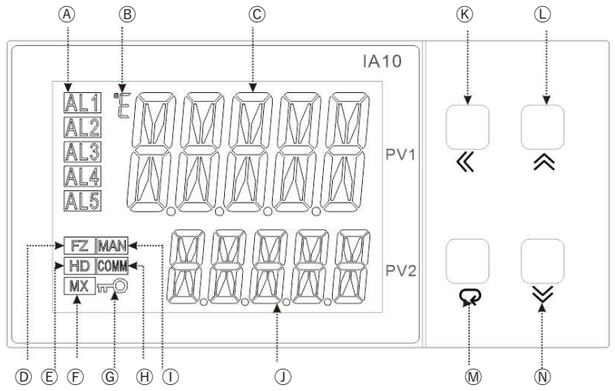
FUTUREDESIGN CONTROLS

IA10 Indicator and Alarm Unit Quick Start Guide

Model: IA10 Ver: 0IA101A

1. OVERVIEW & APPEARANCE



Front Panel and Function

Indicators:
- Ⓐ AL1/ AL2/ AL3/ AL4/ AL5: Alarm 1~5 Indicator
- Ⓓ FZ: Hold PV1, frozen to value 0
- Ⓔ HD: Hold PV1 to the current value
- Ⓕ MX: Hold PV1 to the maximum value
- Ⓘ MAN: Manual Mode Indicator
- Ⓗ COMM: Communication Indicator
- Ⓖ Key: Lock Indicator

Process Value/ Unit:
- Ⓑ Degree: Process Value Unit, ˚C or °F
- Ⓒ PV1: Process Value 1, 5-digit
- Ⓙ PV2: Process Value 2, 5-digit

User Access Keys:
- Ⓚ SHIFT Key
- Ⓛ UP Key, Increasing
- Ⓜ SCROLL Key, Enter
- Ⓝ DOWN Key, Decreasing

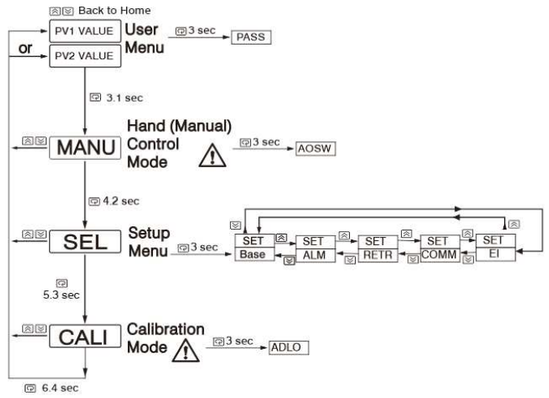
2. DISPLAY AND KEYS

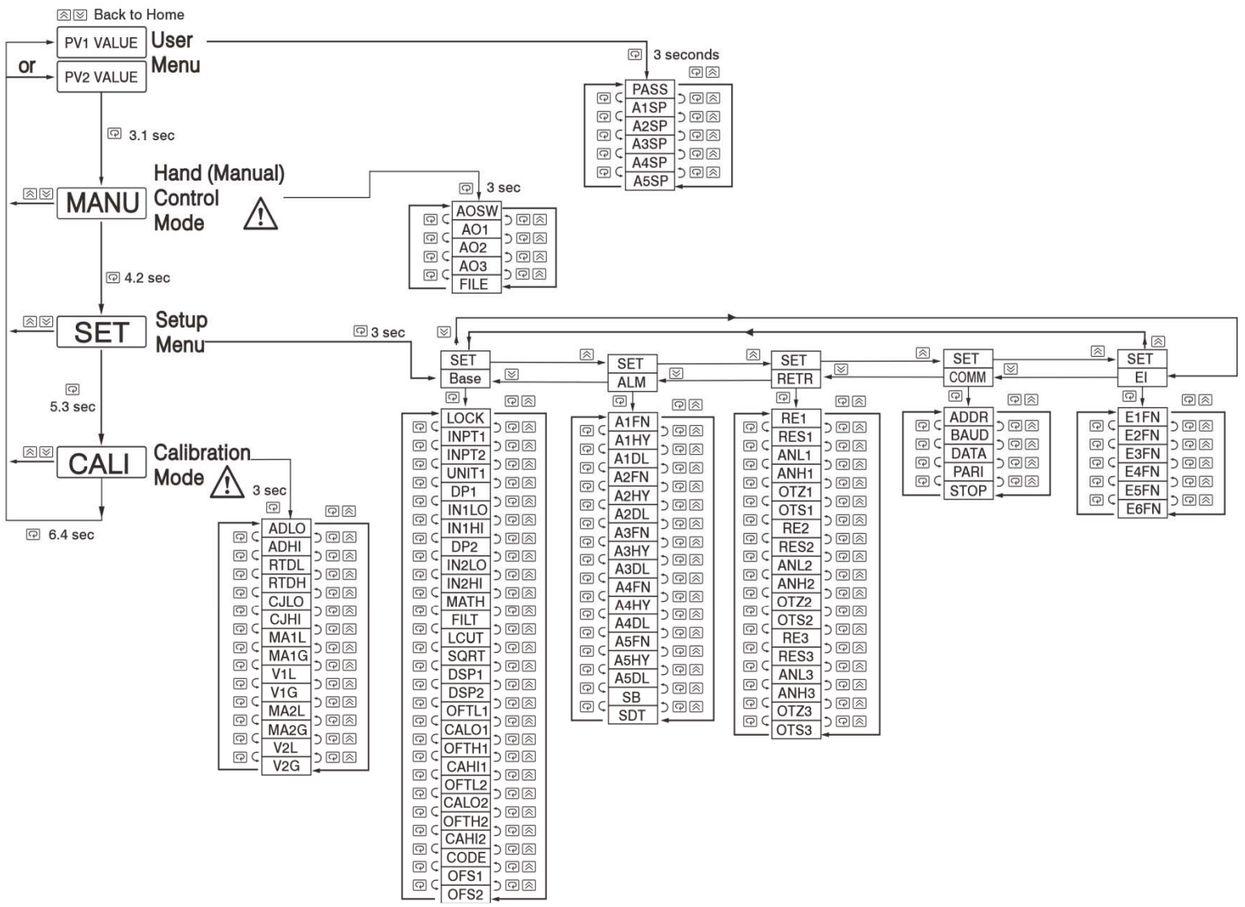
During power-up, the upper display will show PROG and the lower display will show the Firmware version for 6 seconds. There are 4 Keys available in the display board for the user to operate as explained below.

- **SCROLL KEY or ENTER KEY:** This key is used to select a parameter to be viewed or adjusted.
- **UP KEY:** This key is used to increase the value of the selected parameter.
- **DOWN KEY:** This key is used to decrease the value of the selected parameter.
- **SHIFT KEY:** This key is used to move to the digit of the selected parameter and change the value by using up or down key to increase or decrease the value.
- **RESET KEY:** + Two keys pressed synchronously are used to revert the display to the home screen, the process values screen

3 MENU FLOW CHART

The Menu has been divided into 5 groups. They are as follows:





1) PV & SetPoint (PV1/ PV2)
2) Manual Mode Menu (MANU)
3) Setup Menu (SET)
4) Calibration Mode Menu (CALI)

3.1 USER MENU

Press the key for 3 seconds and release it to get User in the lower display and then use the key to enter into User Mode parameter.

3.2 MANUAL MODE MENU (MANU)

Press the key for 3 seconds and release it to get MANU in the lower display and then use the key to enter into Manual Mode parameter.

3.3 Setup Menu (SET)

Press the key for 3 seconds and release it to get SET menu in the lower display and then use the key to get SET (Base/ ALM/ RETR/ COMM/ EI) parameters in the second lower display. Use the key to enter into Base/ ALM/ RETR/ COMM/ EI parameters. Press the keys + synchronously anytime to go back to the home.

3.4 CALIBRATION MENU (CALI)

Press the key for 3 seconds and release it to get CALI in the lower display and then use the key to enter into Calibration Mode parameter.

Note:

The flow chart shows a complete list of all parameters. For actual application, the number of available parameters will vary depending on the setup and will be less than that shown in the flow chart.

4. PARAMETERS DESCRIPTION

Reg Addr	Code	Parameter	Range	Default	Data Type	Scale Low	Scale High
User Manual, ALSP							
81	PASS	Parameter Password	Low: 0, High: 9999	0	R/W	0	65535
26/27	A1SP	Alarm 1 Setpoint	(°F)Low: -19999, High: 99999	0.0	R/W	-19999	99999
28/29	A2SP	Alarm 2 Setpoint	(°F)Low: -19999, High: 99999	0.0	R/W	-19999	99999
30/31	A3SP	Alarm 3 Setpoint	(°F)Low: -19999, High: 99999	0.0	R/W	-19999	99999
32/33	A4SP	Alarm 4 Setpoint	(°F)Low: -19999, High: 99999	0.0	R/W	-19999	99999
104/ 105	A5SP	Alarm 5 Setpoint (H-L)	(°F)Low: -19999, High: 99999	0.0	R/W	-19999	99999
Manual Mode							
55	AOSW	Retransmission output control	**0) OFF:** RE1, RE2 output **1) ON:** AO1, AO2 output **2) Elx:** Elx control	1	R/W	0	65535
56	AO1	Retransmission output1 %	Low: 0.00 High: 100.00	0.0	R/W	0	65535
57	AO2	Retransmission output2 %	Low: 0.00 High: 100.00	0.0	R/W	0	65535
139	AO3	Retransmission output3 %	Low: 0.00 High: 100.00	0.0	R/W	0	65535
167	FILE	Restore to the factory default	**0)** Default	0	R	0	65535
Setup Menu/ BASE							
103	LOCK	Parameters lock	**0) oFF:** Lock off **1) oN:** Lock all parameters on	0	R/W	0	65535
42	INPT1	Input sensor selection 1	**0) J_tC:** J typeThermocouple **1) K_tC:** K typeThermocouple **2) T_tC:** T type Thermocouple **3) E_tC:** E type Thermocouple **4) B_tC:** B type Thermocouple **5) R_tC:** R type Thermocouple **6) S_tC:** S type Thermocouple **7) N_tC:** N type Thermocouple **8) L_tC:** L type Thermocouple **9) U_tC:** U type Thermocouple **10) P_tC:** P type Thermocouple **11) C_tC:** C type Thermocouple **12) D_tC:** D type Thermocouple **13) Pt.dN:** PT100Ω DIN curve **14) Pt.JS:** PT 100Ω JIS curve **15) 4-20:** 4-20 mA linear current **16) 0-20:**0-20 mA linear current **17) 0-5V:** 0-5V linear voltage **18) 1-5V:** 1-5V linear voltage **19) 0-10:** 0-10V linear voltage **20) 0-1V:** 0-1V linear voltage **21) 0-50:** 0-50mV linear voltage	15	R/W	0	65535
43	INPT2	Input sensor selection 2	**0) 4-20:** 4-20 mA linear current **1) 0-20:**0-20 mA linear current **2) 0-5V:** 0-5V linear voltage **3) 1-5V:** 1-5V linear voltage **4) 0-10:** 0-10V linear voltage **5) 2-10:** 2-10V linear voltage	0	R/W	0	65535
2	UNIT1	Input 1 unit selection	**0) oC:** °C unit **1) oF:** °F unit **2) Pu:** Process value unit	0	R/W	0	65535
3	DP1	Decimal point selection 1	**0) No.dP:** No decimal point **1) 1-dP:** 1 decimal digit **2) 2-dP:** 2 decimal digits **3) 3-dP:** 3 decimal digits **4) 4-dP:** 4 decimal digits	1	R/W	0	65535
22/23	IN1LO	Input1 low scale value (H-L)	IN1LO ≠ IN1HI (°F) Low: -19999, High: 99999	0.0	R/W	-19999	99999
24/25	IN1HI	Input1 high scale value (H-L)	IN1LO ≠ IN1HI (°F) Low: -19999, High: 99999	200.0	R/W	-19999	99999
44	DP2	Decimal point selection 2	**0) No.dP:** No decimal point **1) 1-dP:** 1 decimal digit **2) 2-dP:** 2 decimal digits **3) 3-dP:** 3 decimal digits **4) 4-dP:** 4 decimal digits	1	R/W	0	65535
106/ 107	IN2LO	Input2 low scale value (H-L)	IN2LO ≠ IN2HI (°F) Low: -19999, High: 99999	0.0	R/W	-19999	99999
108/ 109	IN2HI	Input2 high scale value (H-L)	IN2LO ≠ IN2HI (°F) Low: -19999, High: 99999	200.0	R/W	-19999	99999
45	MATH	Value calculation	**0) NONE:** no calculation **1) Addi:** PV1 + PV2 **2) Subt:** PV1 - PV2 **3) Mult:** PV1 x PV2 **4) Divi:** PV1 ÷ PV2	0	R/W	0	65535
6	FILT	Filter damping time constant of PV	**0) 0:** 0 second time constant **1) 0.2:** 0.2 second time constant **2) 0.5:** 0.5 second time constant **3) 1:** 1 second time constant **4) 2:** 2 second time constant **5) 5:** 5 second time constant **6) 10:** 10 second time constant **7) 20:** 20 second time constant **8) 30:** 30 second time constant **9) 60:** 60 second time constant	2	R/W	0	65535
7	LCUT	Input low-cut value	OFF(-1) or (°F) 0~36000	-1	R/W	-1	45536
46	SQRT	Square root function	**0) oFF:** Square root disable **1) oN:** Square root enable	0	R/W	0	65535
47	DSP1	Upper display	**0) INPT1:** Display input1 (PV1) **1) MATH:** Display math calculation	0	R/W	0	65535
48	DSP2	Lower display	**0) NoNE:** No display **1) INPT2:** Display input2 (PV2) **2) MATH:** Display value calculation **3) IN1P:** Display input1 percentage **4) A1SP:** Display alarm1 setpoint	4	R/W	0	65535
84	OFTL1	Input1 offset value for low point calibration	Low: -1999 High: 1999	0.0	R/W	-19999	45536
110/ 111	CALO 1	Input1 signal value during low point calibration	Low: -19999 High: CAHi1-1	0.0	R/W	-19999	99999
85	OFTH 1	Input1 offset value for high point calibration	Low: -1999 High: 1999	0.0	R/W	-19999	45536
112 /113	CAHI1	Input1 signal value during high point calibration	Low: CALO1+1 High: 99999	100.0	R/W	-19999	99999
86	OFTL2	Input2 offset value for low point calibration	Low: -1999 High: 1999	0.0	R/W	-19999	45536
114/ 115	CALO 2	Input2 signal value during low point calibration	Low: -19999 High: CAHi2-1	0.0	R/W	-19999	99999
87	OFTH 2	Input2 offset value for high point calibration	Low: -1999 High: 1999	0.0	R/W	-19999	45536
116/ 117	CAHI2	Input2 signal value during high point calibration	Low: CALO2+1 High: 99999	100.0	R/W	-19999	99999
19	CODE	Security code for parameter protection	Low: 0 High: 9999	0	R/W	0	65535
94	OFS1	Optional function 1 selection	**0) NoNE:** No selected **1) R485:** RS-485	0	R/W	0	65535
95	OFS2	Optional function 2 selection	**0) NoNE:** No selected **1) RE2:** Retransmission2 output **2) ALM5:** Alarm5 **3) ALM5.RE2:** Alarm5, Retransmission2	0	R/W	0	65535
SET/ ALM							
96	A1FN	Alarm 1 function for alarm output	**0) NONE:** No alarm function **1) PV1Hi:** PV1 high alarm **2) PV1Lo:** PV1 low alarm **3) PV1LH:** PV1 high latching alarm **4) PV1LL:** PV1 low latching alarm **5) PV2Hi:** PV2 high alarm **6) PV2Lo:** PV2 low alarm **7) PV2LH:** PV2 high latching alarm **8) PV2LL:** PV2 low latching alarm	0	R/W	0	65535
15	A1HY	Hysteresis control of alarm 1	(°F) Low: 0.1, High: 90.0 (°C) Low: 0.1, High: 90.0	0.1	R/W	0	65535
9	A1DL	Alarm 1 delay time	Low: 0, High: 999 sec	0	R/W	0	65535
97	A2FN	Alarm 2 function for alarm output	**0)~8)** Same as A2FN	0	R/W	0	65535

Reg Addr	Code	Parameter	Range	Def-ault	Data Type	Scale Low	Scale High
16	A2HY	Hysteresis control of alarm 2	(°F) Low: 0.1, High: 90.0 (°C) Low: 0.1, High: 90.0	0.1	R/W	0	65535
10	A2DL	Alarm 2 delay time	Low: 0, High: 999 sec	0	R/W	0	65535
98	A3FN	Alarm 3 function for alarm output	**0)~8)** Same as A1FN **9) DCPS:** 20 VDC Output Supply **10) RE3:** Retransmission3	0	R/W	0	65535
17	A3HY	Hysteresis control of alarm 3	(°F) Low: 0.1, High: 90.0 (°C) Low: 0.1, High: 90.0	0.1	R/W	0	65535
11	A3DL	Alarm 3 delay time	Low: 0, High: 999 sec	0	R/W	0	65535
99	A4FN	Alarm 4 function for alarm output	**0)~8)** Same as A1FN **9) DCPS:** 20 VDC Output Supply **10) RE1:** Retransmission1	0	R/W	0	65535
18	A4HY	Hysteresis control of alarm 4	(°F) Low: 0.1, High: 90.0 (°C) Low: 0.1, High: 90.0	0.1	R/W	0	65535
12	A4DL	Alarm 4 delay time	Low: 0, High: 999 sec	0	R/W	0	65535
100	A5FN	Alarm 5 function for alarm output	**0)~8)** Same as A1FN	0	R/W	0	65535
101	A5HY	Hysteresis control of alarm 5	(°F) Low: 0.1, High: 90.0 (°C) Low: 0.1, High: 90.0	0.1	R/W	0	65535
102	A5DL	Alarm 5 delay time	Low: 0, High: 999 sec	0	R/W	0	65535
13	SB	Delay rang of alarm detection activation (High)	Low: 0, High: 9999	0	R/W	0	65535
14	SDT	Delay time of alarm detection activation	Low: 0, High: 999 sec	0	R/W	0	65535
SET/ RETR							
88	RE1	Retransmission 1 selection	**0) INPUT1:** Input1 (PV1) **1) INPUT2:** Input2 (PV2) **2) Math:** Math result	0	R/W	0	65535
89	RES1	Retransmission 1 type	**0) 4-20:** 4-20 mA **1) 0-20:** 0-20 mA **2) 0-5V:** 0-5V **3) 1-5V:** 1-5V **4) 0-10V:** 0-10V **5) 2-10:** 2-10V	0	R/W	0	65535
34/35	ANL1	Output 1 retransmission low value (H-L)	ANL1≠ANH1 Low: -19999, High: 99999	0.0	R/W	-19999	99999
36/37	ANH1	Output 1 retransmission high value (H-L)	ANL1≠ANH1 Low: -19999, High: 99999	100.0	R/W	-19999	99999
20	OTZ1	Output 1 zero adjustment	Low: -1.000 High 1.000	0	R/W	-19999	45536
21	OTS1	Output 1 span adjustment	Low: -1.000 High 1.000	0	R/W	-19999	45536
90	RE2	Retransmission 2 selection	**0) INPUT1:** Input1 (PV1) **1) INPUT2:** Input2 (PV2) **2) Math:** Math result	0	R/W	0	65535
91	RES2	Retransmission 2 type	**0) 4-20:** 4-20 mA **1) 0-20:** 0-20 mA **2) 0-5V:** 0-5V **3) 1-5V:** 1-5V **4) 0-10V:** 0-10V **5) 2-10:** 2-10V	0	R/W	0	65535
118/ 119	ANL2	Output 2 retransmission low value	ANL2≠ANH2 Low: -19999, High: 99999	0.0	R/W	-19999	99999
120/ 121	ANH2	Output 2 retransmission high value	ANL2≠ANH2 Low: -19999, High: 99999	100.0	R/W	-19999	99999
92	OTZ2	Output 2 zero adjustment	Low: -1.000 High 1.000	0	R/W	-19999	45536
93	OTS2	Output 2 span adjustment	Low: -1.000 High 1.000	0	R/W	-19999	45536
141	RE3	Retransmission 3 selection	**0) INPUT1:** Input1 (PV1) **1) INPUT2:** Input2 (PV2) **2) Math:** Math result	0	R/W	0	65535
164	RES3	Retransmission 3 type	**0) 4-20:** 4-20 mA **1) 0-20:** 0-20 mA **2) 0-5V:** 0-5V **3) 1-5V:** 1-5V **4) 0-10V:** 0-10V **5) 2-10:** 2-10V	0	R/W	0	65535
124/ 125	ANL3	Output 3 low point retransmission value	ANL3≠ANH3 Low: -19999, High: 99999	0.0	R/W	-19999	99999
126/ 127	ANH3	Output 3 high point temperature	ANL3≠ANH3 Low: -19999, High: 99999	100.0	R/W	-19999	99999
165	OTZ3	Output 3 zero adjustment (low)	Low: -1.000 High 1.000	0	R/W	-19999	45536
166	OTS3	Output 3 span adjustment (high)	Low: -1.000 High 1.000	0	R/W	-19999	45536
SET/ COMM							
8	ADDR	Address assignment of digital communication	Low: 1 High: 247	1	R/W	0	65535

Reg Addr	Code	Parameter	Range	Def-ault	Data Type	Scale Low	Scale High
4	BAUD	Baud rate of digital communication	**0) 2.4:** 2.4 Kbits/s **1) 4.8:** 4.8 Kbits/s **2) 9.6:** 9.6 Kbits/s **3) 14.4:** 14.4 Kbits/s **4) 19.2:** 19.2 Kbits/s **5) 28.8:** 28.8 Kbits/s **6) 38.4:** 38.4 Kbits/s **7) 57.6:** 57.6 Kbits/s **8) 115.2:** 115.2 Kbits/s	2	R/W	0	65535
82	DATA	Data bit count of digital communication	**0) 7bIt:** 7 data bits **1) 8bIt**: 8 data bits	1	R/W	0	65535
5	PARI	Parity bit of digital communication	**0) EVEN:** Even Parity **1) Odd:** Odd parity **2) NoNE:** No parity bit	0	R/W	0	65535
83	STOP	Stop bit count of digital communication	**0) 1bIt:** One stop bit **1) 2bIt:** Two stop bits	0	R/W	0	65535
SET/ EI (Input 1 only)							
49	E1FN	Event input 1 function	**0) NONE:** No alarm **1) R.AL1:** Reset alarm 1 output **2) R.AL2:** Reset alarm 2 output **3) R.AL3:** Reset alarm 3 output **4) R.AL4:** Reset alarm 4 output **5) R.AL5:** Reset alarm 5 output **6) R.ALL:** Reset all alarm outputs **7) FR.ZO:** Force PV1 to 0 **8) DA.HO:** Current PV1 value holding **9) MX.HO:** PV1 max value holding **10) MANU:** Switch all to A0 manual control / retransmission outputs	0	R/W	0	65535
50	E2FN	Event input 2 function	Same as E1FN	0	R/W	0	65535
51	E3FN	Event input 3 function	Same as E1FN	0	R/W	0	65535
52	E4FN	Event input 4 function	Same as E1FN	0	R/W	0	65535
53	E5FN	Event input 5 function	Same as E1FN	0	R/W	0	65535
54	E6FN	Event input 6 function	Same as E1FN	0	R/W	0	65535
Calibration Mode							
58	ADLO	ADC calibration low coefficient	Low: -1999 High: 1999	------	R/W	-19999	45536
59	ADHI	ADC calibration high coefficient	Low: -1999 High: 1999	------	R/W	-19999	45536
60	RTDL	RTD calibration low coefficient	Low: -1999 High: 1999	------	R/W	-19999	45536
61	RTDH	RTD calibration high coefficient	Low: -1999 High: 1999	------	R/W	-19999	45536
62	CJLO	Cold junction calibration low coefficient	Low: -5.00 High: 40.00	------	R/W	-19999	45536
63	CJHI	Cold junction calibration high coefficient	Low: -1999 High: 1999	------	R/W	-19999	45536
64	MA1L	MA1 calibration low coefficient	Low: -1999 High: 1999	------	R/W	-19999	45536
65	MA1G	MA1 calibration high coefficient	Low: -1999 High: 1999	------	R/W	-19999	45536
66	V1L	V1 calibration low coefficient	Low: -1999 High: 1999	------	R/W	-19999	45536
67	V1G	V1 calibration high coefficient	Low: -1999 High: 1999	------	R/W	-19999	45536
68	MA2L	MA2 calibration low coefficient	Low: -1999 High: 1999	------	R/W	-19999	45536
69	MA2G	MA2 calibration high coefficient	Low: -1999 High: 1999	------	R/W	-19999	45536
70	V2L	V2 calibration low coefficient	Low: -1999 High: 1999	------	R/W	-19999	45536
71	V2G	V2 calibration high coefficient	Low: -1999 High: 1999	------	R/W	-19999	45536
Internal Usage							
72	CJCL	Sense voltage during cold junction calibration low	Low: 0 High: 7552	------	R	0	65535
73	CJCT	Cold Junction Temperature	Low: -4000 High: 9000	------	R	-19999	45536
38/39	PV1	Process Value 1	Low: -19999, High: 99999	------	R	-19999	99999
40/41	PV2	Process Value 2	Low: -19999, High: 99999	------	R	-19999	99999
74	DATE	Date	Low: 0, High: 65535	------	R	0	65535
75	SRNO	Serial No	Low: 0, High: 65535	------	R	0	65535
76	EROR	Error code	Low: 0, High: 65535	------	R	0	65535
1	MODE	Operation/ Alarm mode	Low: 0, High: 65535	------	R	0	65535
140	PROG	Program code	53. XX	------	R	0	65535
79	CMND	Command code	Low: 0, High: 65535	------	R/W	0	65535
80	JOB1	Job code	Low: 0, High: 65535	------	R/W	0	65535
81	PASS	Parameter Password	Low: 0, High: 9999	0	R/W	0	65535

5. Communication Address Full Table v1.2

Comm. Reg. Address	Parameter Notation	Type	Comm. Address	Parameter Notation	Type
1	MODE	Internal	67	VIG	Calibration
2	UNIT1	Input/ Base	68	MA2L	Calibration
3	DP1	Input/ Base	69	MA2G	Calibration
4	BAUD	Communication	70	V2L	Calibration
5	PARI	Communication	71	V2G	Calibration
6	FILT	Base	72	CJCL	Internal
7	LCUT	Base	73	CJCT	Internal
8	ADDR	Communication	74	DATE	Internal
9	A1DL	Alarm	75	SRNO	Internal
10	A2DL	Alarm	76	EROR	Internal
11	A3DL	Alarm	79	CMND	Internal
12	A4DL	Alarm	80	JOB1	Internal
13	SB	Alarm	81	PASS	Internal
14	SDT	Alarm	82	DATA	Communication
15	A1HY	Alarm	83	STOP	Communication
16	A2HY	Alarm	84	OFTL1	Input/ Base
17	A3HY	Alarm	85	OFTH1	Input/ Base
18	A4HY	Alarm	86	OFTL2	Input/ Base
19	CODE	Base	87	OFTH2	Input/ Base
20	OTZ1	Retransmission	88	RE1	Retransmission
21	OTS1	Retransmission	89	RES1	Retransmission
22/23	IN1LO	Input/ Base	90	RE2	Retransmission
24/25	IN1HI	Input/ Base	91	RES2	Retransmission
26/27	A1SP	Alarm	92	OTZ2	Retransmission
28/29	A2SP	Alarm	93	OTS2	Retransmission
30/31	A3SP	Alarm	94	OFS1	Base
32/33	A4SP	Alarm	95	OFS2	Base
34/35	ANL1	Retransmission	96	A1FN	Alarm
36/37	ANH1	Retransmission	97	A2FN	Alarm
38/39	PV1	Internal	98	A3FN	Alarm
40/41	PV2	Internal	99	A4FN	Alarm
42	INPT1	Input/ Base	100	A5FN	Alarm
43	INPT2	Input/ Base	101	A5HY	Alarm
44	DP2	Input/ Base	102	A5DL	Alarm
45	MATH	Base	103	LOCK	Base
46	SQRT	Base	104/105	A5SP	Alarm
47	DSP1	Input	106/107	IN2LO	Input/ Base
48	DSP2	Input	108/109	IN2HI	Input/ Base
49	E1FN	Event	110/111	CALO1	Input/ Base
50	E2FN	Event	112/113	CAHI1	Input/ Base
51	E3FN	Event	114/115	CALO2	Input/ Base
52	E4FN	Event	116/117	CAHI2	Input/ Base
53	E5FN	Event	118/119	ANL2	Retransmission
54	E6FN	Event	120/121	ANH2	Retransmission
55	AOSW	Manual	122	MAT_HD	Base
56	AO1	Manual	123	MAT_DL	Base
57	AO2	Manual	124/125	ANL3	Retransmission
58	ADLO	Calibration	126/127	ANH3	Retransmission
59	ADHI	Calibration	139	AO3	Alarm
60	RTDL	Calibration	140	PROG	Internal
61	RTDH	Calibration	141	RE3	Retransmission
62	CJLO	Calibration	164	RES3	Retransmission
63	CJHI	Calibration	165	OTZ3	Retransmission
64	MAIL	Calibration	166	OTS3	Retransmission
65	MAIG	Calibration	167	FILE	File/ Manual
66	VIL	Calibration			

6. PROGRAMMING

Signal Input

INPT: Select the sensor type or signal type for signal input

Range: (Thermocouple) J_tC, K_tC, T_tC, E_tC, B_tC, R_tC, S_tC, N_tC, L_tC, U_tC, P_tC, C_tC, d_tC(RTD) PT.DN, PT.JS, (Linear) 4-20, 0-20, 0-5V, 1-5V, 0-10V, 0-1V, 0-50mV

Retransmission

The signal conditioner will output (retransmit) PV on its output terminals of output1, output2 and output3. ANL1 and ANH1 are adjusted to specify the low scale and high scale values of output1 retransmission. Similarly, ANL2, ANL3, ANH2 and ANH3 parameters are adjusted for output2 and output3.

Zero and Span adjustment

The signal conditioner has the option to adjust the zero and span of the outputs to meet the required accuracy. The user can adjust the parameters otZ1, otZ2 and otZ3 to adjust the zero value of the output1, output2 and output3 respectively. The user can adjust the parameters otS1, otS2 and otS3 to adjust the span value of the output1, output2 and output3 respectively. The allowable range for zero and span adjustment is from -1.000 to 1.000.

Square Root function (SQRT)

The square root function (SQRT) function will output the square root value of the PV. The square root function will be enabled by setting the parameter SQRT.

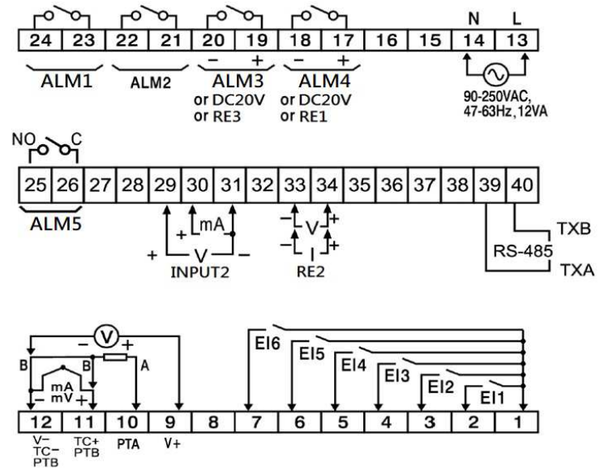
Manual Control

Some application requires to test with the manual output from the signal conditioner. Use key to access the MANU mode, to navigate to the manual mode control parameter AOSW. Set AOSW to ON to start the manual mode output. Use the key to select the desired output parameters AO1, AO2 and AO3. Use the key to move to the digital position. Use the keys to set the required output values. Set AOSW to OFF to stop the manual output.

7. ERROR CODE

Error Code	Display Symbol	Description & Reason	Corrective Action
10	ER10	**Communication error:** bad function code	Correct the communication software to meet the protocol requirements.
11	ER11	**Communication error:** register address out of range	Do not issue an over-range address of the register to the slave
14	ER14	**Communication error:** attempt to write a read-only data	Do not write read-only data or protected data to the slave.
15	ER15	**Communication error:** write a value which is out of range to a register	Do not write an over-range data to the slave register
29	EEPR	EEPROM can't be written correctly	Return to factory for repair.
30	CJER	Cold junction compensation for Thermocouple malfunction	Return to factory for repair.
39	SBER	Input sensor break, or input current below 1 mA if 4-20 mA is used, or input voltage below 0.25V if 1 - 5V is used	Replace the input sensor.
40	ADER	A to D converter or related component(s) malfunction	Return to factory for repair.

8. WIRING DIAGRAM



Terminal Connection

For assistance contact Tech Support: support@futuredesigncontrols.com;
(866) 342-5332; https://www.futuredesigncontrols.com

**This specification is subject to possible change without prior notice.
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