

Touch Screen Force measuring Controller

(1/2/4 Scales)

Instruction Manual

V1.1

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1 Summary

1.1 Product introduction

Thank you for choosing our products. Before using this product, please read this manual carefully to make this product work to the maximum extent.

This product integrates the control part and touch screen operation part, with friendly interface and convenient operation.

This product uses 24 bit Σ - Δ ADC chip, and the analog signal of bridge load cell is converted into digital signal. It also have 8 DI and 20 DO, up to 4 sensor inputs, In addition to the weighing signal transmission function, it can also achieve a large number of control functions.

Suitable for 18-30vdc power supply system. 24 V power supply is recommended.

This product also has the function of sensor circuit detection, that is, when the sensor is not connected or the sensor is faulty (including the wiring falling off, etc.), the corresponding alarm will be given [effective when only one sensor is connected to each channel].

Product features:

1. Signal acquisition, control and touch screen operation are integrated, and the operation is convenient and fast;
2. It can prevent RFI / EMI interference and has strong EMC characteristics;
3. 18-30v DC supply;
4. High speed 24 bit Σ - Δ ADC sampling, each channel more than 500Hz sampling, control output and sampling interval synchronization;
5. Complete sensor fault detection function, such as signal overrun, module sampling fault, sensor line connection fault, etc;
6. Complete communication interface , Standard RS 232 and 485.Optional Ethernet, etc;
7. Mass storage, which can store more than 300000 pieces of data.

1.2 Safety tips

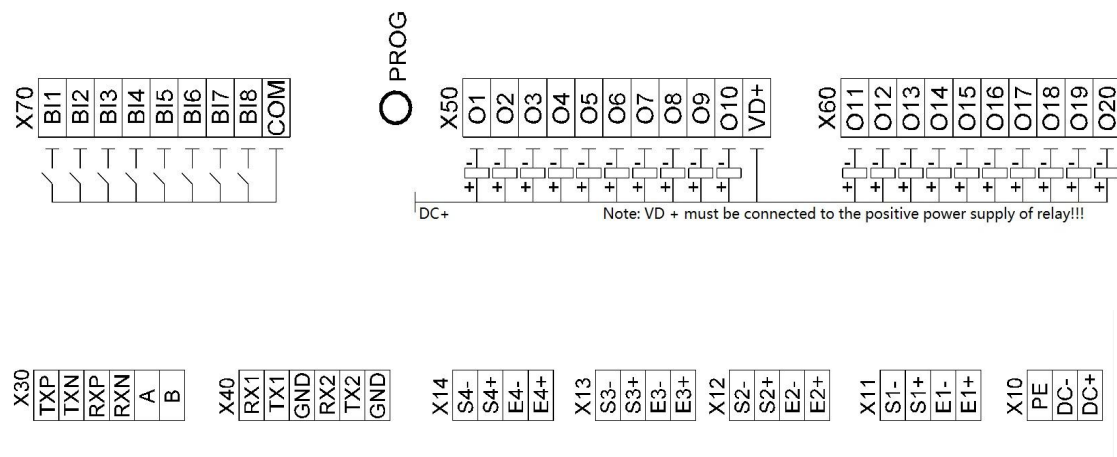


1. The instrument has anti-interference design. Be sure to ground the instrument reliably and separate it from the AC power supply ground wire;
2. Do not use in flammable gas environment;
3. Avoid direct sunlight;

1.3 Technical parameters and dimensions

Measurement signal	-20mV~20mV, Each can drive 6 load cells with 350 ohm
Sampling frequency	500Hz
Accuracy	III level
Resolution	1/500000
DI/DO	8 DI, 20 DO, Low level active
Communication	rs 232,rs 485。Optional with Ethernet or other module
Nonlinearity	0.005%FS
Power	18-30V DC。Sensor voltage 5V。
Weight	About 0.7kg
Dimensions	207*131*26
Opening size	197*122
Power waste	< 10W
Temperature	-20~+65°C

1.4 I/O



Explain

1: X70 is DI terminal, valid for COM, NPN type photoelectric junction; PROG is the programming button, Press and hold this button, and then power on the instrument to enter the download program;

2: X50 and X60 is DO terminal, The wiring is shown in the figure above;

3: X30 is a communication extension interface (TXP/TXN/RXP/RXN is a communication extension, which can extend Ethernet, etc. A / B is 485 interface) ; X40 is a 2-way 232 interface;

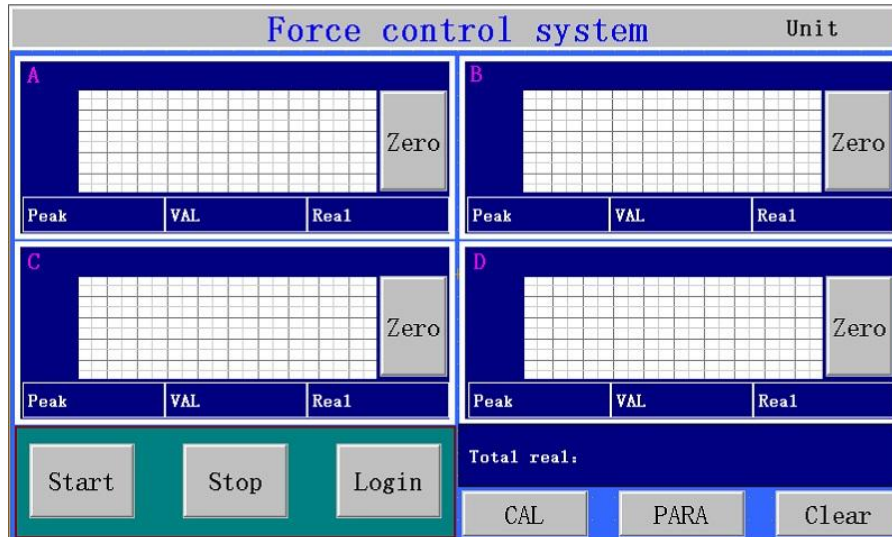
4: X14、X13、X12、X11 are loadcell interface;

5: X10 is the power interface, DC + and DC - to connect the DC power, and 24 V DC is recommended; PE is shielded interface.

6: VD + must be connected to the positive power supply of relay

2 Interface and operation method

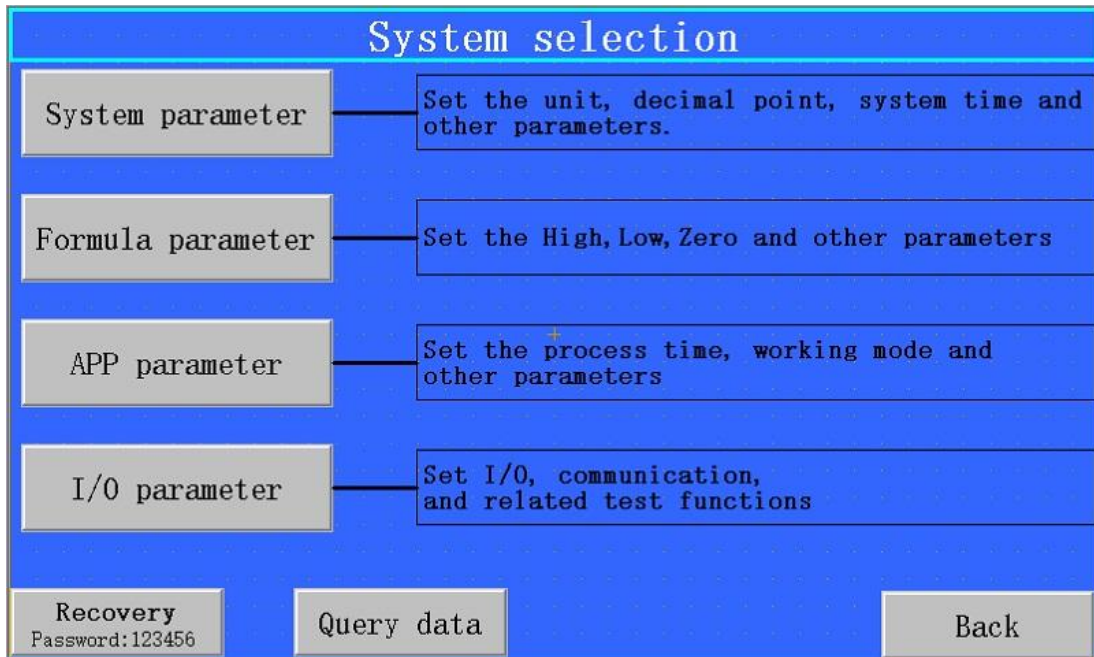
2.1 Weighing interface



1-4 scale interface is available for this instrument. Only 4 routes are taken as an example.

1. Start、Stop、Login can operate without logging in
2. Other operations need to log in first. The password is 123. When the indicator light on the login button turns green, all parameters can be operated. Enter password 0, login will be cancelled.
3. The clear button is used to clear all stored data. Need to login to operate.
4. Peak means peak value; VAL means valley value; Real means real-time data
5. Zero button can let the force value return to zero; CAL button can enter the calibration interface ;PARA button can enter the parameter interface .

2.2 Parameter display and setting



2.2.1 System parameter



Name	Default(Range)	Describe
Unit	g(g,kg,t,N,kN,lb)	
Dec.Point	1(0-4)	Decimal point setting
DIV	0(0-5)	Division. 0:1 1:2 2:5 3:10 4:20 5:50。
Filter 1	10(0-19)	The larger the value is, the better the filtering effect is, but the weight display lags behind.For SP1 and SP2.
Filter 2	15(0-19)	The larger the value is, the better the filtering effect is, but the weight display lags behind.For weight display and SP3.
Para. No.		The register number of the parameter can be queried in 3.1.(the number should bigger than 1000)
Para. Value		The parameter value corresponding to the register number.
Dyn.Range	0.01(0.00-99.99)	When this value is greater than 0, it starts to judge whether it is stable.
Dyn.Time	0.30(0.00-9.99)	During this time, if the weight change is within the stable range, it will be stable.
Zero Range	0.00(0.00-99.99)	When the value is greater than 0, the auto zero operation is performed.
Zero Time	1.00(0.00-9.99)	During this time, if the weight is within the range and is stable all the time, it will be automatically set to zero. Continuous stability is set to zero only once.
Creep Range	0.00(0.00-99.99)	When this value is greater than 0, creep correction is carried out.
Creep Time	10.00(0.00-99.99)	In this time, the weight change is in the Creep Range and is stable, so the creep correction is carried out.

2.2.2 Formula parameter

FORMULA

A P High:	B P High:	C P High:	D P High:
A P Low:	B P Low:	C P Low:	D P Low:
A N High:	B N High:	C N High:	D N High:
A N Low:	B N Low:	C N Low:	D N Low:

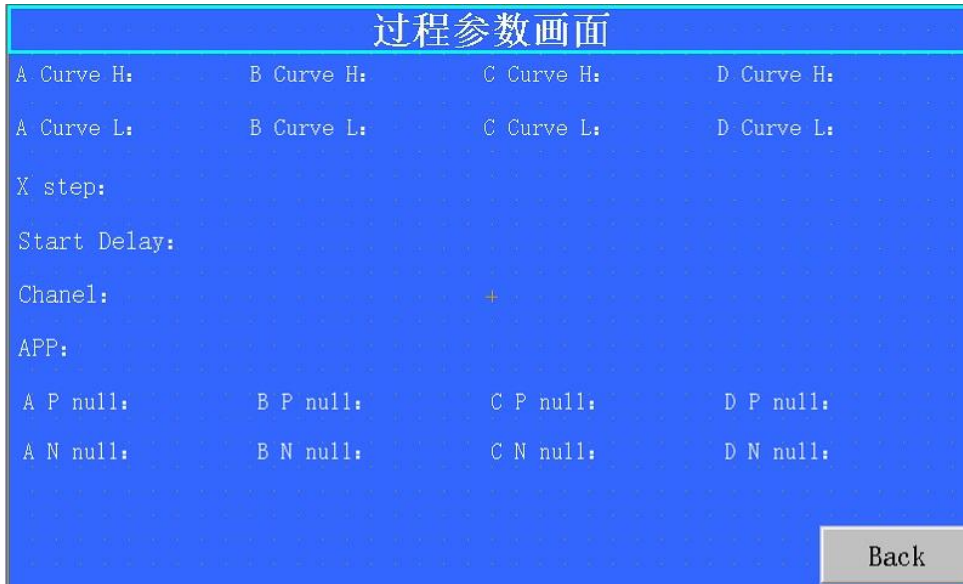
+

Formula No. : Formula Name:

Back

P high means positive upper limit; P low means positive low limit; N high means negative upper limit; N low means negative low limit;

2.2.3 APP parameter



Name	Default(Range)	Describe
Curve H		Sets the maximum value for curve display
Curve L		Sets the minimum value for curve display
X step		Sets the time difference between the 2 points of the curve. The unit is 10ms
Start Delay	0.10(0-500.00)	Delay after startup. Direct startup and input startup are invalid.
Chanel	3(0-3)	0:1 chanel; . 1:2 chanel; 2:3 chanel; 3:4 chanel;
APP	0(0-0)	0: Sum of effective channel force values
Flow drop time	0.0(0.0-10.0)	When the setting is greater than 0, the flow mode is adopted to adjust the drop.

2.2.4 I/O parameter

AD			I/O		COMM
I1:	o1:	o11:	Ix Functions 1. Start 2. Stop 3. A Zero 4. B Zero 5. C Zero 6. D Zero 7. Unused 8. Unused 9. Start-stop 10. A Start-stop 11. B Start-stop 12. C Start-stop 13. D Start-stop	Ox Functions 1. A Real H 2. A Real L 3. A Null 4. A Peal H 5. A Peal L 6. A Checking 7. B Real H 8. B Real L 9. B Null 10. B Peal H 11. B Peal L 12. B Checking 13. C Real H 14. C Real L 15. C Null 16. C Peal H 17. C Peal L 18. C Checking 19. D Real H 20. D Real L 21. Null 22. D Peal H 23. D Peal L 24. D Checking 25. A Finish 26. B Finish 27. C Finish 28. D Finish	
I2:	o2:	o12:			
I3:	o3:	o13:			
I4:	o4:	o14:			
I5:	o5:	o15:			
I6:	o6:	o16:			
I7:	o7:	o17:			
I8:	o8:	o18:			
	o9:	o19:			
	o10:	o20:			
			I/O Test [When it stops]		Back

2.2.5 COMM parameter

In the I/O parameter interface, click COMM button to enter the communication setting interface.

Communication					
Address:					
COMM 1 baud:	9600	COMM 2 baud:	9600	COMM 3 baud:	9600
COMM 1 check:	None	COMM 2 check:	None	COMM 3 check:	None
COMM 1 APP:	0	COMM 2 APP:	0	COMM 3 APP:	0
COMM 1 format:	0	COMM 2 format:	0	COMM 3 format:	0
Sending Fre. :	5				
					Back

1:APP is used to set the function of communication port;Function 0 is MODBUS RTU;1 is the active sending,It can set the sending frequency;2 is MODBUS TCP,just for COM3

2:Format is the Long or float data's byte order.If there is an error reading the data, you can try to modify this parameter;

3:Sending Fre just for the APP 1;

2.2.6 Query data

Data query				
No.	TIME	Chanel	Peak	Valley

UP
DN
Input
No.
Scale switching

Copy Choise: Print Choise:

Clear Copy Print Back

2.2.7 System calibration

Press the CAL button at the main screen.

Calibration	
Current scale:	ADD SUB
AD:	0
Zero:	0
Coefficient:	123456
Real:	0.0
Zero	Full
Back	

Zero: Calibrate the zero

Full: Input the weight on the current scale.

ADD or SUB: Choose the current scale

3 Supplementary notes

3.1 modbus Communication protocol

This protocol is compatible with TCP address. The data is 32-bit

Name	Default(Range)	Describe	Address
A Weight		Read: Weight	1
B Weight		Write 0, zero calibration	3
C Weight		Write more than 0, weight calibration	5
D Weight			7
A AD		Read: AD	9
B AD			11
C AD			13
D AD			15
A Positive peak			17
B Positive peak			19
C Positive peak			21
D Positive peak			23
A Negative peak			25
B Negative peak			27
C Negative peak			29
D Negative peak			31
A State		See Note 1 after the table	33
B State			35
C State			37
D State			39
Para. No.		The register number of the parameter can be queried in 3.1.(the number should bigger than 1000)	997
Para. Value		The parameter value corresponding to the register number.	999
A Zero			1001
B Zero			1003
C Zero			1005
D Zero			1007
A Coefficient			1009
B Coefficient			1011
C Coefficient			1013
D Coefficient			1015
Filter 1	10(0-19)	The larger the value is, the better the filtering effect is, but the weight display lags behind.For SP1 and SP2.	1019

Filter 2	15(0-19)	The larger the value is, the better the filtering effect is, but the weight display lags behind.For weight display and SP3.	1021
DIV	0(0-5)	0:1 1:2 2:5 3:10 4:20 5:50。	1023
Dyn.Range	0.01(0.00-99.99)	When this value is greater than 0, it starts to judge whether it is stable.	1025
Dyn.Time	0.30(0.00-9.99)	During this time, if the weight change is within the stable range, it will be stable.	1027
Creep Range	0.00(0.00-99.99)	When this value is greater than 0, creep correction is carried out.	1029
Creep Time	10.00(0.00-99.99)	In this time, the weight change is in the Creep Range and is stable, so the creep correction is carried out.	1031
Zero Range	0.00(0.00-99.99)	When the value is greater than 0, the auto zero operation is performed.	1033
Zero Time	1.00(0.00-9.99)	During this time, if the weight is within the range and is stable all the time, it will be automatically set to zero. Continuous stability is set to zero only once.	1035
Unit	g(g,kg,t,N,kN,lb)		1067
Dec.Point	1(0-4)	Decimal point setting	1069
Chanel	3(0-3)	0: 1 CH; 1,2 CH; 2: 3 CH; 3,4 CH	1071
APP	0(0-0)		1073
Formula	0(0-49)		1075
A Null	100(1-999999)	See 2.2.2 for details	1077
B Null			1079
C Null			1081
D Null			1083
A P high	5000(1-999999)	See 2.2.2 for details	1085
B P high			1087
C P high			1089
D P high			1091
A P Low	2000(1-999999)	See 2.2.2 for details	1093
B P Low			1095
C P Low			1097
D P Low			1099
A N high	1000(1-999999)	See 2.2.2 for details	1101
B N high			1103
C N high			1105
D N high			1107
A N Low	500(1-999999)	See 2.2.2 for details	1109
B N Low			1111
C N Low			1113
D N Low			1115

I1 Function	0(0-99)	See 2.2.4 interface parameters for details	1157
I2 Function			1159
I3 Function			1161
I4Function			1163
I5 Function			1165
I6 Function			1167
I7 Function			1169
I8 Function			1171
o1 Function	0(0-99)	See 2.2.4 interface parameters for details	1173
o2 Function			1175
o3 Function			1177
O4 Function			1179
O5 Function			1181
O6 Function			1183
O7 Function			1185
O8 Function			1187
O9 Function			1189
O10 Function			1191
O11 Function			1193
O12 Function			1195
O13 Function			1197
O14 Function			1199
O15 Function			1201
O16 Function			1203
O17 Function			1205
O18 Function			1207
O19 Function			1209
O20 Function			1211
Save Mode	0(0-0)	0, Peak save	1215
Start Delya	0.10(0.00-99.99)	When the threshold is triggered, the internal force value at this time is greater than the threshold, and the trigger is effective. Invalid external trigger.	1221
A Curve H	2000(-999999-999999)	See 2.2.3 for details	1225
B Curve H			1227
C Curve H			1229
D Curve H			1231
A Curve L	2000(-999999-999999)	See 2.2.3 for details	1233
B Curve L			1235
C Curve L			1237
D Curve L			1239
X step	1(1-255)		1241

Explain1: State A .00bit A Run; .01bit A stable; .; ..07bit B Run; .08bit B stable;
 State B .00bit C Run; .01bit C stable; ..07bit D Run; .08bit D stable;
 State C DI State
 State D DO State

3.2 Other communications

Please consult the manufacturer or customize.

3.3 Other functions

If you need the function of Ethernet network, please contact the manufacturer in advance.
The configuration and testing tools of Ethernet can be obtained from the manufacturer.