364-23-192-1

Nidec
All for dreams

DIGTAL TORQUE METER TNX SERIES

Instruction Manual

Please read the following content before operation

Please read instruction manual and [safty notes]carefully before operation,the operate correctly.

NIDEC DRIVE TECHNOLOGY CORPORATION

Safty notes

please comply

Please read instruction manual carefully before installation ,operation,maintenance,check,read ,product knowledge,safty information,not before operation.

[Danger],[warning],[cantion]differentiate the importance of safty notes in the instruction manual,they are very import.Please comply.

Danger Danger mark indicates o possible death,serious injury or fire if the user disregards the instruction .

Darning Warning mark indicates the possibility of a serious injury if the user does not follow the instruction .

cantion Caution mark indicates the possibility of light injury or dangers if user operates improperly .And that lead to great effect base on different instance.please comply.

The following marks indicate the sort of contents which are complied voith.


The mark indicates warning,please pay attention .


The mark indicates prohibit operation.


The mark indicates follow instraction.

⚠ Warning


Heavy! Pay close attention to operation
When the product falls on user foot ,it leads to serious injury .
※ Please refer to P25 about the weight of product.

⚠ Caution


Don't exceed the bound of torquemoment.
While exceeded the bound of toquemoment ,the inductor and other parts may go wrong .


Please place the product on the convenient .
cocation when mainterance and check.


Do not more and hold the product while .
The power is on while power cables break off,it may lead to electric shock,fire,injury.


Please check it the object is fix up.
Please check the object is fix up not to more.
The object cannot be test correctly while ti can move.


Please check the electric source is single phase .
The voltage of electrical outlet is equalto the mark voltage.Don't connects many power cables.
while power cable break off,it may lead to electtic shock ,fire,injury.


Do not mangle ,bend ,oull , turn,truss power cables.Don't place object on the cables .Don't nip power cables.
while power cable breakoff,it may lead to electric shock,fire,injury.

⚠ Caution

Don't charge with other instuction except AC connect instrution ,it may leads to circuit damage and fire.	Don't use except AC 100v It may lead to fire and electrical shock fire .
Please insert power cable. into AC connet instrument while use in the loose condition,it may lead to electric shock and fire for short circuit.	Don't plug into or unplug from AC connect instrument. it may leads to electric shock.
Don't disconnect .repair ,alter. It may lead to injury for improperty operation.	Don't haul AC connect instrument . If soft cable break off,it may lead to fire,forshort circuit.
Don't use while AC connect instrument touch with dust it may lead to fire.	Don't use and save in the following enviroment:dank, sunniness,corrsive air,flammable air. • The environmental which requires water, the place where direct sunlights hit • Environment which condensation generates • Environment with much dust, salt, and iron • Environmental which requires oil, water, and chemicals • A place with corrosive gas and combustible gas
Please wipe with the clean .Soft cloth while it is dirty.Don't use gas ,thinner,ethanet.	Use it the temperature bound(0 ～ 40℃) It may lead to wrong operation if exceed the temperature bound.
Suggest examination and adjustment at times. The test definition will drop together with time according to the use frequency and torque.	Use in the humidity bound(35 ～ 85%RH) (Not mirage).It may lead to wrong operation if exceed the humidity.

INDEX

1.Characteristic of this product

- Because it suit for P.P,so you can land save function 1st ,2nd ,3rd ,close,each of which are 1000 details.
- Can test the torque of open.close direction.
- Can save graduate land value to USB storge.
- Because of USB communication, it can send data into computer .
- Connect to the printer(buy besides),you can print save data.
- Can shift overload output/compare instrum output
- Because it is suitable for spare electric.
- Tsrque(DSP_10),you can use it as electric tsrque test.
- Record data,time of open/close Max value recorded through clock funtion.
- Can test MAX value
- Prove fix torque of instruction 2N.m,5N.m,10N.m.
- Can shift each unit of N.m,N.m.
- Can chose test cycle(inclicate cycle)from 8t/s,4t/s,2t/s,1t/s.

2.Confirm the accessory

1.ainframe

2. AC connect instrument

3. fix bolt (4)

(30mm lengths)

4. USB voire

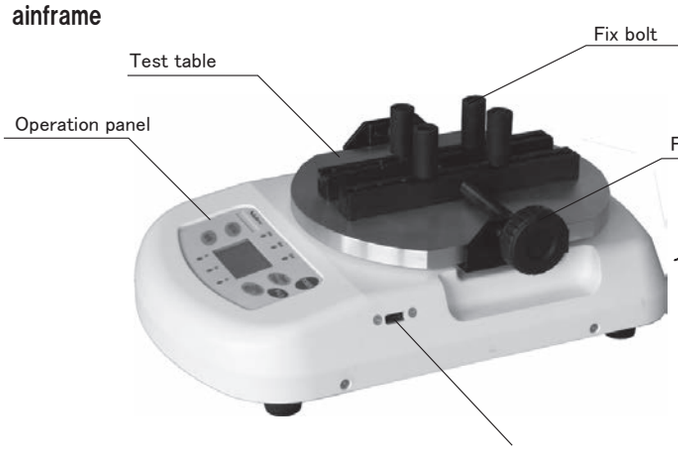
5. USB storge

6. Instruction manual

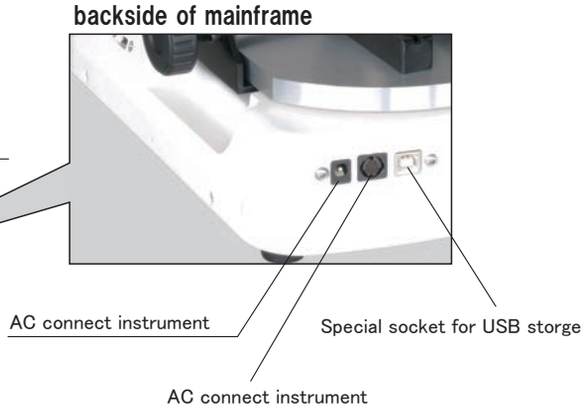
3.Name and funtion of each part

3.1 Mainframe

ainframe

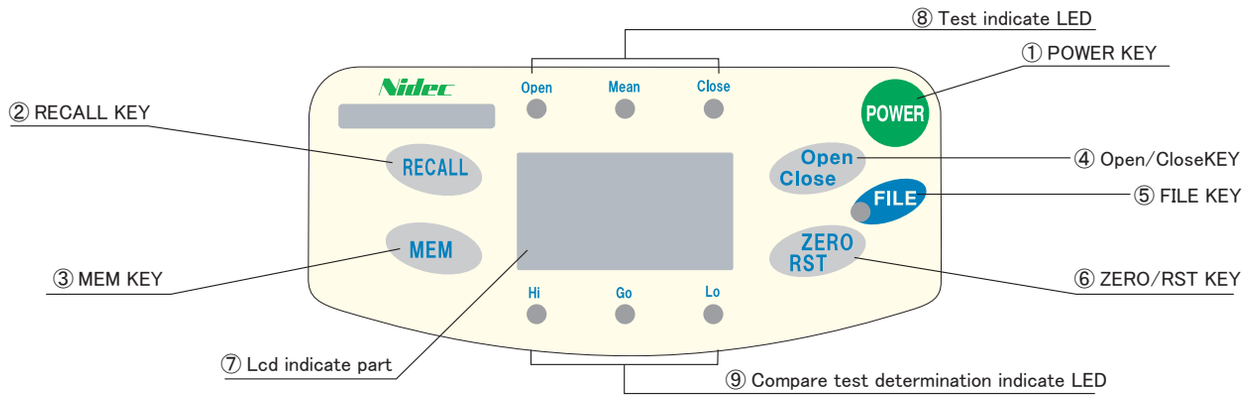


backside of mainframe



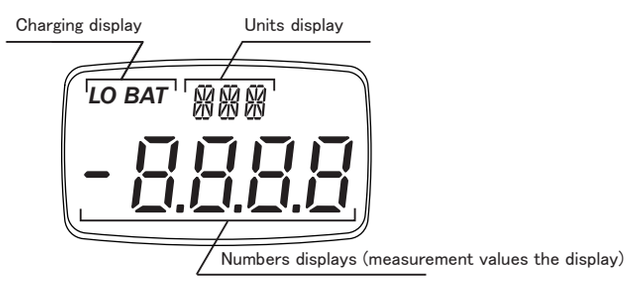
Test table	put test sample
Operation panel	各種キー、LED が配置されています。
Special socket for USB storge	USB メモリを差し込みます。(注)PC との通信には使用できません。
Fix open handle	チャックピンを開閉させる際に使用します。
Fix bolt	サンプルを固定する際に使用します。
Socket for AC connect instrument	AC アダプタで動作させる際に使用します。
Connect socket outside	Use when connect spare electric torque or print(use when exceed output/compare instrument output)
Socket for USB communication	Use when PC is communicating with USB.

3.2 Operation panel



① POWER KEY	Use for ON/OFF the power
② RECALL KEY	Load the data inputed in storge when open/close the test. Can't load the data inputed in storge shen in overage testing.
③ MEM KEY	Input max value into storge when open/close the test .Can't save input when in average testing.
④ Open/Close KEY	Shift test method Keep pressing the button will return to the method.
⑤ FILE KEY	When it is open/close test method :save store data of mainframe into USB storge Store data indicates:input store data of mainframe to printer . ((only when F06=print
⑥ ZERO/RST KEY	When avweage test: set zero.Method of open/close test : resert max value
⑦ Lcd indicate part	Indicate test data or test unit .
⑧ Test indicate LED	One of open ,Mean,Close light, then indicate test method.
⑨ Compare test determination indicate LED	When campare test determination is effective ,one of Hi,Go,Lo is light then indicates determinant recult. Method of average test: against test data to do determinant of compare test and indicate result. Method of open/close test :against max value to do determinant of compare test and indicates result. When store expressing ,against store value to do determinant of compare test and indicate result. Hi,Go,Lo isn't light when determinant of compare test doesn't work.

3.3 LCD indicate part



3.3.1 Value indicate part

Indicat the test value with symbol and 4 states value.

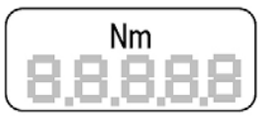
The symbols of torque are different according to the difference of test method .

Test method	Torque of open direction	Torque of close direction
Open test method	No symbol	Indicate negative
Close test method	Indicate	No symbol
Average test method	No symbol	Indicate negative

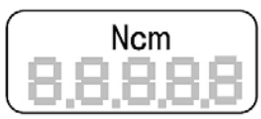
3.3.2 Express unit

Express unit . Indicate"OVR"when exceed load Indicat"PWR"one minute before turn off the power .

N・m Unit



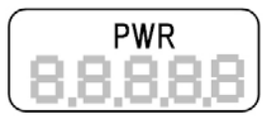
N・cm Unit



At the overload

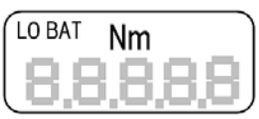
Blinking the LED of Open,Mean,Close

Auto power off before 1 minute



3.3.3 Charging display

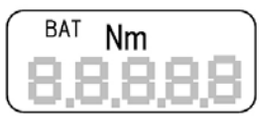
Indicate fllowing contents accrding to charge state.



LO BAT Blinking :

The internal nickel metal hydride batteries voltages is declinning.

Please connect AC suitable instrument to charge.



BAT At display:

A internal nickel metal hydride batteries is under charge.

Even shut off the power,indicates "BAT" when charging.

4.Summary of key operation.

4.1 Operation of basic operation.

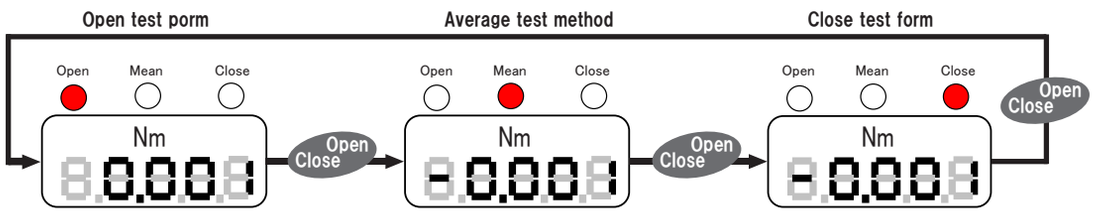
Names of keys	Operation
POWER	ON/OFF of power
Open/Close	Transfer test method
FILE	Save data into USB panel/printer
ZERO/RST	Set resert 0 /resert MAX height
MEM	Input data of MAXheight
RECALL	Indicate after record data

4.2 A special key the operation

Operation key	Operation	Operation method
ZERO/RST + POWER	Function form	When power is OFF,keep pressing ZERO/RST and power,then away.
MEM + POWER	Cancel store data	When power is OFF,keep pressing MEM and until indicate"non E"canceled by store data.
RECALL + POWER	Comparison set	When power is OFF,keep pressing recall key and power the away. Keep pressing RECALL until indicates"1-H"of comparison set.
FILE + POWER	Time set	When power is OFF ,keep pressing FILE and power then away. Keep pressing FILE until indicates"YEA"of time set.

5.Test form

Test form contains open test porm,close test form,use open/close button to shift.

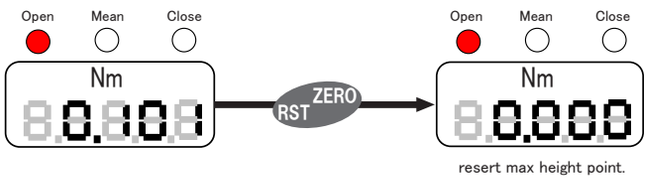


5.1 Open test form

Test the max torque presured on test table of open direction.

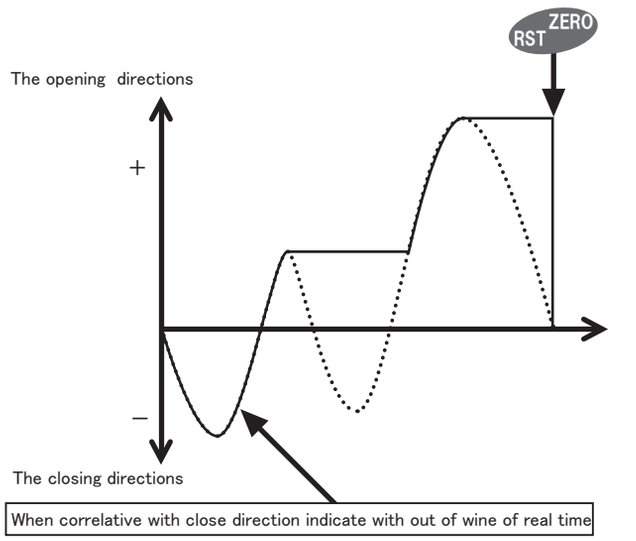
Display cycle : 8 times per second.

Resert max height point by press ZERO/RST key.



resert max height point.

Use"−"express torque value if close driection . use out of wine of real time to express torque of max height point pressed on open direction.

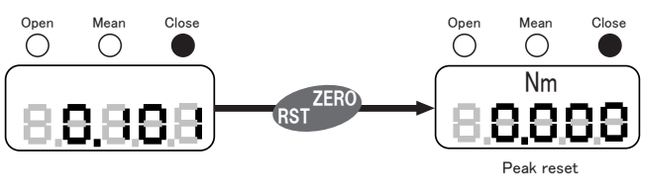


5.2 Close test form

Test the max of torque pressed on close diection of test table.

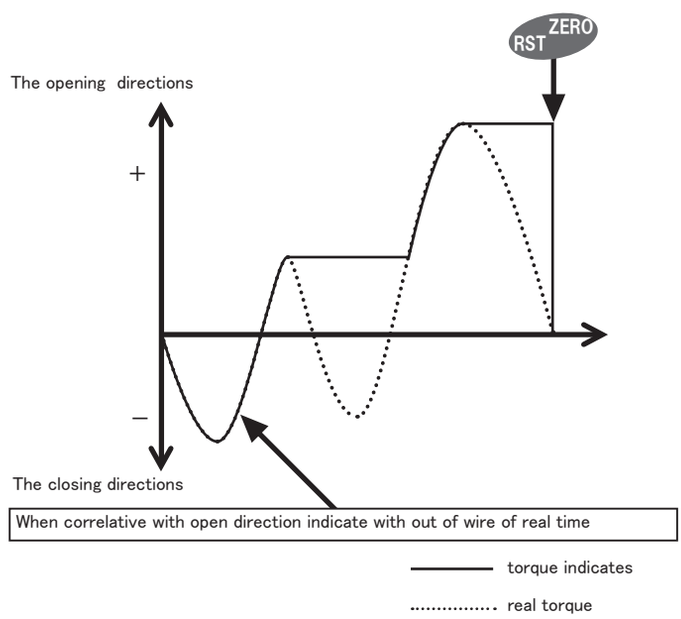
Display cycle : 8 times per second.

Resert the max height point by press ZERO/RST.



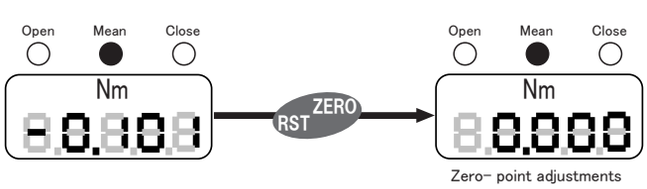
Peak reset

Use"−"express torque value of open direction. use out of wire of real time to express torque of max height point pressed on close direction.



5.3Average test form

Indicate torque walue each sample(1000t/s)of test table※direction according cycle with real time torque.
cycle setted accroding to mochine funtion, add number "1"to torque of close direction(1t/s,2t/s,4t/s,8t/s)
resert 0 by press ZERO/RST key.

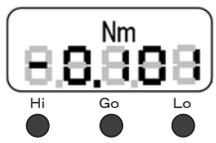


Zero- point adjustments

※ Set filter(F04)as 150 mesc,then 150t/s.

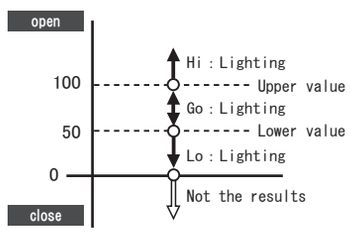
6.Function of test instrument

- Compare determinant upper/lower limit value with test data,max or store data loaded.LED light and indicate result.
- Can set determinant upper/lower limit value of 1st,2nd,3rd separately.(reher to set operation of determinant upper/lower limit value of P12.1)
- Can't set determinant outputwhen determinant upper limit value and determinant lower limit value are all set as 0.
- Compare determinating with absolute value not determinate upper/lower limit.
- Again st average test method,determinate upper/lower limit through real time.
- Determinate upper/lower lomit value when express store data or record max value,degree in case of about open/close test method.



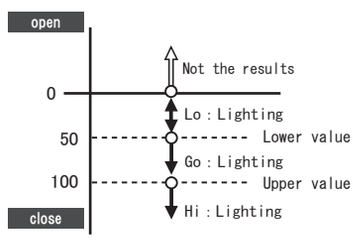
■ Determinant management(determinant upper limit value:100/determinant lower limit value 50)

● when open test method



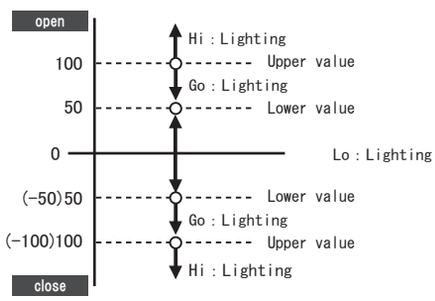
determinate LO when test data is in 0-49 (LED of "LO" light)
determinate GO when test data is in 50-100 (LED of "GO" light)
determinate HI when test data is in 101- (LED of "HI" light)

● when close test method



determinate LO when test data is in 0-49 (LED of "LO" light)
determinate GO when test data is in 50-100 (LED of "GO" light)
determinate HI when test data is in 101- (LED of "HI" light)

● average average test method



( )In the inside, it is a display value.

determinate HI when test data is in -101 (LED of "HI" light)
determinate GO when test data is in -100-50 (LED of "GO" light)
determinate LO when test data is in -49-49 (LED of "LO" light)
determinate GO when test data is in 50-100 (LED of "GO" light)
determinate HI when test data is in 101- (LED of "HI" light)

7.Measuring method

7.1 Fix test smaple

1 relax handle for set on off one test table

2 adjust the set bolt to compatible bulk and shape,then insert into any position.

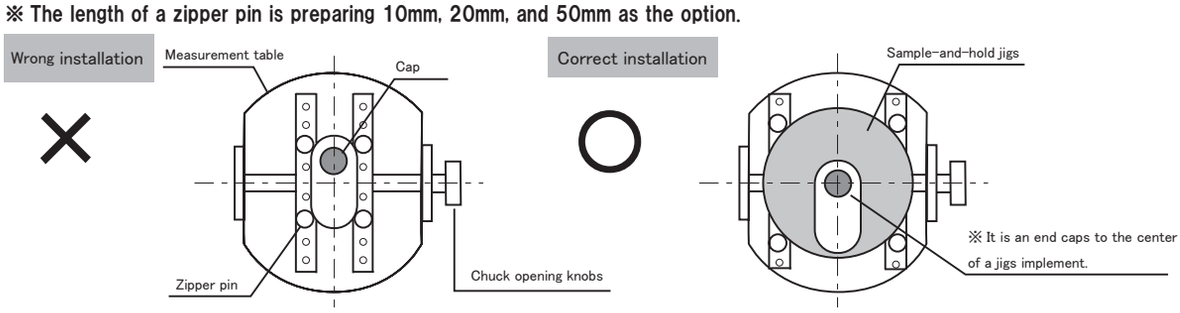
3 put sample on the test table

4 close handle of set on_off and fasten the sample

※ fasten the main top of sample to the center of the table

When it is difficult for a form to bring an end caps to centers of tables with bad samples etc., please manufacture the fixture implement reserving a sample.

※ The length of a zipper pin is preparing 10mm, 20mm, and 50mm as the option.



7.2 ZERO adjustment

Turn test sample toward testing direction,it will appear torque about sample.

So you have to keep pressing ZERO/RST key to resert before test next sample.

7.3 Please resert peak in cordition of no connection with torque.

If a measuring samples is turned in direction, the torque concerning a sample will be displayed.

Since display maintenance of the maximum of the torque which started is carried out, in the case of opened and closed torque measurement mode, please press the ZERO/RST keys, and carry out peak reset, before measuring the following samples.

※ Please perform peaks resets in the state where torque does not start.

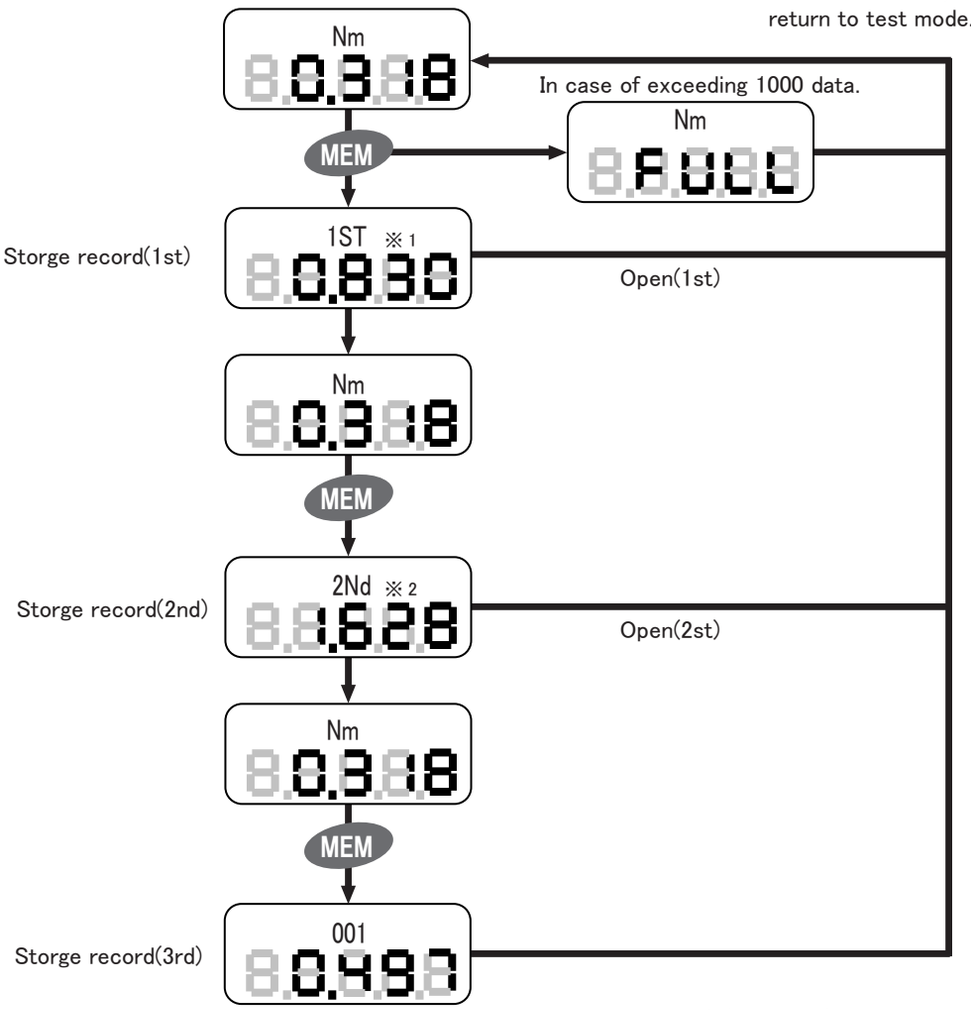
8.storage instrument function

8.1 1 store land

When in open/close test mode,through keep pressing MEM key to land the max value to storge open test mode

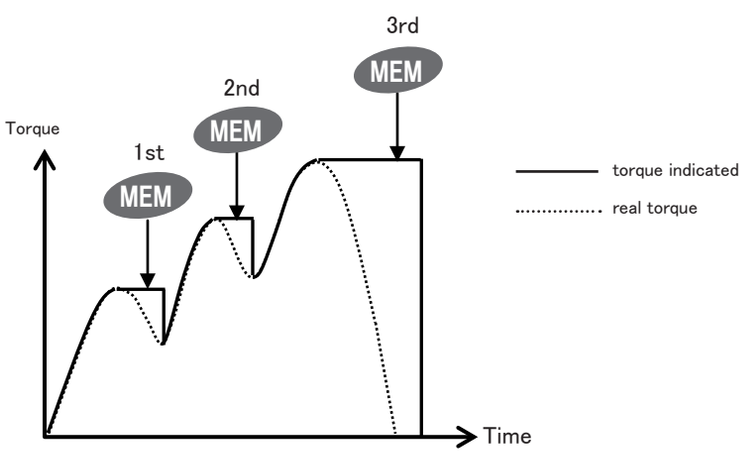
【open test mode】

after one second,resert the max value and return to test mode.



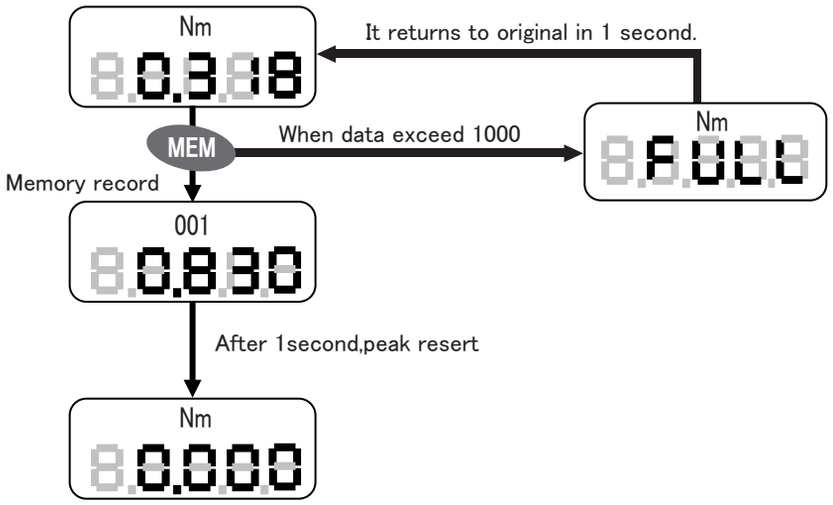
※1 use no data to express when first choice of open

※2 use no data to express when second choice of close



If keep pressing MEM key,when load the max value in storge,resert the max height poin after 1 second.

【Close test mode】

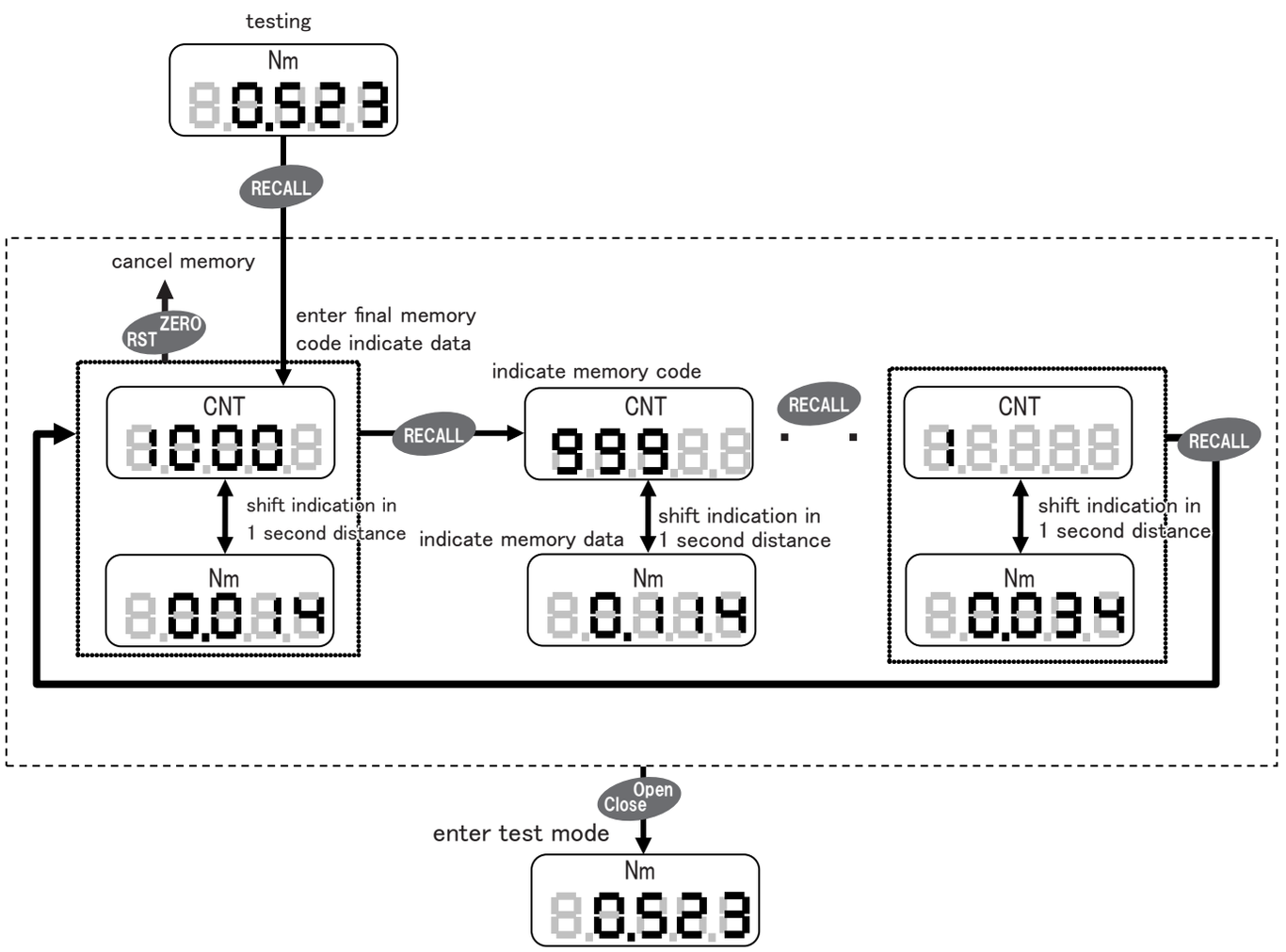


8.2 Memory indication

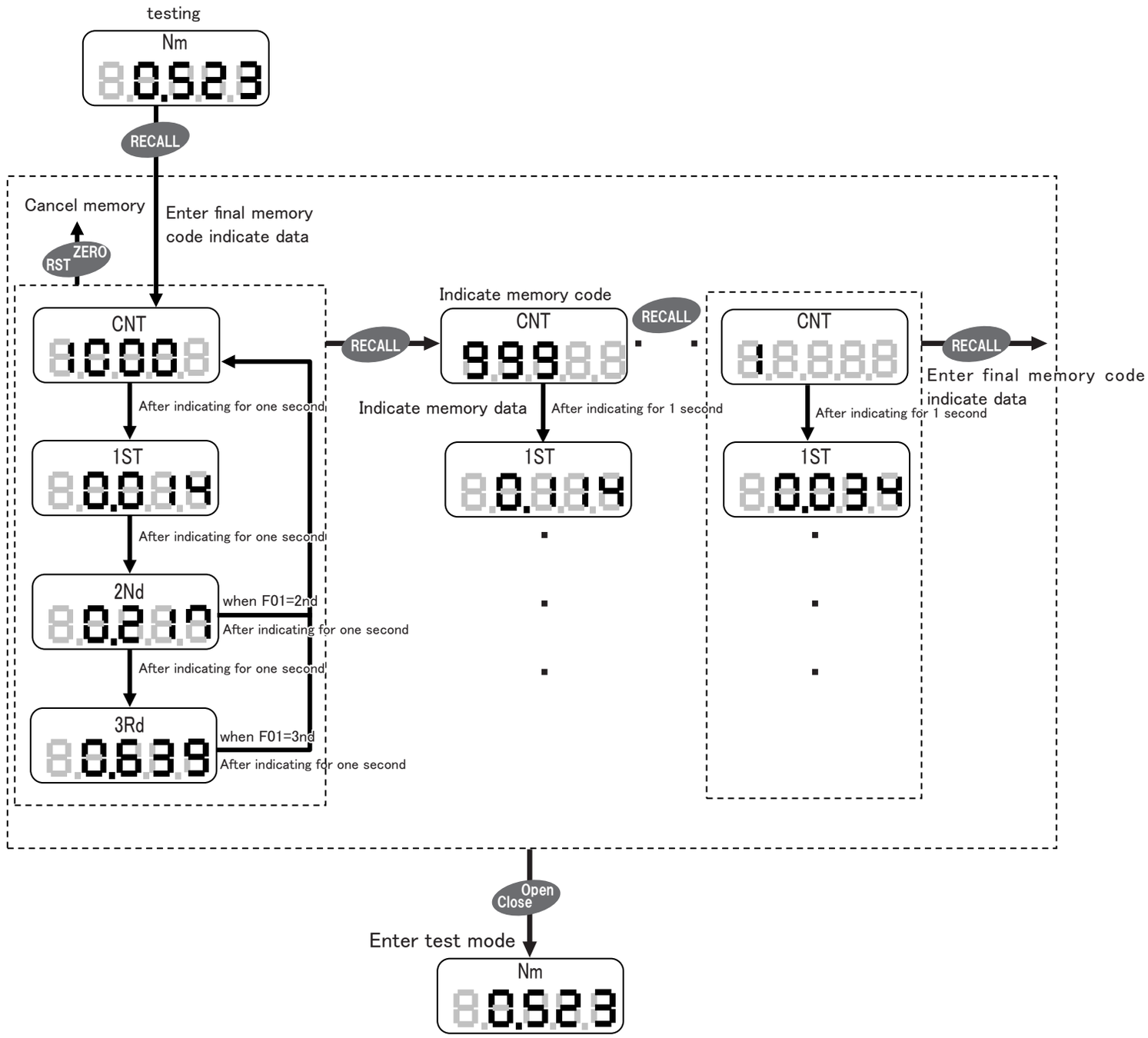
Memory indicate open test mode,then press RECALL key to enter memory indication mode.

Memory data of memory indication mode are finally indicated.

【When open 1st/close choosing】

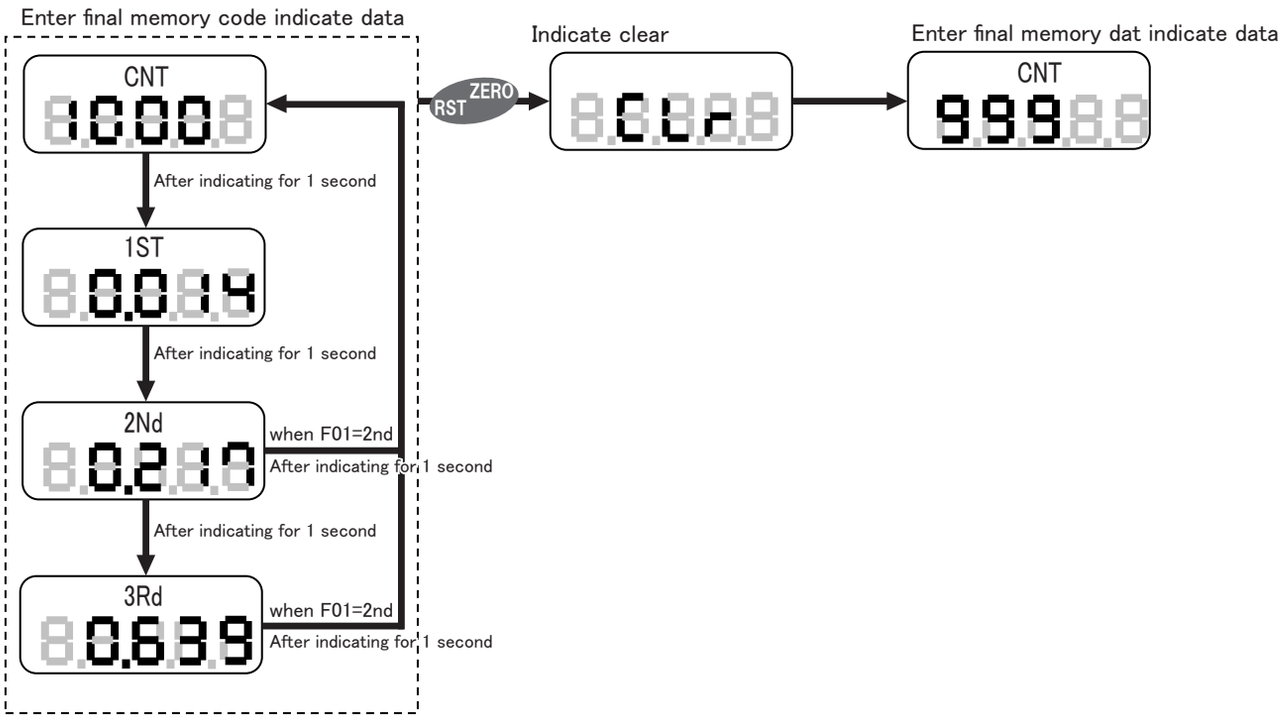


【When open 2nd/3nd choosing】

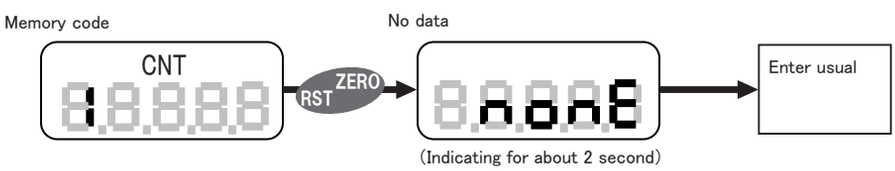


8.3 Cancel final data

When final code,deta indicating keep pressing ZERO/RST key to cancel Data of final memory code.

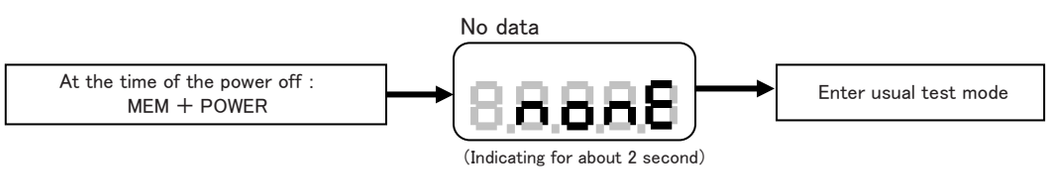


・Keep pressing ZERO/RST key to cancel final data in condition of only one data leftThen main display part"nonE"indicating for 2 secong and return to test mode.



8.4 Cancel all data（all memory data）

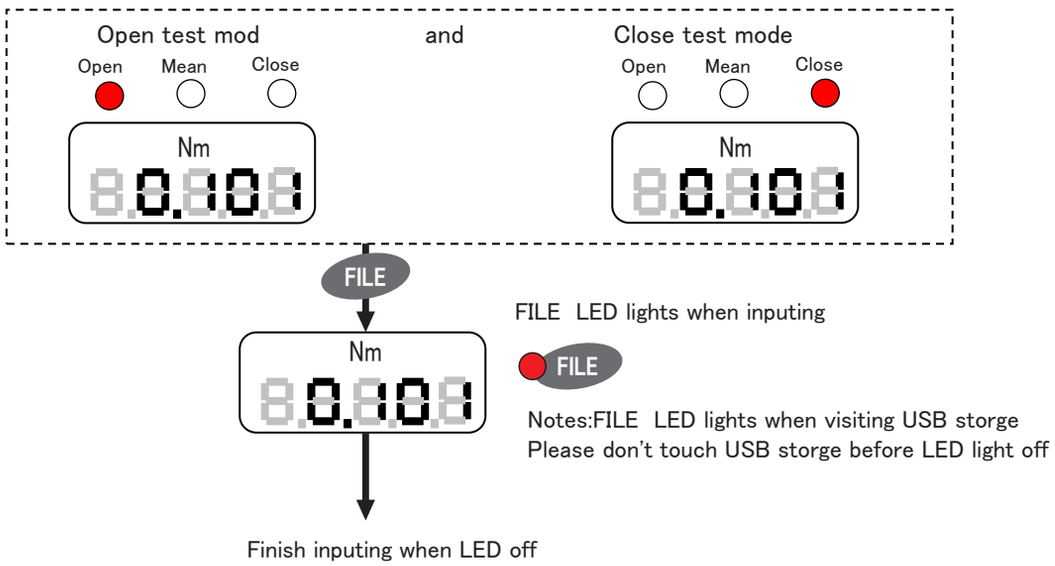
When the power is OFF,keep pressing MEM key and power key and power key ,then unclinch simultaneity. If keep pressing MEM ,the memory data of open test and close test are all canceled.



9.USB memory save

9.1Ways for saving USB memory

USB memory save is to save .Peal hold value inputed in memory and it statistical data by keep pressing FILE key when in open/close test mode. Besides,when saving in USB memory,determinating upper/lower limit by determinant upper /lower limit value setted and save the results. Accessoral USB memory of approriative connector for USB memory on right side of mainframe close test mode.



● Record positing of storge data saved
storge data recorded by CSV form in file SHIMPO of USB storge.

root directory
＋－－ SHIMPO ※ When there is no SHIMPO file in USB storge,it will recorded automatically.
＋－－ ********.CSV

● File name format
Record file name of storge data according to following provision .
$MMDD***.CSV

$: O（open storge data）、C（close storge data）
MM : month（01 ～ 12）
DD : day（01 ～ 31）
*** : continuous number : 001 ～ 999（As many as 999 pieces）

Code follow the max number of continuous month,day in SHIMPO file.

9.2 Noticing code saved in USB memory.

Sometimes indicate code in USB memory save.
After indicate code confirmation ,then pressing zero key to indicate clear.

Code	Meaning	Method management
U-10	No memory data save in USB memoring	Peak torque,please load memory.
U-11	Don't insert into USB memory	・Please insert USB memory . ・Please connect USB memory again. ・Please connect another USB memory.
U-12	No space in USB memory	・Please increase the capacity of USB memory
U-13	Fail to visit USB memory	・Please connect USB memory again Please insert another USB memory
U-14	Can't make file because there move all file in file SHIMPO to computer is file of continuous number 999 in file SHIMPO	・Move all file in file SHIMPO to computer

9.3 Memory Data File Format

oper(3rd)Memory Data

Open ← (1)
Date,Jul/18/2007 15:29:24 ← (2)
Model,TNX-5 ← (3)
Unit,Nm ← (4)
Data,10 ← (5)
Step,3rd ← (6)
Denominator for SD,N-1 ← (7)
,1st,2nd,3rd
Maximum,0.427,0.367,0.429 ← (8)
Minimum,0,0,0 ← (9)
Average,0.2047,0.1646,0.1839 ← (10)
Standard Deviation,0.1281,0.1187,0.1188 ← (11)
Difference,187.8,216.3,193.7 ← (12)
Upper Limit,0.1,0.2,0.3 ← (13)
Lower Limit,0.05,0.15,0.25 ← (14)
Number of High NG,8,4,1 ← (15)
Number of Low NG,1,4,8 ← (16)
Defective rate(%),90,80,90 ← (17)
No.,Date,Time,1st,,2nd,,3rd, ← (18)
※ 1,Jul/18/2007,15:28:10,L,0.015,O,0.175,H,0.355
2,Jul/18/2007,15:28:47,H,0.116,L,0.145,L,0.157 } ← (19)

(1)Measuring Mode:Open Memory Data(Open)Or Close Memory Data(CLOSE)
(2)Date:date of saving date in USB memory
(3)Model:TNX model
(4)Unit:torgue date unit
(5)Date number:number of torque date
(6)Open peak torgue:open peak torque(1st,2nd,and3rd)in case of measuring mode is open
(7)Standard deviation:installed denominator of standard deviation
(8)Max.value:max.value of torque date
(9)Min.valne:min.value of torque date
(10)Ave.value:ave.value of torque date
(11)Denominator of standard deviation:standard deviation of torque data
(12)Variation:variation of torque data
(13)Upper limit value:installed upper limit value(note)
(14)Lower limit value:installed lower limit valae(note)
(15)Upper limit NG:number of upper limit NG of torqne data(note)
(16)lower limit NG:number of lover limit NG of torque data(nate)
(17)Fraction dafective:fraction defective of torque data(note)
(18)Data contents:data contents of torque data
No:data number
Date:measuring date of torqne data
Time:measuring time of torqne data
1st:open 1st
2nd:open 2nd
3rd:open 3rd
data:close
(19)Measuring data:every comma,data contents in each measaring data
upper/lower limit result H:hi o:go l:lo

※ 1,Jul/18/2007,15:28:10,L,0.015,0,0.175,H,0.355

- No.
- month/date/year
- hour/minute/second
- 1st upper/lower valae torque data
- 2nd upper/lower valae torque data
- 3rd upper/lower valae torque data

(note)only upper/lower value is effective

Denominator of standard deviation,variation,and fraction defective are calculated as follows.

● In case of N-1

denominator of standard= $\sqrt{\frac{\sum(Xi-\text{ave.value})^2}{N-1}}$

ave.value= ΣXi/N
Xi =measuring data N=memory data number

● n case of N

denominator of standard= $\sqrt{\frac{\sum(Xi-\text{ave.value})^2}{N}}$

ave.value= ΣXi/N
Xi =measuring data N=memory data number

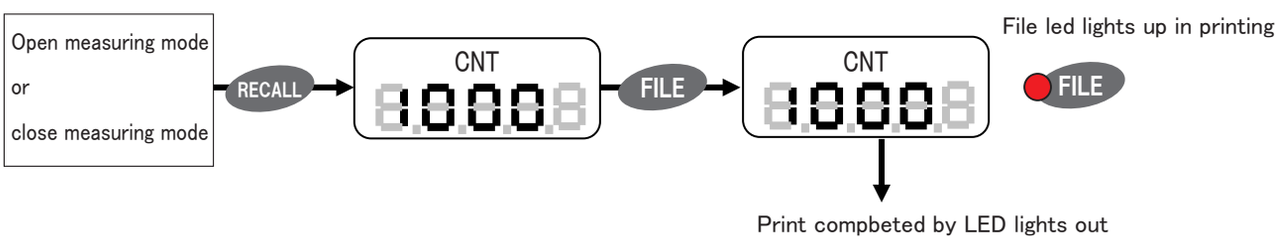
variationr= （denominator of standard × 3/ave.value） × 100

fraction defectiver= （upper limit NG number ＋ lower limit NG number） /N × 100 N =memory data number

10.Printing

10.1 Print for statistic data

Set function f06 into print prior to printing.(11.refer to function setting)
connect option printer with outer connector of back side of body



10.2 Pringting example and printing format

Open(3rd)memory data

```
********** OPEN  DATA **********
UNIT    : N.m
DATA    :   1000
MAX     :   9.98    9.98    9.98
MIN     :   0.00    0.00    0.00
AVE     :  4.985   4.985   4.985
DEV     :  2.888   2.888   2.888
DEN     : n-1
DIS     :  173.8   173.8   173.8
HI LMT  :   1.00    2.00    3.00
LO LMT  :   0.50    1.50    2.50
OVER    :    898     798     698
UNDER   :     51     151     251
ERR%    :   94.9    94.9    94.9
 No.        1st     2nd     3rd
   1    L  0.00 L  0.00 L  0.00
   2    L  0.01 L  0.01 L  0.01
   3    L  0.02 L  0.02 L  0.02
```

measuring unit
data number
max.value
min.value
ave.value
stardard deviation
denomination of standard deviation
variation
upper limit value ※
lower limit value ※
over upper limit number data ※
over lower limit number ※
fraction defective ※

Close memory data

```
********** CLOSE DATA **********
UNIT    : N.m
DATA    :     14
MAX     :   3.55
MIN     :   0.99
AVE     :  2.779
DEV     :  0.617
DEN     : n-1
DIS     :   66.6
HI LMT  :   4.00
LO LMT  :   3.50
OVER    :      0
UNDER   :     13
ERR%    :   92.9
 No.        Data
   1    L  0.99
   2    L  2.39
   3    L  2.68
```

data
upper/lower limit result data number ※
h:hi empty:go l:lo
2nd:2lines
3rd:3 lines
data number

※ : Only when a high and low test is effective.

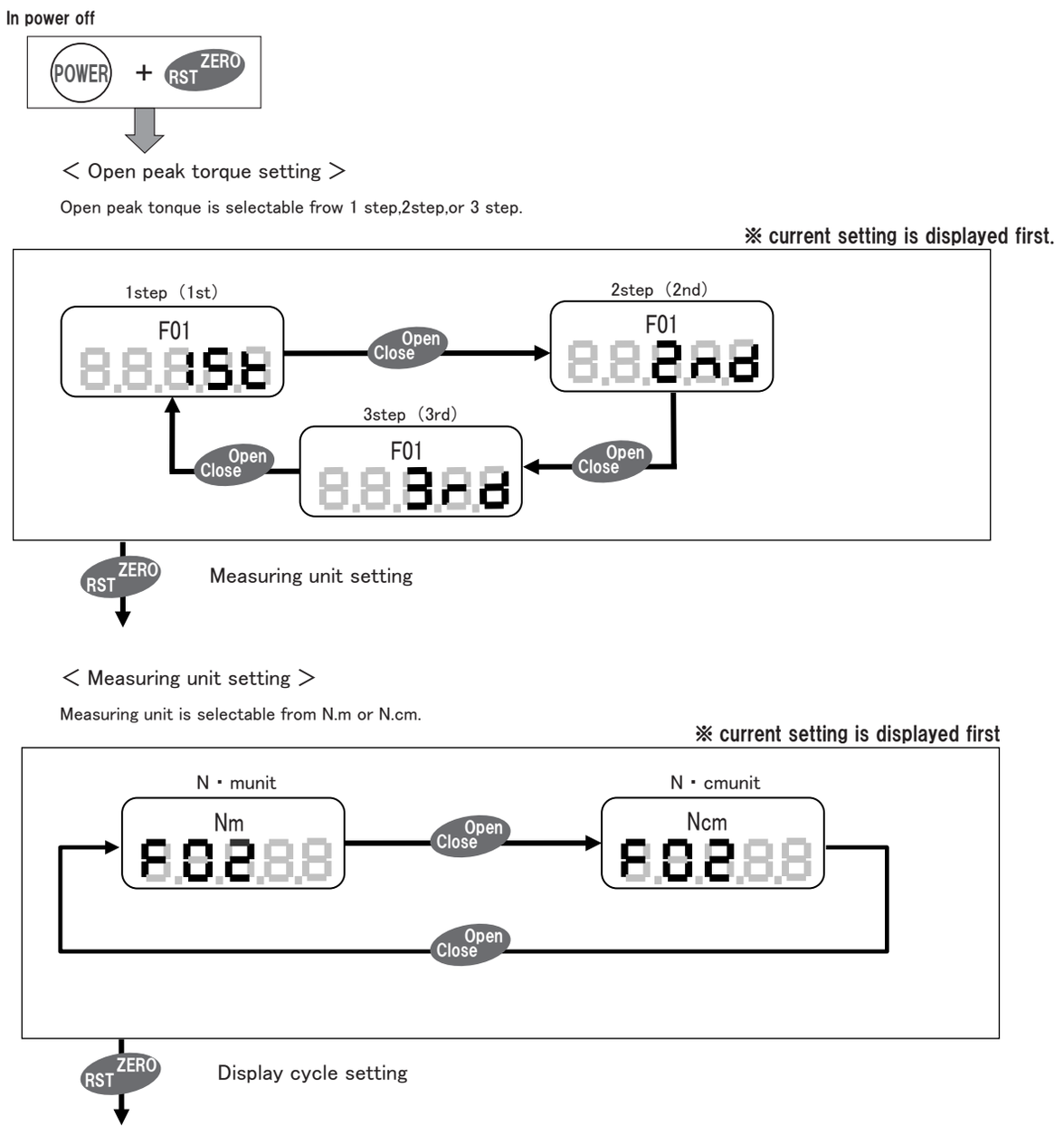
11.Function setting

11.1 Function mode

Function modes are as follows

Item	Sub display	Setting conterds	Initial setting
Open peak torque	F01	1st、2nd、3rd change	1st
Measuring unit	F02	N・m、N・cm change	N・m
Display cycle	F03	1、2、4、8minites change	2
A/Dfelter	F04	3、20、150 change	3
Auto powerOFF	F05	OFF、ON (10minites) change	ON
Select of communication device	F06	PC、Print change	PC
Change of outside output	F07	ovEr、Hi-Lo change	ovEr
Denomination of standard deviation	F08	N-1、N change	N-1

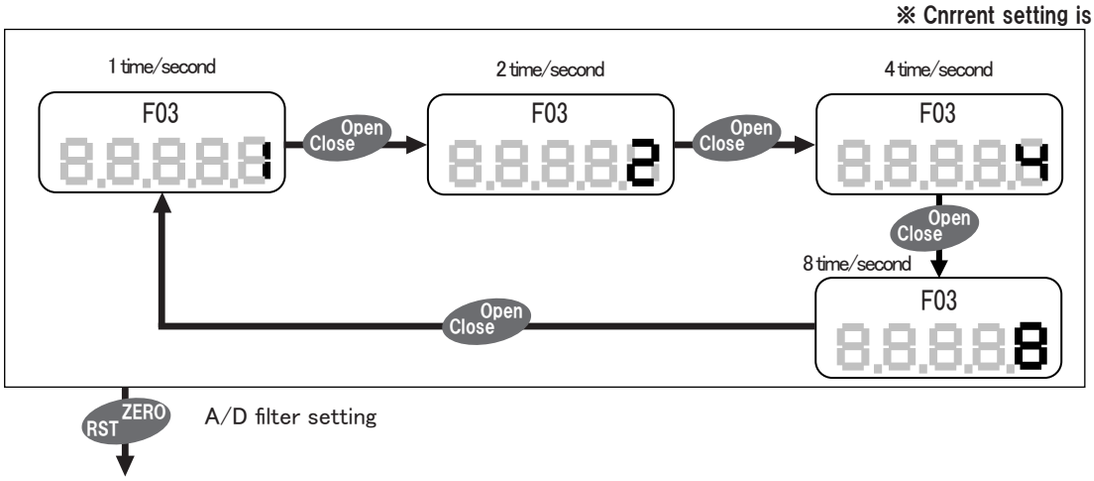
11.2 Operation



＜ Display cycle setting ＞

In measuring mode display cycle is selectable from 1 time/second,2times/second,4 times/second,or 8 times/second.

※ Cnrrent setting is displayed first

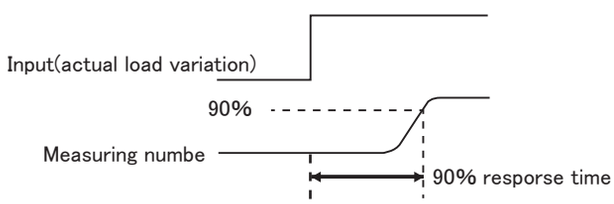


ZERO RST A/D filter setting

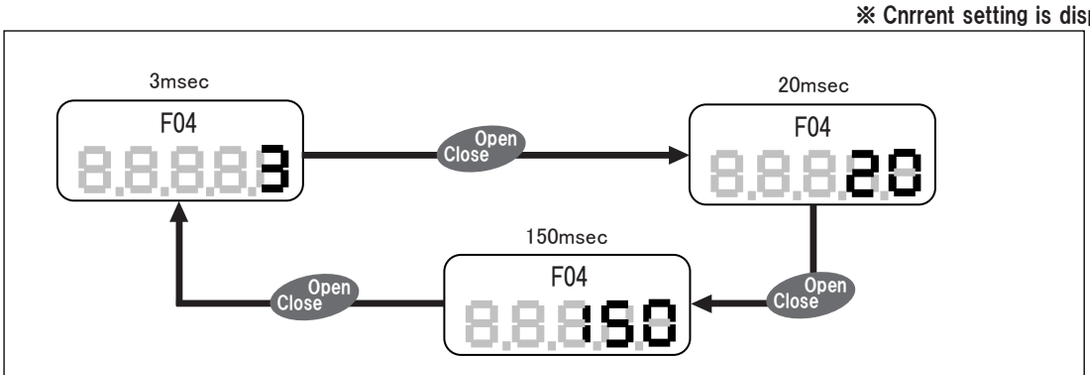
＜ A/D filter setting ＞

Sampling cycle are as follows depending on filter response time

Filter response time	Sampling cycle
3msec	1000numbers/second
20msec	1000numbers/second
150msec	150numbers/second



※ Cnrrent setting is displayed first

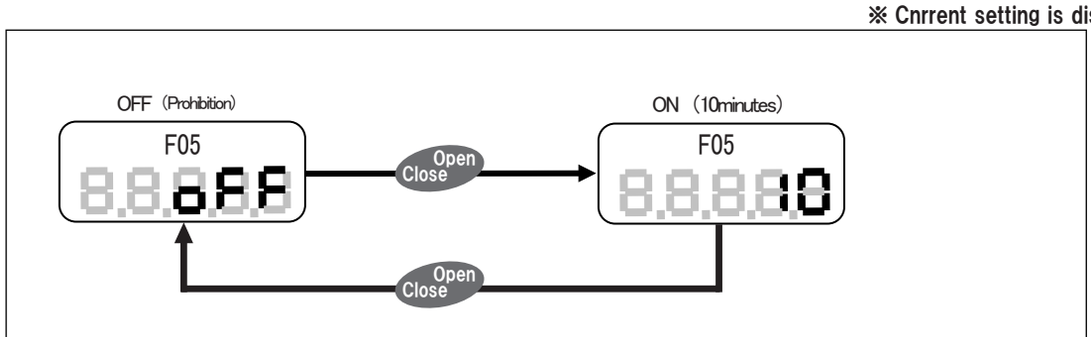


ZERO RST Auto power off setting

＜ Auto power off setting ＞

When auto power off is effictive on power on in use of battery,power becomes off automatically after 10 minutes no operation.
*No operation of key touch,outside communication,current setting is displayed first.
and USB communication.　Teme can not be changed from 10 minutes.

※ Cnrrent setting is displayed first

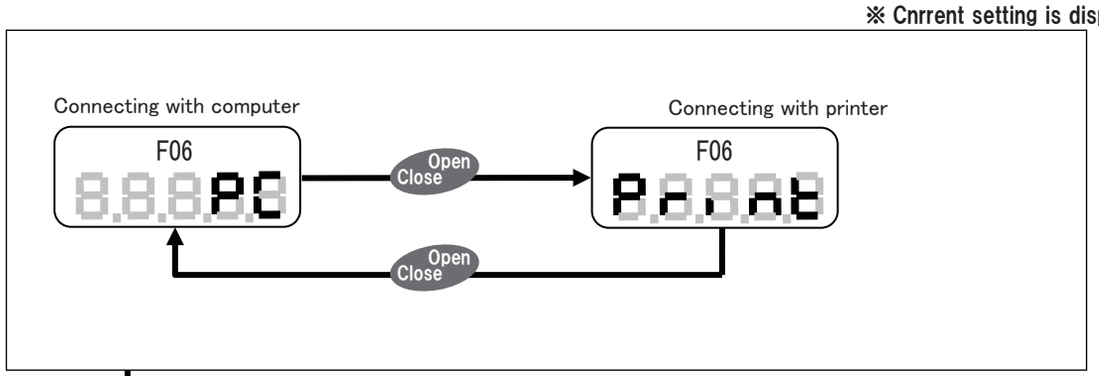


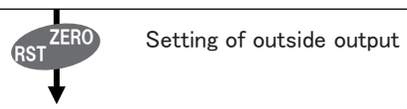
ZERO RST Select of communication device

＜ Communication device sitting ＞

Set it connect voith printer or compnter

※ Cnrrent setting is displayed first



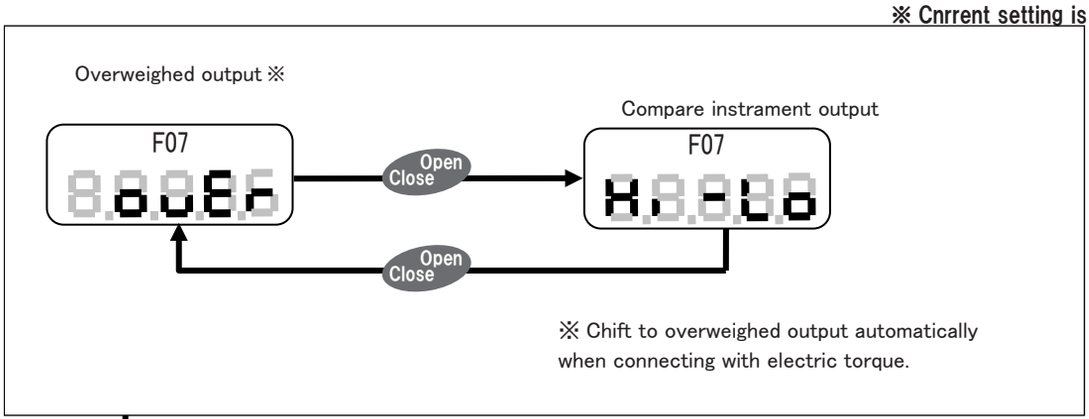


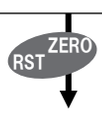
Setting of outside output

＜ Setting of outside output ＞

Set the single of ouerweighed ortput,outside output or ortside output of compare instrument.

※ Cnrrent setting is displayed first



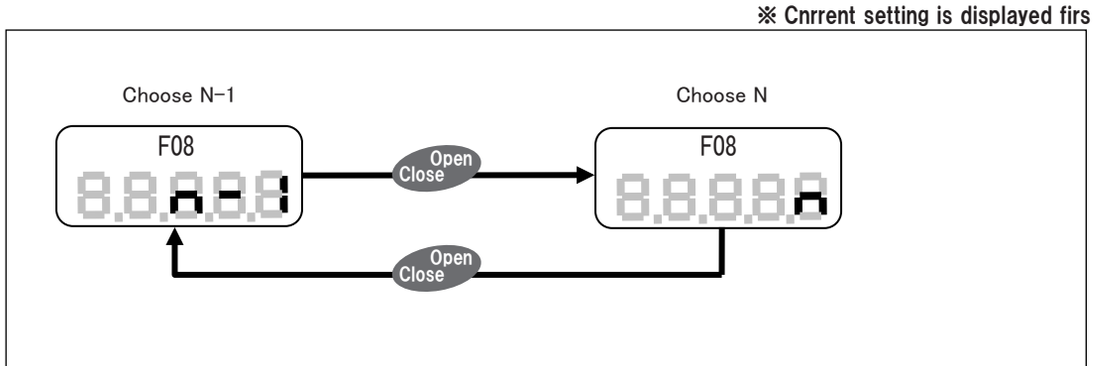


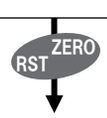
Denominator of standard deviation

＜ Denominator of standard deviation ＞

When calculating standard deviation,you can set denominator from N−1,N.

※ Cnrrent setting is displayed firs



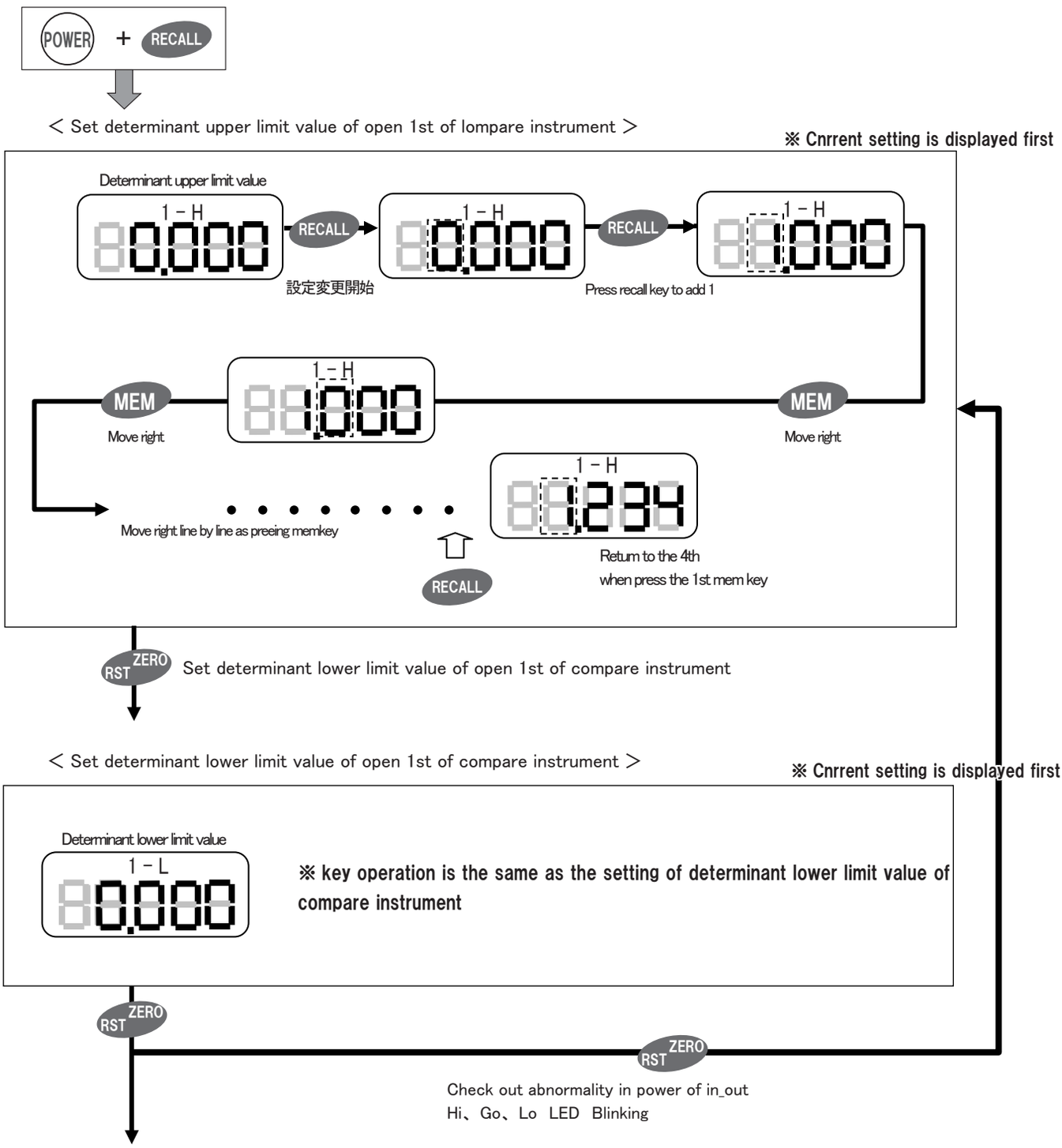


Set land,test mode

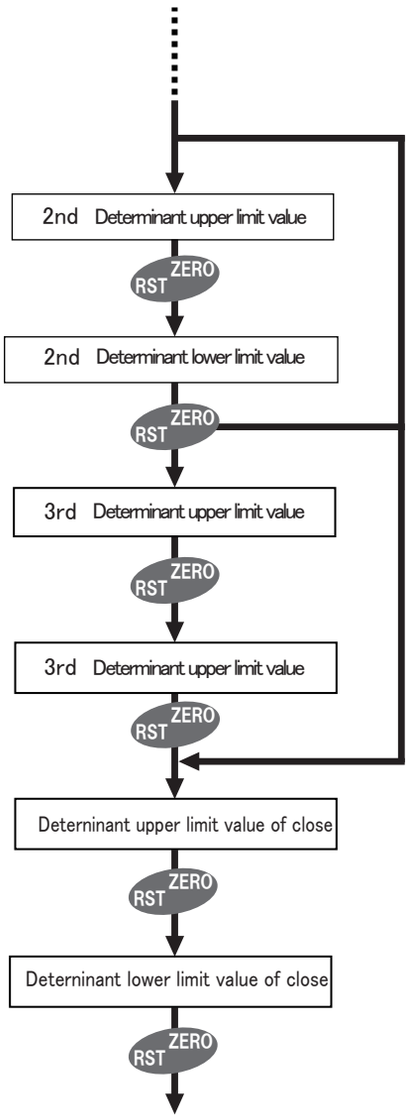
12. Set determinant upper/lower limit value12.1

Setting operation of determinant upper/lower limit value.

Set daterminant upper/lower limit value on 4 lines that no singles,then decide decimal point.According to unit and type.
Choose 0,2,3,4...9 according through pressing recau key on 1~4 lines(press relall key to return o when 9)
move right by pressing mem key
Expless the location of choosing unit decimae point
Set the determinate lower limit value of compare instrument by pressing o key.
Please set deternuiant upper limit value>determinant lower limit value.
When determinant upper limit valne<deterninant lower limit value,lights of Hi,go,lo shine.press open/close key
to determinant upper limit value.



Please set throngh press the key as set determinant upper limit value of 1st.
return to the setting of determinant upper limit value as check out abnormality in power of in_out.



When F01=1sth,set towards to deterninant upper limit value of close.

When F01=2nd,set towards to deterninant upper limit value of close.

12.2 Output the result of determination of compare initrument

Compare the test value(LCD indicating value)with the setting value of determinant upper limit input
the result of compare instrument according to the.....outside.
test value>set vakye if uppe limit value,output of compare instrument is ON.
test value<set valre of lower limit value,output of compare instrument is ON.
when the setting mode of instrument is shifting output,you have to set "Hi_Lo",so as to confim the effect of compart instrument.

13. Acquirement of data

13.1 USB commuricating function

Connect the senior function digital tester to computer with accessorial USB wires,then communicating data with computer.
(Please install the tied software on the leftside of lomputer.)

13.2 Characteristic of digitorg_TNX

Bbecans of digitorg TNX ,advertising sofware of exced,you can get the test data of senier
function data and store data from excel directly.
※ Excel は米国 MicrosoftCorporation の登録商標です。

13.3 Sequence of loaddowning the softwant.

Please search on our web,then loaddown,and land.
Double click the fice after loaddown finished.Then you can get a PDF fice″digitorg_tnx instrument mannul.Sequence for install the software,function instrument,operatiors,please refer to the contents.

13.4 Notes for using USB

Please don't connect USB wire without operatting for long time.
The battery will soon run out while connecting USB wires without operating it,even .
When the efficiency of the senior funtion digitad tester is OFF.

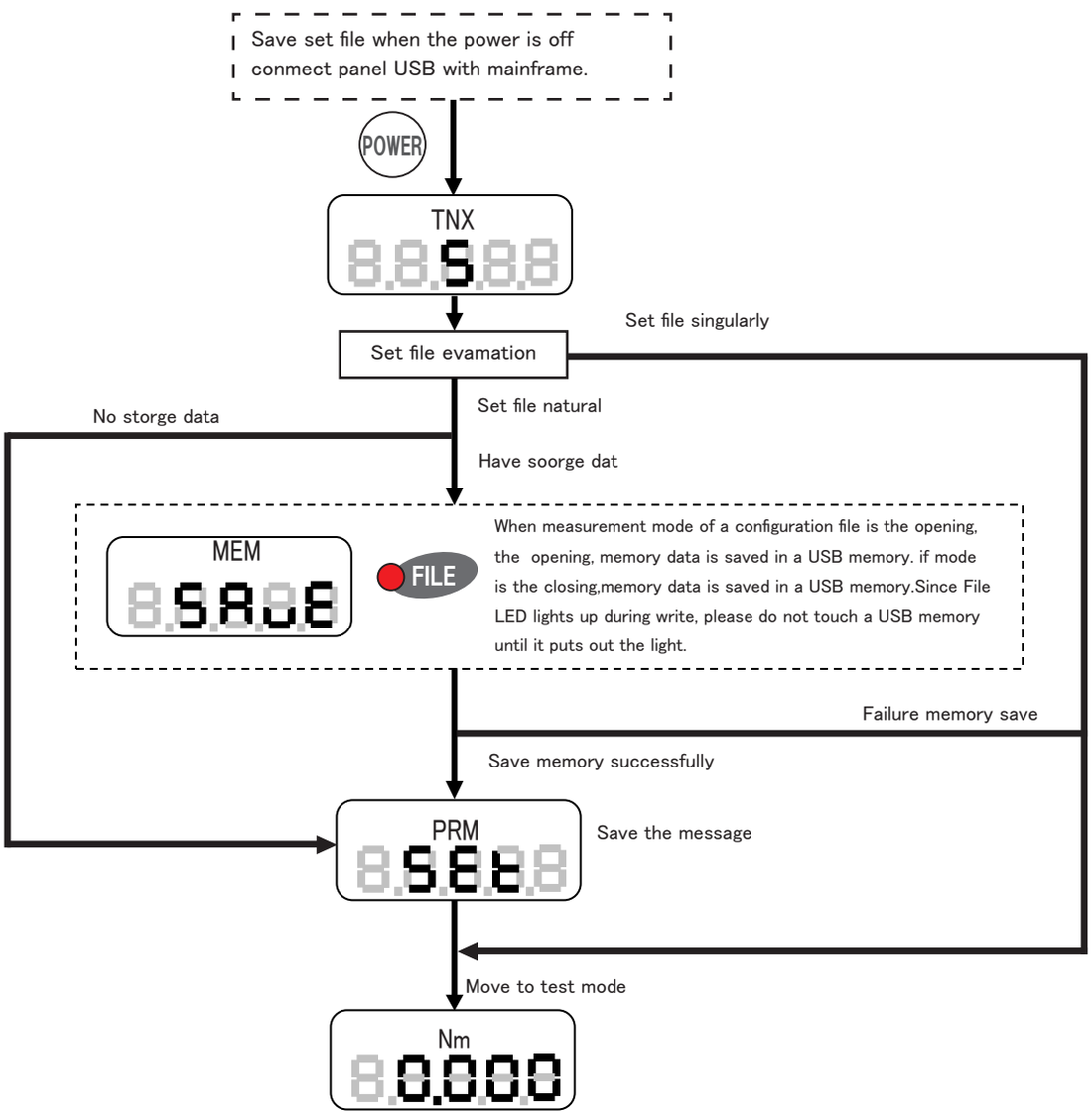
14. Convenient funltion

14.1 load the file set

Digitorq_TNX can make file ard load from Upanel whele save to TNX.

Set file indude message of deterninant upper/lower linmit value,peak torque of open/close and(open/close)test mode.

It can operate outmatically when comect with power sourle.If panel Uis conmected with mairframe.And if these is memery archives of test mode in set file,the archives will sewe in panel U automatically ard then concd.

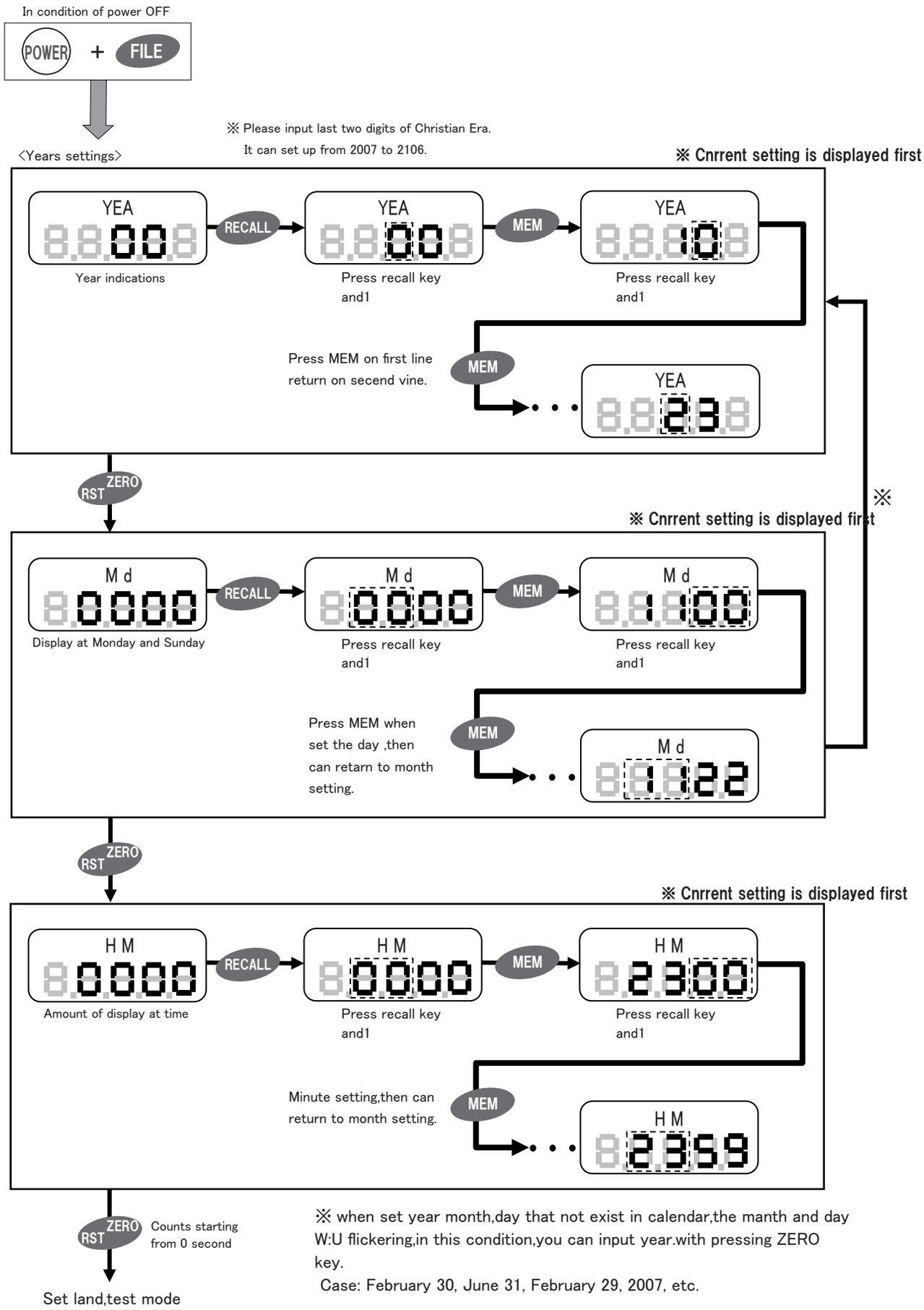


14.2 Warning symbol of parameter setting

It appears fouowing symbol in parameter setting.in this condition,setting file can't be saved in TNX.
Confirm the contents indicated by symbol,then press ZERO to cancel.

Code	Meaning	Action method
U-12	No enough spale in pend USB	Increase the space of parel USB
U-13	Fail to visit panel USB	Connect panel USB again ・Please connect another USB memory.
U-14	Check out file 999 in file SHIMPO,so can't make file	・Please move all the files in a SHIMPO folder to a PC.
U-20	Type of unit is not coordinate with mainframe Examine parameter singlnar	Resert the file allording to the unit type of digitorq_TNX

15.Operation of time setting

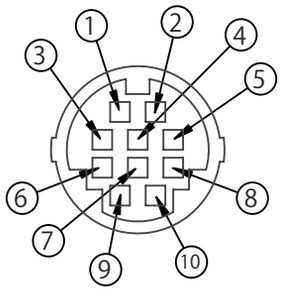


※ when set year month,day that not exist in calendar,the manth and day W:U flickering,in this condition,you can input year.with pressing ZERO key.

Case: February 30, June 31, February 29, 2007, etc.

16. Extrnal linker

16.1 Distribution of pin



・Cable (optional) 2m only for a printer in length

Pin number	Signal names
①	N/A ※ 1
②	N/A ※ 1
③	RxD （RS-232Creceive data） printer → mauirframe
④	Digital GND
⑤	testing connection
⑥	TxD （RS-232CTransmission data ） mauirframe → printer
⑦	RTS(RS-232Cmessage requirement) printer → mauirframe
⑧	Open overload /Comparator maximum outputs ※ 2
⑨	Close overload /Comparator Lower outputs ※ 2
⑩	Overload/Commons of comparator outputs

※ 1 please don't connect pin ①、②
※ 2 exceeding output/you can set shift of compare instrument with the shift of functian output.

16.2 Exceeding output compare instrument output start up exceeding output and compare instnment

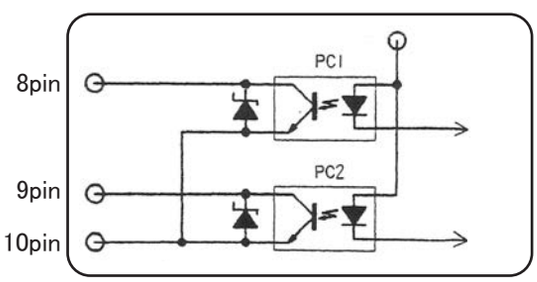
Overload or comparator output is performed.
(Exceeding output/set shift of lowpare instrument with the shift of fumction output.)

● I/F Circuit diagrain

The full open overload
/Comparator maximum outputs

Close overload
/Comparator Lower outputs

Overload
/Commons of comparator outputs



MAX capacity Voltages DC30V ／ Current 5mA

Please don't insert the power with exceeding,the max capaity.

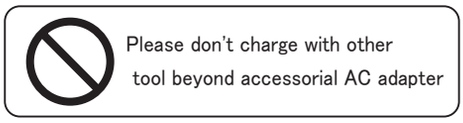
● Overload output

It will send signal when the mainframe is overcharge.so connect with the alarm cam protect the mainframe.
if operating overcharge in open direction,the photovoltaic coupling of PCI will enit current.The same with PC2 when in close direction.
rated torqne output about 120% actually.(not include O setting positive value)

● Overload output

When upper limit output of compare instrument is ON,the photovoltoic coupling of PC1 will emit current.
when lower limit output of compars instrament is ON,the photololtoic coupling of PC2 will emit current.
about details of compare instrument function,please refer to"setting operation of determinant upper limit value"
(setting method and determinant conditions of deterninant upper/lower limit value of compare instrument)

17.Exceptant



It will lead to short cirucit if connected with other tool,even arises five.

When the customer arrive near the ferronickel battery,it will discharge possibly.so please charge by AC adapter.

Connect HC adapter with its inward linker.insert socket of AC 100v.
begain to charge from socket 100V as AC adapter connected.
Concealing ferronickel battery starts to charge.
Charrge will stop automatically as the charge is fimshed.
Indicate BAT when charging.NOT indicate as it fimshed.
Charging time:at most 10 hours .Using time:8 hours for 1 time charge.
Concealing ferronickel battery will discharge outomatically when AC adapter is working.and charge outomatically when it's short.
If charge.continually,the life of ferronickel battery.
Will be shorted.so don't pull out AC adapter when it's working,so as to stave the life.
Can testing while charging
Mark"LO BAT"will flickering.when voltage of ferronickl.
Battery is not enough.now please charge.
When lo BAT is light and the voltage of batlery is low,the LCD will indicate"PWR".It'u twrn off the power compellent in about 1 minute.

18. Support

18.1 Repair.Emendation

We support service with recmpense.reward work that for keeping the definition of tester regularly.about fare and term,please ask the selley.Then about the requiriment of repair,please refer to the guaranty added to product.

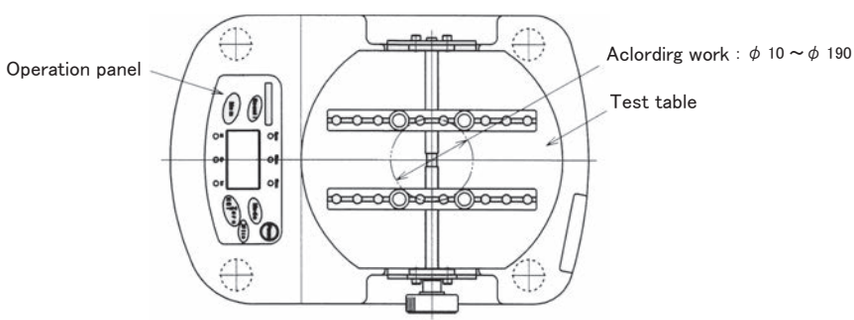
18.2 Pledge

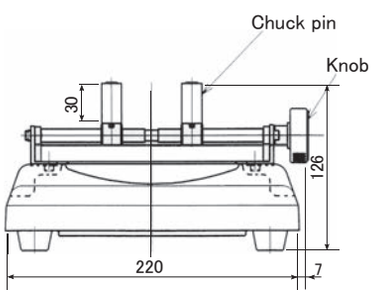
Please conftrm the assuring contents is added by product guaranty.

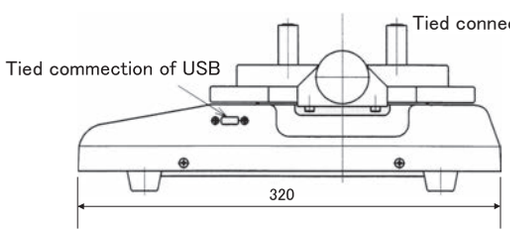
19.Specification

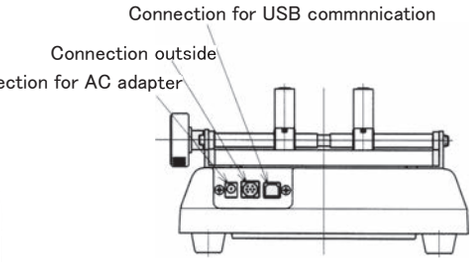
Model		TNX-2	TNX-5	TNX-10
Measuring torque		2N・m	5N・m	10N・m
Measuring range		0.000 ～± 2.000N・m	0.000 ～± 5.000N・m	0.00 ～± 10.00N・m
Measuring unit		N・m,N・cm exchange		
Display range		0.000 ～± 2.000N・m	0.000 ～± 5.000N・m	0.00 ～± 10.00N・m
		0.0 ～± 200.0N・cm	0.0 ～± 500.0N・cm	0 ～± 1000N・cm
Display resolution		0.001N・m		0.01N・m
		0.1N・cm		1N・cm
Indicate distingush rate		Chuck range : ϕ 10 ～ ϕ 190mm Max quality:under 5kg when barycenter of tester is not reach the barycenter of table.		
Display	Main display	4-digit LCD display Character height 12mm		
	Sub display	3-digit LCD display Character height 7mm		
	Judgment LED	Judgment LED(HI,GO,LO)		
Accuracy		± 0.5%/F.S		
Measuring mode		Open mode,Close mode,Average mode		
Display cycle		In arerage mode,can choose 8t/s,4t/s,2t/s,1t/s.		
		Open/close mode:certoun 8t/s		
Memory	Memory	Open peak test:set 1,2,3		
	Memory data num.	1000data		
	Statistic process	Average.max,min.standard deviation,test value.distrubte irregularly.		
Judgment function		Peak value of open 1st,2nd,3rd and the posibility of close...deter mination.		
		Use deterninant LED to indicate determinant resnlt.		
Clock functien		There is year.month.dan saved in torque data.		
Data output	USB ommuincation	USB1.1 load the data by tied software		
	printer	Use printer adapttd to rs232c to print storge data. Suggest compatible printer.		
	USB memory	Transfer the data of panel U and storge.		
Output outside		Molectron output,exceeding output and displace compare instrument output.		
Dilation function		Exleeding output/compare instrament output		
Accessories		USB wires.AC adapter.panel U.pin with lock(4)		
Power		Built in nickel hydride battery or AC adapter		
Dimensions(mm)		320 × 227 × 126		
Weight		8 kg		12.5 kg
Usage environment		0 ～ 40℃		

20.Dimensions (mm)









MEMO

NIDEC DRIVE TECHNOLOGY CORPORATION

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NIDEC DRIVE TECHNOLOGY CORPORATION

NIDEC SHIMPO CORPORATION change its company name to NIDEC DRIVE TECHNOLOGY CORPORATION on April 1, 2023.