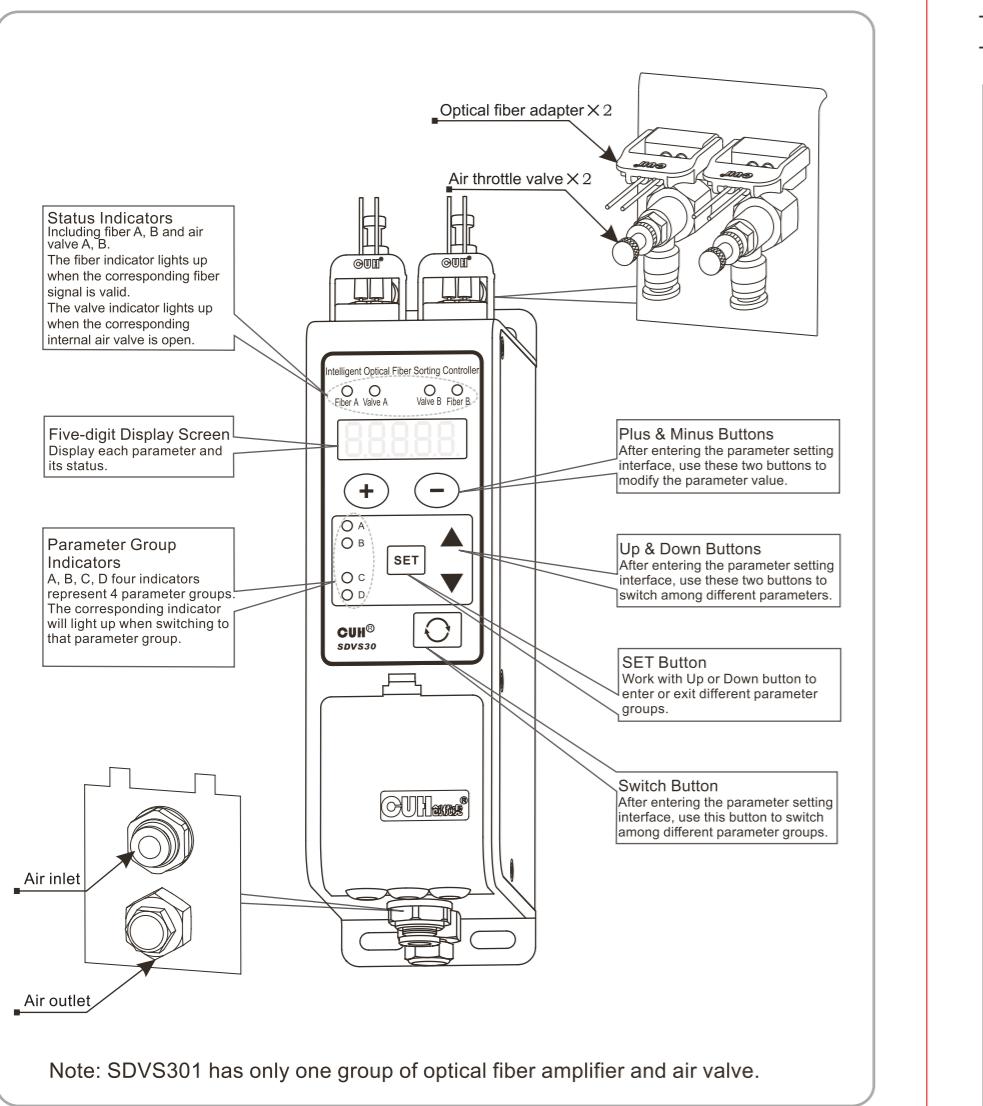
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Indicators, buttons and external components



Parameter Definition

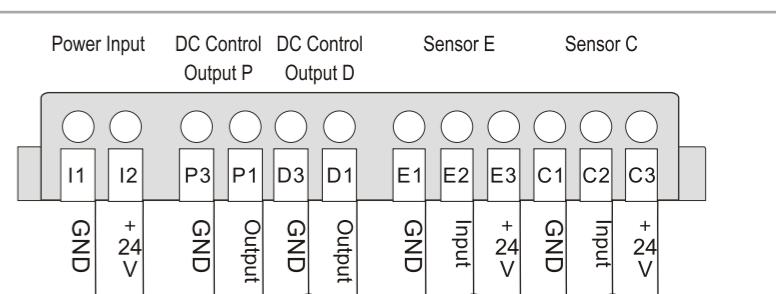
The SDVS30 Series controller uses a 5-digit display tube to display the parameter and value. The first one or two digits display the parameter symbol and the rest digits display the value.

Parameter Symbol	Definition	Value Range	Default Setting
R.8888	Real time luminance in standby interface	0~1023	— (Only parameter group A and B)
R.8888	Real time luminance in setting interface	0~1023	— (Only parameter group A and B)
P.8888	Upper limit value of rejecting luminance range	0~1023	479 (Only parameter group A and B)
P.8888	Lower limit value of rejecting luminance range	0~1023	179 (Only parameter group A and B)
E.8888	Time to distinguish	0.01~0.1 seconds	0.01 (Only parameter group A and B)
n.8888	Anti-interference ability	0~8	0 (Only parameter group A and B)
J.8888	Input signal rising edge delay	0.00~10.00 seconds	0.05 (Only parameter group C and D)
L.8888	Input signal falling edge delay	0.00~10.00 seconds	0.05 (Only parameter group C and D)
E.8888	First signal source selection	0, 1, A, b, C, E, -A, -b, -C, -E, OA, Ob, Od, OP, -OA, -Ob, -Od, -OP	0 (-X means reversed X)
E.8888	Second signal source selection	0, 1, A, b, C, E, -A, -b, -C, -E, OA, Ob, Od, OP, -OA, -Ob, -Od, -OP	A means parameter group A b means parameter group B C means parameter group C E means parameter group D
N.8888	Signal source logic selection	AND OR XOR rs trigger	OR

Parameter Symbol	Definition	Value Range	Default Setting
J.8888	Output signal rising edge delay	0.00~10.00 seconds	0
L.8888	Output signal falling edge delay	0.00~10.00 seconds	0 (parameter group A and B) 0.1 (parameter group C and D)
E.8888	Output signal mode selection	E Hold Hold Mode E Delay Delay Mode	Delay Mode
S.8888	Output logic selection	Same Reversed Output normally open Output normally close	Same
G.8888	Switch sensor type selection	Auto NPN PNP	Auto (Only parameter group C and D)
8.8888	Reset to factory default setting	—	—
Y.8888	Number of air valve actions in hundred million	0~9999 hundred million	0
Z.8888	Number of air valve actions in ten thousand	0~9999 ten thousand	0
B.8888	Number of air valve actions	0~9999	0

Note: SDVS301 has no parameter group B.

Wiring Ports



Input and Output Circuit Diagrams

