High-speed acquisition instrument

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蚌埠知重仪器销售有限公司BENGBUZZYQ

V3.00

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Safety tips

1. This product has a unique anti-interference design and filtering algorithm, so be sure to ground reliably and separate from the AC ground wire.
2. Ensure use in an environment that complies with the technical specifications of this product.
3. Avoid direct sunlight.
4. Personnel with corresponding professional knowledge and safe operation should be responsible for the installation, wiring and maintenance of this product.
5. It is strictly forbidden to open the chassis with electricity.

Technical indicators

Display: Dual 5-digit segment tube display
Working power supply: DC10-28V, AC85-265V (rated 100-240V, 50/60HZ), wide voltage power supply, choose one
Load capacity: 8 x 350Ω sensors
Signal range: 0.5~3.0mV/V
Excitation voltage: 5V
Sampling frequency: 10, 40, 640, 1280HZ can be set
Internal resolution: 24-bit ∑-ΔADC, internal resolution 1/1000000
Display resolution: 1/100000
Nonlinearity: 0.005% F.S
Maximum power consumption: 5W
Operating temperature: -25-+45°C
Relative humidity: <85%RH
Weight: about 300g
Overall dimensions: 96×48×110mm (control cabinet cutout size 92×46mm)

Model and selection

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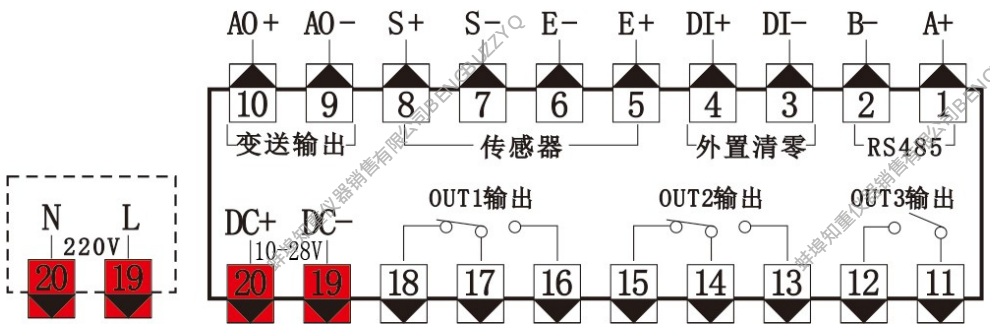
model	Description of the selection function
Basic Payments	Dual five-digit display, 3 sets of relays, and one set of switching inputs
Analog output	Basic + analog output (0-5V, 0-10V, 0-5-10V, 0-20mA, 4-20mA, 4-12-20mA)
RS485 output	Basic model + RS485 output
Full-featured output model	Basic model + analog output + RS485 output

Display window and buttons



- Dual five-digit display window, the main screen displays the net weight, and the secondary screen displays the setting parameters, total weight, peak, and unit.
- Fn: Enter the menu/go back to the previous level, **long press to enter the decimal point selection interface**
- 0: Enter the calibration interface, move the cursor, move the main menu interface and parameter selection screen down, and **long press to enter the zeroing option**.
- T: Change the menu, increase the value, and **long press to enter the peeling option**.
- ENT: The menu interface is the confirmation menu, the display interface is the second window display, unit, total weight, peak switching, long **press to enter the clear peak interface**.
- The second window of the PEAK light is always on, and the peak light flashes to wait for the peak to be triggered.
- The lights of OUT1/OUT2/OUT3 are triggered by relays 1, 2, and 3, respectively, and are turned off by untriggered states

Interface definitions



Terminal Description:

- Terminals 19 and 20 are the instrument power supply interface, [DC+, DC-] is 10-28V DC power supply, and [N,L] is 85-265V (rated 100-240V) AC power supply.
- [OUT1], [OUT2], [OUT3] are relay alarm output terminals, all of which are passive dry contacts, which can be set to the upper limit output, lower limit output, and interval

  Internal output, out-of-range output, see menu C3 for details**rEL relay settings.**
- [Transmission output] **(optional),** which can output 0-20mA, 4-20mA, 4-12-20mA, 0-3.3V, 0-5V, 0-10V, 0-5-10V and other analog signals, see the menu for details

  C6.ANA analog output.
- [Sensor] S+: Sensor Signal +, S-: Sensor Signal -, E-: Sensor Excitation -, E+: Sensor Excitation +, this meter can be ignored in ballast calibration mode

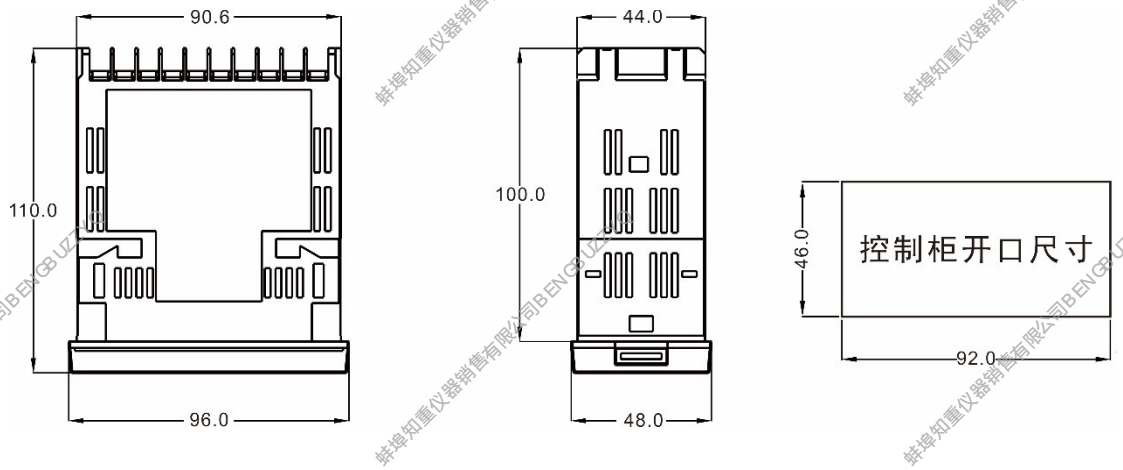
  The slightly positive and negative sensor signal can be directly calibrated to a positive value.
- 【External Clearing】Shorting the 3rd and 4th terminals can achieve the following functions: (1) tPEEL **peeling** (power-down does not save) (2) SPEEL peeling (power-down preservation).

  (3) CPEEL cancels peeling (power-down save) (4) SZEro **zeroing** (power-down does not save)

  (5) CZEro **zero-point calibration** (power-down save) (6) REMAX clears peaks, this function is turned off by default, see menu C1 for details**SyS system settings.**
- 【RS485】**(optional)** MODBUS-RTU protocol, the maximum transmission rate is 1280HZ, and the transmission frequency is up to 1000HZ, see the menu for details

  C5.CON 485 Communication Settings.

Shape and opening size



List of functional parameters

Main menu		Secondary menu					
prompt	Function	prompt	Function	Default	Range	Function description	
C1.SyS	**System Settings**	**100.SP**	**Sampling rate**	40H	10,40,640, 1280HZ	Four sample rates are available	
		101.GA	**Gain adjustment**	128B	1,2,64,128B	AD gain adjustment is optional	
		102.ME	**Median filtering**	3	1,3,5,9	Take the middle value from x values as valid values	
		103.rV	**Average filtering**	3	1-50	The average value of x values is the valid value, and the higher the set value, the more stable the weight display will be, but the response speed will be slower	
		104.ds	**The secondary screen is displayed by default**	uNit	0：Gross 1: pEak 2: uNit 3: out1 4: out2 5: out3	0: Gross Weight 1: Peak 2: Units 3: Relay 1 set value 4: Relay 2 setting 5: Relay 3 setting The upper limit of the relay setting displays the upper limit Set the lower limit to display the lower limit Set the interval to display the interval	
		105.uN	**Unit selection**	kG	0-9	0：**NoNE**（none） 1:**G**（g） 2:**kG**（kg） 3:**t**（T） 4:**N**（N） 5:**pa**（pa） 6:**kpa**（Kpa） 7:**mpa**（Mpa） 8:**N.M**（N·m） 9:**kN**（kN）		
		106.bi	**Decimal position**	0	0-4	Up button to switch decimal point position (loop) 88888,8888.8,888.88, 88.888,8.8888	
		107.dV	**Index value**	1		1,2,5,10,20,50,100	
		108.ro	**Maximum weighing**	99999	0-99999	The maximum weight allowed by the sensor exceeds the set value and the second screen shows ALoL **Maximum Weighing ≤ Total Sensor Range - Tareweight**	
		109.di	**DI switch input**	SZEro	0-5	0: NoNE (invalid).	Th

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						1: tPEEL (peeled and not preserved). 2: SPEEL (peeled and preserved). 3: CPEEL (cancel peeling and saving). 4: SZEro (set zero and do not save). 5: CZEro (proofreading zero preservation). 6: rEMAX (clear peak).	emain interfaceworks
		110.MZ	**Peak judgment threshold**	50	0-50000	If the peak is redetected after the set value, and the zero point is set to 0 or the zero point is greater than this parameter, the new peak will be refreshed only if the new peak is greater than the current original peak.	
		111.MN	**Peak detection interval**	0.5	0-5.000	Peak redetection (seconds) above set value and greater than the judgment threshold	
		112.br	**Display brightness**	L5	L1-L8	The segment code tube displays brightness adjustment	
		113.uP	**Displays refresh time**	0.02	0.02-1.000	Refresh display based on setpoint (seconds)	
		114.bp	**Backup parameters**	NO	YES/NO	Back up the current configuration parameters, including calibration parameters, and load the current backup when needed to avoid the removal of parameters caused by factory reset.	The meter will restart, please disconnect the power to the external controlled device
		115.Lp	**Load the backup parameters**	NO	YES/NO		
		116.FA	**Factory reset**	NO	YES/NO	Restore factory default parameters (operate with caution)	
C2.CAL	**Calibration paramet**	**200.ZE**	**Zero point calibration**		AD internal code value	After entering, the AD value will be displayed, and the upper key will be cleared and	

	ers					saved at the same time	
			201.Mo	**Calibration mode**	Load	Load/data	Load ballast calibration, data digital calibration
			202.WE	**Weight value**			The actual weight value entered during ballast calibration
			203.rA	**Sensor range**		10-99999	Single sensor range X number of sensors
			204.SE	**Sensor sensitivity**	2.000	0.010-10.000	(mv/v)
			205.rE	**Sensor excitation voltage**	5	0.010-10.000	V
			206.rV	**Range correction factor**	1.000	0.010-2.000	The sensor linearity is further corrected by modifying this factor
			207.mE	**Multi-point correction enablement**	0		0: CLosE (Off). 1: opEN (open).
			208.mC	**Multi-point calibration**			See the operation example for details
			209.Mr	**Calibration points**			
C3.rEL	**Relay output**	Relay 1	**300.m1**	**OUT1 working mode**	1	0-4	0: NoNE (no output). 1: hiGh (upper output) 2: Low (Lower Output) 3: iNraN (In-Interval Output) 4: outrN (out-of-range output)
			301.V1	**OUT1 data type**	1	0-2	0: GroSS (gross weight). 1: NEt (net weight). 2: pEak (peak).
			302.r1	**OUT1 Difference value**	0	0.001-1	By setting the return difference value, the relay is avoided from moving frequently at the alarm point, 0.500 is 50% of the alarm value.
			303.t1	**OUT1 action delay**	0	0-9999	Relay delay (seconds)
			304.h1	**OUT1 output limit**	9000	0-99999	The upper limit of the relay output
			305.L1	**OUT1 lower output limit**	1000	0-99999	The lower limit of the relay output

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		Relay 2	**306.m2**	**OUT2 working mode**	2	0-4	Same as relay 1
			307.V2	**OUT2data type**	1	0-2	
			308.r2	**OUT2 Return Value**	0	0.001-1	
			309.t2	**OUT2 action delay**	0	0-9999	
			310.h2	**OUT2 output limit**		0-99999	
			311.L2	**OUT2 output limit**		0-99999	
		Relay 3	**312.m3**	**OUT3 working mode**	0	0-4	
			313.V3	**OUT3 data type**	1	0-2	
			314.R3	**OUT3 Return Value**	0	0.001-1	
			315.t3	**OUT3 action delay**	0	0-9999	
			316.h3	**OUT3 output limit**		0-99999	
			317.L3	**OUT3 output lower limit**		0-99999	

C4.AdV	**Advanced applications**	**400.CV**	**Creep tracking**	1	0-10	10 levels, adjusted according to true creep, 0: nullified
		401.dZ	**Displays the zeroing range**	0	0-50000	For example, if the actual zero point of the sensor is 4, the current parameter is set to 5, the display will be 0, and when the pressure is 20, the gauge will show 24.
		402.tV	**Dynamic tracking range**	0	0-50000	0: Do not turn on dynamic tracking, see [Explanation of terms] for details.
		403.tC	**Dynamic tracking refresh**	0.2	0-2.000	
		404.SV	**Stabilizing weight switch**	0	0-1	0:close 1:Open When the weight display is turned on, the final value will be displayed directly, for example, the actual weight is 200, and the display will directly display 200 from 0, and the change process from 0

						to 200 will not be displayed.
		405.Zr	**Zero range**	500	0-50000	The absolute value of the zero point is allowed to be set manually and automatically within this parameter
		406.PZ	**Power on and set a zero switch**	0	0-1	0：close 1：Open
		407.Pt	**Power-on set to zero time**	10	0-1800	The re-power-up counts down to this time
		408.Pr	**Power-on set the zero range**	50	0-50000	When the power-on zero is turned on, the power is turned on again, and when the absolute value of the zero point is detected within this parameter, the zero point is automatically zeroed
		409.AZ	**Automatic zero switch**	0	0-1	0：close 1：Open
		410.At	**Automatic zero time**	0.100	0.100-9.999	
		411.Ar	**Auto-zeroing range (indexing)**	1.0	0.1-50.0	During the automatic zeroing time, when the absolute value of the zero point is within the range of automatic zeroing, the zero is automatically zeroed (this parameter is multiplied by the index value is the final range, which is different from [401 displays the zeroing range], and the zero point is 0 after automatic zeroing) *[412] [413] Effective when "weight stability" is determined
		412.Wr	**Judge the range (Index)**	0	0-5	Determine whether "weight stability" is effective, =0: It means that the weight is always stable >0: When the weight change is within the [412] stabilization range during the [413] stabilization time, it means "weight stability" This parameter affects manual

						peeling, and automatically zeros the multiplied index value of this parameter to the final range
		413.Wt	**Judge the time**	1.000	0.01-9.999	[412] [413] The two parameters together determine whether it is a stable state
C5.CoM	**485 Communication**	**500.Ar**	**Correspondence address**	1	1-253	
		501.br	**Porter rate**	3	1-15	**1:**2400 **2:**4800 **3:**9600 **4:**19200 **5:**22800 **6:**38400 **7:**57600 **8:**115200 **9:**128000 **10:** 230400 **11:**256000 **12**:460800 **13:**500000 **14:**512000 **15:**600000 The modification of the baud rate takes effect immediately, and needs to be powered off and reconnected, due to the limited number of display bits, the last two digits are removed when displaying, such as 2400 displays 24, 15200 displays 1152
		502.Vb	**Check position**	0	0-2	0:None 1: even (even check) 2: odd
		503.so	**stop position**	1	1/2	Stop 1 or 2 digits
		504.AS	**Active send mode**	0	0-1	0：close 1：Open The active transmission mode indicates the modbus-rtu communication mode when it is turned off
		505.AF	**Active sending frequency**	2	0-9	**0:**1Hz **1:**2Hz **2:**5Hz **3:**10Hz **4:**20Hz **5:**25Hz **6:**60Hz **7:**100Hz **8:**500Hz **9:**1000Hz ***The relationship between transmission frequency and baud rate is shown in the attached table**
C6.aNa	**analogue output**	**600.At**	**AO output type**	2	0-3	**0:** NONE (None) **1:** GroSS (Gross Weight) **2:** NEt (Net Weight) **3:** pEak (Peak).
		601.As	**AO signal type**	0	0-1	**0:** Curr (current) 1**:** VoLt (voltage).

		602.ax	**AO output Maximum weight**	5000	0-99999	The analog output corresponds to the full scale	It can be output bipolarly, and when the polarity of the [604] is negative, the minimum weight of the AO output is the full scale in the negative direction
		603.ai	**AO output Minimum weight**	0	0-9999	The analog output corresponds to the zero point	
		604.aP	**AO output Minimum weight polarity**	0	0-1	**0:** plus (positive) **1:** miNus (negative). When this parameter is selected 1, 4-12-20mA, 0-5-10V output can be achieved	
		605.CL	**Lower current output limit**	4	0-10.00	0-20mA input 0 4-20mA, 4-12-20mA input 4	
		606.Ch	**Upper limit of current output**	20	10.00-21.00		
		607.VL	**Lower voltage output limit**	0	0-5.00		
		608.Vh	**Voltage output limit**	10.00	5.00-10.00	0-5V input 5.00 0-10V, 0-5-10V input 10.00	
C7.LOC	**Login password**	**700.oP**	**Log in to the password switch**	0	0-1	0：close 1：Open	
		701.PW	**Change your password**	0000	0-9999	The default password is 0000, and you need to enter the default password to change the new password	
C8.FAC	**Factory adjustment**	**800.Lo**	**Manufacturer password**			For internal use by manufacturers	
		801.EX	**Exit factory adjustment**				
		802.01	AO **0.1mA calibration**				
		803.4m	AO **4mA calibration**				
		804.1O	AO **10mA calibration**				

		805.12	AO **12mA calibration**			
		806.20	AO **20mA calibration**			
		807.UU	AO **10V calibration**			
		808.Ad	**ADC datum setting**			
		809.SF	**Manufacturer reservation**			
C9.iNF	**Version information**	**900.VE**	**Software version number**			
		901.id	**Device unique code**			

Fault or character description

Secondary screen display	**Fault or character description**
PoiNt	Power-on initialization status, displayed when power-on, automatically exits after obtaining the first valid data, and exits at the end of the countdown if the power-on zeroing function is turned on
-----	No effective peaks were captured
Err.ro	The fault EEPROM fails to read and write, and the user presses the OK key to release it
Err.Ad	ADC failure
AL.Ad	ADC failure, the sampling signal is too large, and the ADC reads the maximum or minimum value (automatically canceled)
AL.oL	Sensor overload or exceed maximum range
AL.AZR	The sensor fails to power on and clear, exceeding the set power-on zero value
AL.PEL	Manual peeling fails, does not meet the peeling conditions **Peeling conditions:** (1) cannot be negative, (2) the relay cannot be suctioned, and (3) it needs to be in a stable state
AL.MZr	Manual zeroing fails and does not meet the zeroing conditions
The main screen display	**Fault or character description**
-----	Appears when modifying the sample rate, automatically exits
Er.doM	If the value set by the user is too small, it will be automatically set to the minimum value that can be set
Er.up	If the value set by the user is too large, it will be automatically set to the maximum value that can be set
Er.iNV	The user input is invalid

Er.pwE	The user entered the wrong password
FA.roM	The configured parameter write failed, but the parameter has taken effect
FA.AdC	ADC setup failed
Er.buy	The system is busy and cannot perform operations, and generally the data is not collected and stabilized, and the zeroing or calibration operation is performed

Attachment: The relationship between the maximum transmission frequency and baud rate

Maximum transmission frequency	Porter rate	Maximum transmission frequency	Porter rate	Maximum transmission frequency	Porter rate
5	2400	50	19200-22800	1000	460800-600000
10	4800	100	38400-128000		
20	9600	500	230400-256000		

Master-slave modbus-RTU communication register table

Data Name	Address			RMS type		Read and write	Function description:
	decimal	Hexadecimal	Siemens PLC				
Total weight	0	0X0000	40001	32 bits are signed	low	R	High in front, low in back
	1	0X0001	40002		High	R	
Net weight	2	0X0002	40003	32 bits are signed	low	R	
	3	0X0003	40004		High	R	
peak	4	0X0004	40005	32 bits are signed	low	R	
	5	0X0005	40006		High	R	
Internal code value	6	0X0006	40007	32 bits are signed	low	R	
	7	0X0007	40008		High	R	
Decimal point	8	0X0008	40009	16-bit unsigned		R/W	**0:**00000 **1:**0000.0 **2:**000.00 **3:**00.000 **4:**0.0000
unit	9	0X0009	40010	16-bit unsigned		R/W	0：**NoNE**（none） 1:**G**（g） 2:**kG**（kg） 3:**t**（T） 4:**N**（N） 5:**pa**（pa） 6:**kp**（Kpa） 7:**mpa**（Mpa）

						8:**N.M**（N·m） 9:**kN**（kN）
state	10	0X000A	40011	16-bit unsigned	R	0: The data is valid 1: Peak detection status 2: ROM failure 3: ADC failure 4: The ADC signal is too large 5: Gross Weight Overweight (Overload) 6: Failed to set zero on power-on 7: Does not meet the peeling conditions 8: Exceeding the zeroing range 9: Relay 1 state 10: Relay 2 status 11: Relay 3 status
order	11	0X000B	40012	16-bit unsigned	R/W	1: Peel (do not preserve) 2: Peel (preserve) 3: Unpeel (save) 4: Zero (not saved) 5: Proofreading Zero (Save) 6: Clear the spikes 7: Calibration 9: Factory restore
Weight value	12	0X000C	40013	32-bit unsigned low	R/W	The weight weight entered at the time of calibration
	13	0X000D	40014	32-bit unsigned High	R/W	
Creep tracking	14	0X000E	40015	16-bit unsigned	R/W	0-10
Display zeroing	15	0X000F	40016	16-bit unsigned	R/W	0-5000
Dynamic tracking range	16	0X0010	40017	16-bit unsigned	R/W	0-5000
Dynamically track update times	17	0X0011	40018	16-bit unsigned	R/W	0-2000 (in ms)
Stabilizing weight switch	18	0X0012	40019	16-bit unsigned	R/W	0: Close 1: On
Zero range	19	0X0013	40020	16-bit unsigned	R/W	0-5000
Power on and set to zero	20	0X0014	40021	16-bit unsigned	R/W	0: Close 1: On
Power-on set to zero time	21	0X0015	40022	16-bit unsigned	R/W	0-1800 (Unit S)
Power-on set the zero range	22	0X0016	40023	16-bit unsigned	R/W	0-50000

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Automatic zeroing enable		23	0X0017	40024	16-bit unsigned	R/W	0: Close 1: On
Automatic zero time		24	0X0018	40025	16-bit unsigned	R/W	100-9999 (in ms)
Automatic zeroing range		25	0X0019	40026	16-bit unsigned	R/W	10-500 (unit 0.1)
Judge and stabilize the range classification		26	0X001A	40027	16-bit unsigned	R/W	0-5
Judge the time		27	0X001B	40028	16-bit unsigned	R/W	100-9999 (in ms)
Relay 1	Working mode	28	0X001C	40029	16-bit unsigned	R/W	0: No output 1: Upper limit action 2: Lower limit action 3: Intra-range action 4: Actions outside the range
	Round	29	0X001D	40030	16-bit unsigned	R/W	
	Data type	30	0X001E	40031	16-bit unsigned	R/W	
	Action delay	31	0X001F	40032	16-bit unsigned	R/W	
	Output limit	32	0X0020	40033	32-bit unsigned low	R/W	
		33	0X0021	40034	32-bit unsigned High	R/W	
	Lower output limit	34	0X0022	40035	32-bit unsigned low	R/W	
		35	0X0023	40036	32-bit unsigned High	R/W	
Relay 2	Working mode	36	0X0024	40037	16-bit unsigned	R/W	Same as relay 1
	Movement Difference	37	0X0025	40038	16-bit unsigned	R/W	
	Data type	38	0X0026	40039	16-bit unsigned	R/W	
	Action delay	39	0X0027	40040	16-bit unsigned	R/W	
	Output limit	40	0X0028	40041	32-bit unsigned low	R/W	
		41	0X0029	40042	32-bit unsigned High	R/W	
	Lower output limit	42	0X002A	40043	32-bit unsigned low	R/W	
		43	0X002B	40044	32-bit unsigned High	R/W	
Rel	Working mode	44	0X002C	40045	16-bit unsigned	R/W	Same as relay 1

a y 3	Movement Difference	45	0X002D	40046	16-bit unsigned		R/W	
	Data type	46	0X002E	40047	16-bit unsigned		R/W	
	Action delay	47	0X002F	40048	16-bit unsigned		R/W	
	Output limit	48	0X0030	40049	32-bit unsigned	low	R/W	
		49	0X0031	40050		High	R/W	
	Lower output limit	50	0X0032	40051	32-bit unsigned	low	R/W	
		51	0X0033	40052		High	R/W	
Software version number		52	0X0034	40053	16-bit unsigned		R	
Calibration mode		53	0X0035	40054	16-bit unsigned		R/W	0 ballast calibration, 1 digital calibration
Total sensor range		54	0X0036	40055	32-bit unsigned	low	R/W	Simultaneous writes are required to take effect, and writing to the registers alone will cause incorrect calibration data.
Total sensor range		55	0X0037	40056		High	R/W	
Sensor sensitivity		56	0X0038	40057	32-bit unsigned	low	R/W	The sensor sensitivity unit is mV/V range 1~1000, 1.0mV/V=10000, and it needs to be written at the same time to take effect, and writing to the register alone will cause incorrect calibration data.
		57	0X0039	40058		High	R/W	
Sensor excitation voltage		58	0X003A	40059	32-bit unsigned	low	R/W	The sensor excitation voltage is unit mV, range 1~10000, 5V=5000, and it needs to be written at the same time to take effect, and writing to the register alone will cause incorrect calibration data.
		59	0X003B	40060		High	R/W	
Range coefficient		60	0X003C	40061	32-bit unsigned	low	R/W	Range coefficient, unit 0.0001 range 1~20000, 1.0000=10000, it needs to be written at the same time to take effect, and the register is written separately to cause the wrong calibration data.
		61	0X003D	40062		High	R/W	
Device unique code		62	0X003E	40063	16-bit unsigned		R	

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