Digital Display Controller

Datasheet

SUP-1100

Add: No.600,No.21 Street, Hangzhou
Economic&Technological Development Area,
Zhejiang,China

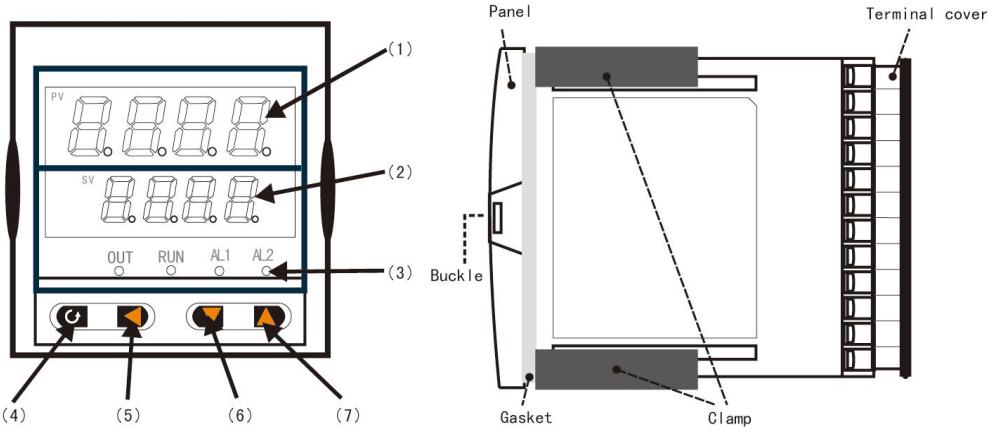
Operation Instruction of (Simple) Single-Circuit Digital Display Controller

Introduction

SUP-1100 (Simple) single-circuit digital display controller provides easy operation with measurement precision of 0.3%; 7 types of dimensions available; double four-digit LED display, supporting thermocouple, thermal resistance, voltage (extraction operation available), current (extraction operation available), and transducer input; applicable to measurement of industrial process quantifiers including temperature, pressure, flow, liquid level, and humidity etc. Supporting 2-way alarm, 1-way control output or RS485 communication interface adopting standard MODBUS protocol, 1-way DC24V feed output; photoelectric isolation between input, output and power end; 100-240V AC/DC or 20-29V DC switch power supply; standard snap-in installation; operating temperature: 0-50℃, relative humidity: 5-85% RH without coagulation.

1. Profile of Display Panel

(1) PV Display (measured value)



(2) SV Display

Display parameters like input type in measurement mode;

Display setting value in parameters setting mode;

(3) Primary alarm (AL1) and secondary alarm indication lamp, running lamp (RUN) and output lamp (OUT);

(4) Confirmation

(5) Shift

(6) Decrease

(7) Increase

How to get the core out of shell

The core of instrument can be taken out from the shell. Push buckles on both sides of the front panel aside, and push the front panel to separate core and shell. For installation, put the core into the shell and lock it with buckles to meet protection standard.

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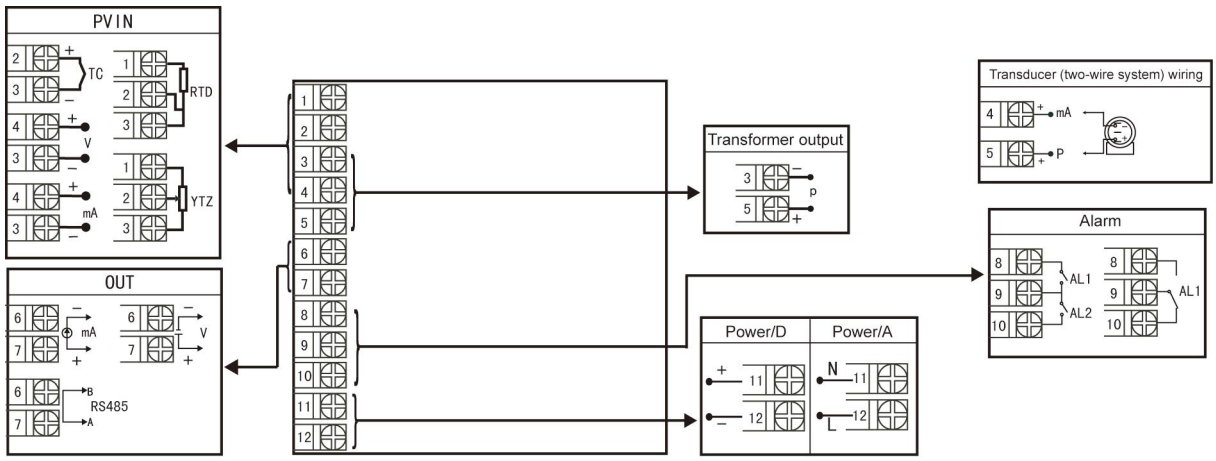
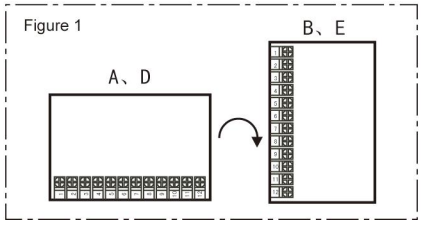
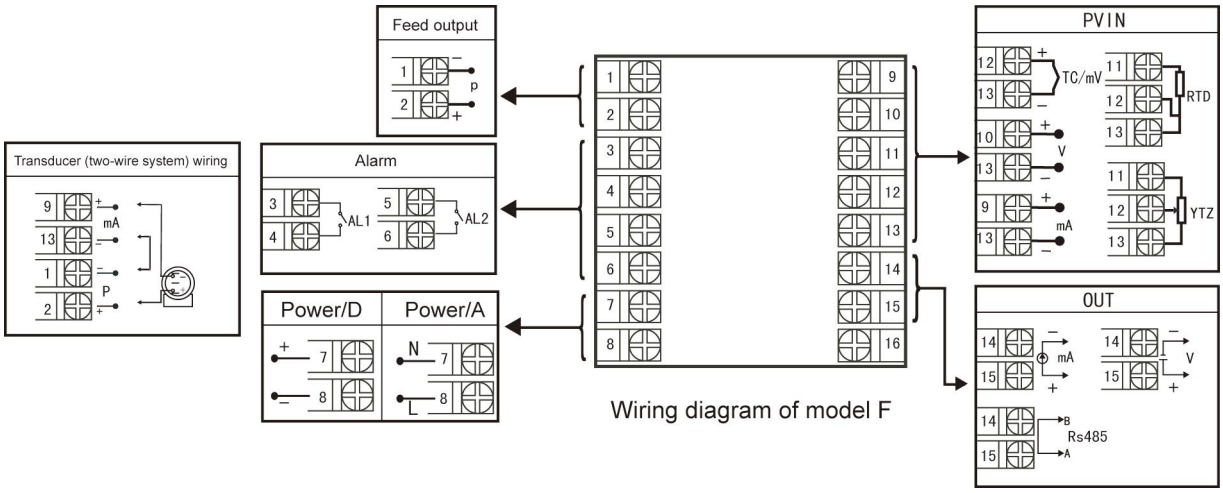
2. Wiring



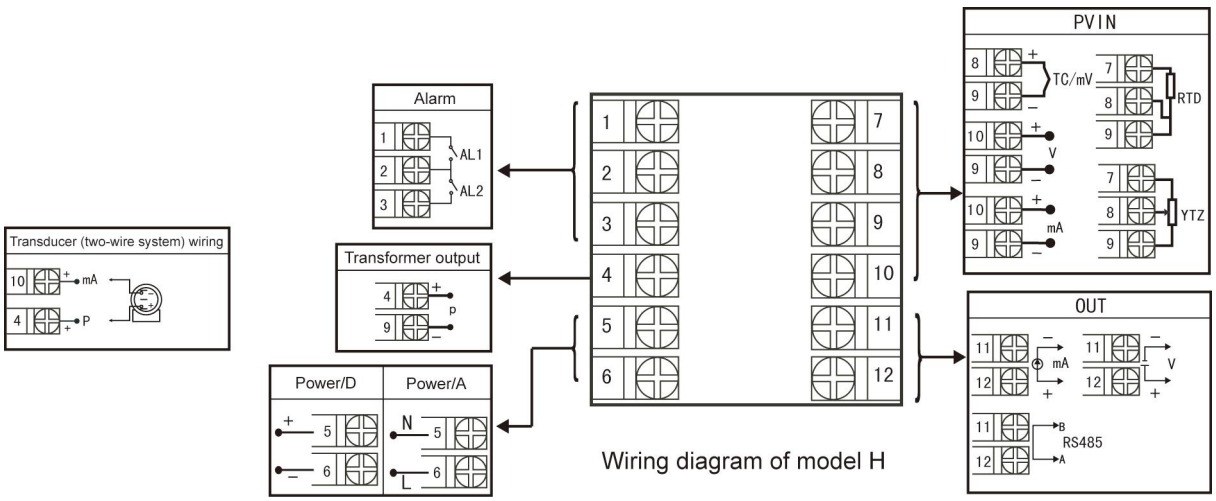
Wiring diagram of model A, B, C, D, and E

Note: the wiring terminal directions at rear cover of horizontal and vertical instrument are different; see Figure 1.





Wiring diagram of model F



Wiring diagram of model H

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Note: in the above diagram, if one group of terminals has different functions, only one of them may be available. Take RS485 for example, communication and transducing output are on the same group of OUT terminals, so only one of them may be selected.

3. Operation

After power-on self-test, the instrument will enter operating mode automatically. Press for parameters setting.

(1) Press and hold for reset;

(2) In any other menu, press and hold for 5 seconds to go back to measurement menu;

★ Back to operating mode

(1) Manual return: in parameters setting mode, hold for 5 seconds to return to real-time measurement mode;

(2) Automatic return: in parameters setting mode, inaction for 60 seconds will bring the instrument back to real-time measurement mode.

3.1 L1 Parameters Setting

In the operating mode, press , PV will display LOC and SV will display parameter symbol: press increase/decrease key for setting.

See table below for L1 parameters (matching functions of the ordered model; there will not be parameters for functions not available):

Parameter	Symbol	Name	Setting Range (Value)	Description	Preset value
LoC	LoC	Parameter lock	LoC=00 LoC≠00.132 LoC=132	No lock (valid for change of L1 parameters) Lock (valid for change of L1 parameters) No lock (valid for change of L1 and L2 parameters)	00
AL1	AL1	Primary alarm value	-1999-9999	Setting value for primary alarm	50 or 50.0
AL2	AL2	Secondary alarm value	-1999-9999	Setting value for secondary alarm	50 or 50.0
AH1	AH1	Return difference of primary alarm	0-9999	Return difference value of primary alarm	02 or 2.0
AH2	AH2	Return difference of secondary alarm	0-9999	Return difference value of secondary alarm	02 or 2.0
SdiS	SdiS	SV display screen content in measurement mode	SdiS=0 SdiS=1 SdiS=2 SdiS=3 SdiS=4	Input graduation Primary alarm value Secondary alarm value No content No content	0

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			SdiS=6 SdiS=7	℃ No content	

3.2 L2 Parameters Setting

In the operating mode, press , PV will display LOC and SV will display parameter symbol: press increase/decrease key for setting. Loc=132 and hold to enter L2 parameters interface.

See table below for L2 parameters (matching functions of the ordered model; there will not be parameters for functions not available):

Parameter	Symbol	Name	Setting Range (Value)	Description	Preset value
Pn	Pn	Input graduation	0~35	Set input graduation type (see L2 Parameters Pn Lookup Table)	27
dP	Dp	Decimal point	dp=0 dp=1 dp=2 dp=3	No decimal point Ten decimal places (XXX.X) One hundred decimal places (XX.XX) One thousand decimal places (X.XXX)	0
AL1	ALM1	Primary alarm mode	ALM1=0 ALM1=1 ALM1=2	No alarm Lower-limit alarm Upper-limit alarm	2
AL2	ALM2	Secondary alarm mode	ALM2=0 ALM2=1 ALM2=2	No alarm Lower-limit alarm Upper-limit alarm	1
FK	FK	Filter coefficient	0-4	To prevent flopping of displayed value	0
Addr	Addr	Equipment code	0-250	Setting of equipment code of the instrument in communication	1
bAUd	Baud	Baud rate	1200 2400 4800 9600	Baud rate: 1200bps Baud rate: 2400bps Baud rate: 4800bps Baud rate: 9600bps	9600
Pb	PB	Display input zero shift	Full range	Set and display shift of input zero	0
PK	PK	Display input range scale	0-1.999 times	Set and display amplification scale of input range	1.000
ouL	OuL	Lower limit of measurement range of transducing output	Full range	Set lower limit of measurement range of transducing output	0
ouH	ouH	Upper limit of measurement range of transducing	Full range	Set upper limit of measurement range of transducing output	1000

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		output					
PL	PL	Lower limit of measurement range	Full range	Set lower limit of measurement range of input signal			0
PH	PH	Upper limit of measurement range	Full range	Set upper limit of measurement range of input signal			1000
Cut	Cut	Small measuring signal cutting	0.000-1.000	This function only works for voltage/current extraction signal; when input signal<lower limit of input signal+(upper limit of input signal-lower limit of input signal>*set percentage, the instrument displays lower limit of measurement range.			0.000
out	Out	Transducing output type	Signal type	Parameter symbol	Signal type	Parameter symbol	4-20mA
			0-20mA	20mA	0-5V	0-5V	
			0-10mA	10mA	1-5V	1-5V	
			4-20mA	4-20	No output	0mA	
T-Pb	T-Pb	Zero correction atcold junction	Full range	Set zero correction value at cold junction			0
T-PK	T-Pk	Gain correction at cold junction	0-1.999 times	Set gain correction value at cold junction			1.000
o-Pb	O-Pb	Zero shift of the transmitting output	Full range	Setting of the zero shift of the transmitting output			0
o-PK	O-Pk	Magnification of the transmitting output	0-1.999 times	Setting of the magnification of the transmitting output			1.000
FSEL	FSEL	Power frequency selection	FSEL=0 FSEL=1	The power frequency is 50 Hz. The power frequency is 60 Hz.			0
dI St	DIST	Sample filtering	1～5	Setting of the sampling filter: Low value leads to faster sampling; larger value leads to slower sampling.			5

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★L2 Parameters Pn Lookup Table

Degree no .Pn	Signal types	measuring range	Degree no Pn	Signal types	measuring range
0	Thermocouple B	400～1800℃	18	Remote Resistance 0～350Ω	-1999～9999
1	Thermocouple S	0～1600℃	19	Remote Resistance 3 0～350Ω	-1999～9999
2	Thermocouple K	0～1300℃	20	0～20mV	-1999～9999
3	Thermocouple E	0～1000℃	21	0～40mV	-1999～9999
4	Thermocouple T	-200.0～400.0℃	22	0～100mV	-1999～9999
5	Thermocouple J	0～1200℃	23	-20～20mV	-1999～9999
6	Thermocouple R	0～1600℃	24	-100～100mV	-1999～9999
7	Thermocouple N	0～1300℃	25	0～20mA	-1999～9999
8	F2	700～2000℃	26	0～10mA	-1999～9999
9	Thermocouple Wre3-25	0～2300℃	27	4～20mA	-1999～9999
10	Thermocouple Wre5-26	0～2300℃	28	0～5V	-1999～9999
11	RTD Cu50	-50.0～150.0℃	29	1～5V	-1999～9999
12	RTD Cu53	-50.0～150.0℃	30	-5～5V	-1999～9999
13	RTD Cu100	-50.0～150.0℃	31	0～10V	-1999～9999
14	RTD Pt100	-200.0～650.0℃	32	0～10mA square	-1999～9999
15	RTD BA1	-200.0～600.0℃	33	4～20mA square	-1999～9999
16	RTD BA2	-200.0～600.0℃	34	0～5V square	-1999～9999
17	Linear resistance 0～500Ω	-1999～9999	35	1～5V square	-1999～9999

Note: how to fast switch graduation: change L2 parameter Pn; move decimal place to 1000 or 100, press increase/decrease key to switch first place and last place of graduation; when the decimal point is at 10, switch graduation at unit of ten; when the decimal point is at unit place, switch graduation at unit of one.

4. Digital Communication

Digital communication allows communication between the instrument and PC/PC network. MODBUS RTU protocol has been adopted. Please visit www.modbus.org for information about the protocol. It's not suggested to non-separated interface board, as it may cause disturbance or influence communication for earth potential difference. Shielded twisted pair shall be used as the lead.

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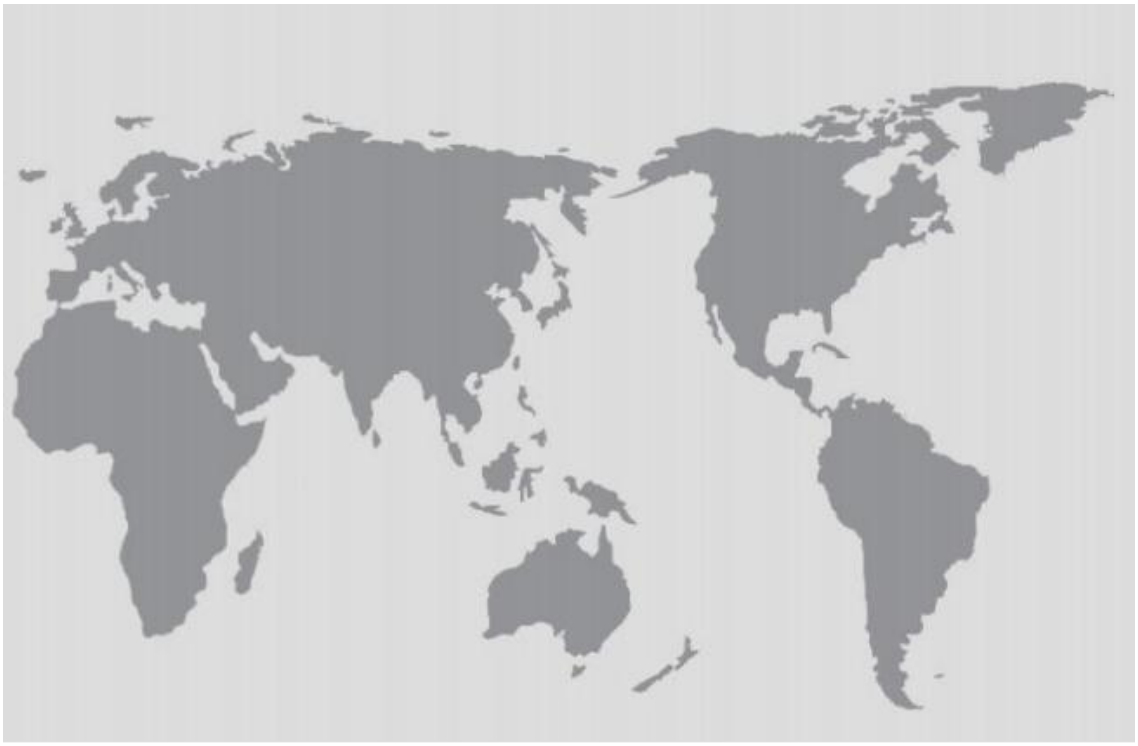

China	Singapore	Germany	Malaysia
Supmea China Headquarters	Supmea Singapore Branch	Supmea German Branch	Supmea Malaysia Branch
Address:No.600, No. 21 Street, Hangzhou Developmental Zone, Zhejiang, China	Address: 2 Venture Drive #11-30 Vision Exchange Singapore	Address: Göttinger Straße.59 30449 Hannover Niedersachsen Deutschland	Address: No 3, Jalan Emas Jaya 1, Taman Industries Emas jaya Tongkang Pecah , Batu Pahat