Various field needs including visibility, operability, expandability, and space saving are provided

Large LED featuring high visibility

Large size 7 segmented LEDs are used for the display panel.Ok and NG are indicated in an understandable way with green and red respectively.

OK indication

NG indication

USB Flash drive

- Export Tightening result file
- Export/Inport program file

Centralized wiring on the bottom face

I/O terminals are concentrated on the bottom face to help package the wiring and save the space.

Connector for the tool cable
The system is automatically recognized when the tool is connected.

Connector for the AC power supply
Connector for AC100V and AC200V power supply cables.

Network connector
Used to control the multi spindle unit.

Earth leakage breaker for the main power supply
The earth leakage breaker conforming to various international standards.

RELAY/EXT IN
Relay output for control, Connector for non voltage contact input

ETHERNET connector
RJ45 connector to connect with ETHERNET.

CHK CN1
Connector for monitor output.

CHK CN2
Connector for monitor output.

Port to connect a fieldbus
CC-Link, Profibus, DeviceNet or Ethernet/IP can be selected as the option.

RS-232C connector (COM1)
Connects management software or a bar code reader.

Control Remote I/O connector
Remote I/O connector for control as the option.

PANEL
RS422 to connect with the universal touch type panel.

Control I/O signal connector (Parallel port)

24VDC power sourse output connector

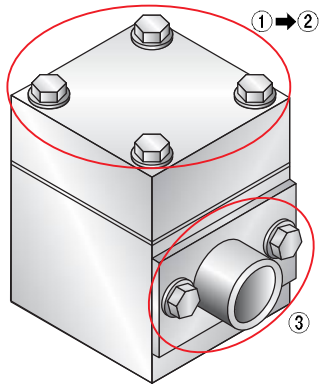
Basic specifications for the controller

■ Fastening methods	:	Torque method, torque with angle monitoring method, angle method, torque or angle method, torque and angle method and reverse motion angle control method
■ Fastening mode	:	Selection (Pulse mode only for EH2-P1050-P) between the direct mode (direct force fastening) and pulse mode (reaction reduction fastening)
■ No. of the fastening channel setting	:	Max. 99 channels
■ Fastening result record	:	Max. 33,000 records (free allocation default data)
■ Torque curve history	:	Max. 30 records (Fastening OK: 20 records & fastening NG: 10 records)
■ Ethernet	:	Connection with ETHERNET to connect management software in high speed at a remote location With the use of special protocol it is possible to monitor, control, and collect the resultant data of fastening.
■ FieldBus	:	Compatible with the general Filedbus of Profibus, DeviceNet, CC-Link, and EtherNet/IP with the optional interface cards mounted. Fastening is controlled and the results are output by I/O. The word format data such as torque can be sent by allocating it to I/O.
■ Remote I/O & PIO	:	As the option. According to user requirement, Adding these options for necessary environment.
■ Memory	:	Program/system parameter, Allocation of I/O, fastening Results, Fastening Result History, System Error History(FLASH-ROM Back-up) Torque Curve History(Battery Back-up) Parameter in USB memory.
■ Statistical function	:	Compatible with QS-9000 statistical process control
■ Batch counter function	:	nx OK and nx NG output
■ External touch panel	:	The torque values and number of fastening operations can be displayed on the touch type panel and also jobs and the channels can be changed on the touch type panel. As the display screen can be designed by users, necessary and appropriate human-machine interfaces can be constructed.

Versatile functions are included to further enhance efficiency in fastening

Job control function

A convenient function to permit the integrated control in the various torque fastening operation. The max. 99 jobs can be controlled with the function. All of the channels and fastening operations can be programmed with a maximum of 30 steps per job.



For instance, when 4 locations must be temporarily and then fully fastened with gaskets installed at the 4 locations, and then parts to be installed at two locations

■ Operation flow

- Operation start
- ① CH1 temporary fastening with 20N-m at 4 locations
- ② CH2 full fastening with 40N-m at the 4 locations
- ③ CH3 fastening with 18N-m at 2 locations
- End of the operation

A series of steps is programmed as a JOB parameter in the job control function so that you may execute a job by designating the job number and the job end may be informed with the JOB OK output message.

■ Job control function

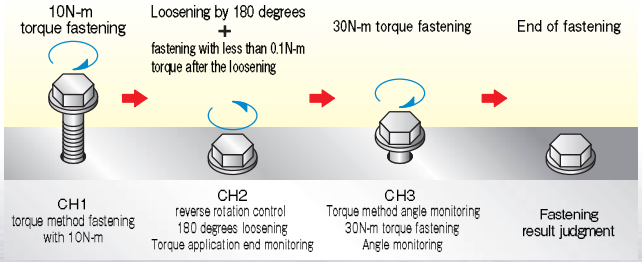
Designation of Job numbers

Job 1		
Steps	CH(channels)	No. of operations
1	CH1	4
2	CH2	4
3	CH3	2

Job OK

Multi channels

Tightening, loosening, and retightening are necessary to detect the fitting or cross-thread condition in the bolt fastening operation. You can avoid the troublesome channel change operation and simply carry out the fastening in continuity by continuously defining the necessary fastening channels as one multi channel system.



Multi channel No. designation

MC 1	
STAGE	CH(channels)
1	1
2	2
3	3

Fastening result OK

The maximum 99 channels including the multi channels and normal channels can be set. The set multi channels can perform as one CH in the job control function.

High speed seating function

When fastening a screw at high rotation speed with a low target torque, the servo motor cannot stop promptly. This creates excess torque (overshoot), causing the fastening torque to be uneven and the workpiece to be damaged. As a solution to this, Handy2000 Lite employs overshoot reduction software to make your fastening faster and more secure.

Screen showing the management program

Simplified PLC functions

A simplified sequence control function with AND, OR, and timer control is equipped. Logic programs can be set to select the ON lamps or set off a buzzer for a certain length of time depending on the fastening result of OK or NG.

Free allocation function

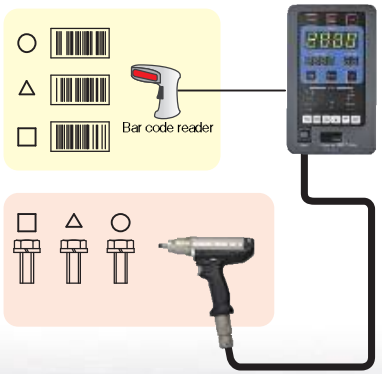
The fastening result data stored in the controller and outputted on the external unit after every fastening can be freely selected. The function to select only necessary items can make the data size smaller.
The control signals for the system control connectors (PIO), remote I/O, relay output, and no voltage contact input can also be freely allocated.

Multi-spindle function

A maximum of 10 spindles can be operated for synchronous fastening without the help of external controls.
The synchronous fastening allows for shorter operating times.

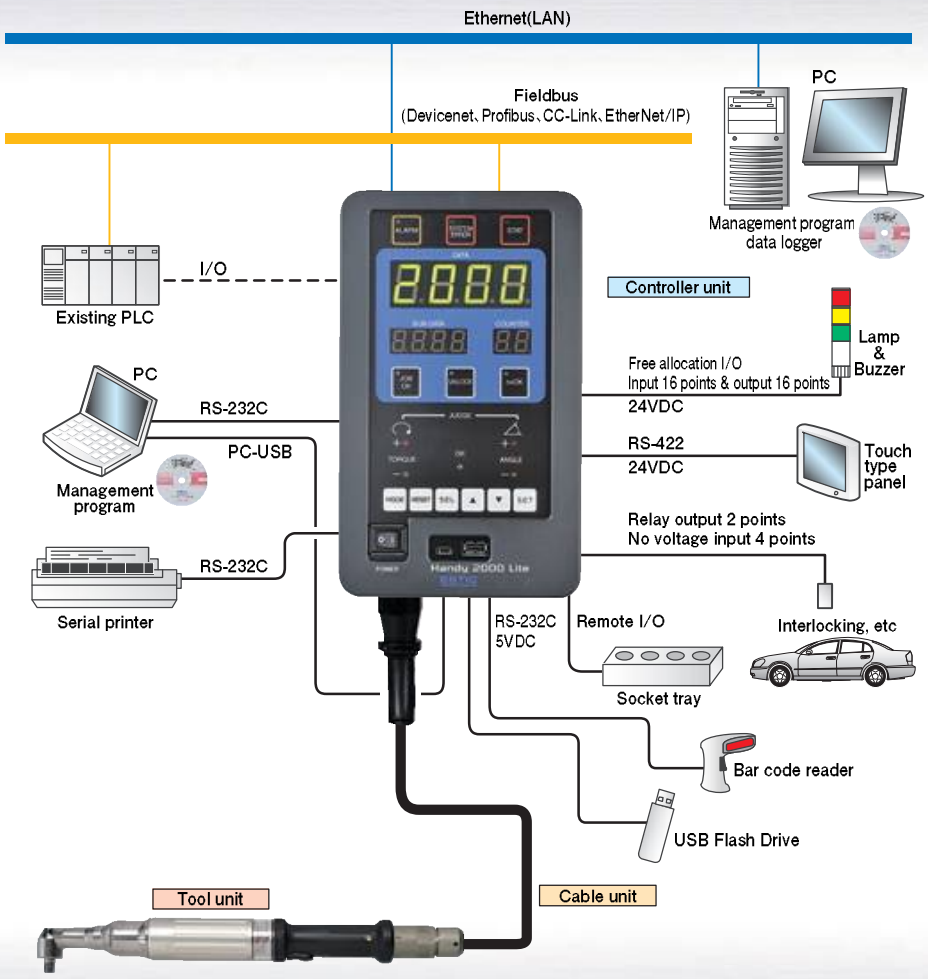
Compatible with bar code readers

A bar code reader can be directly connected with the controller. The loaded data can be reflected in the fastening result. The fastening channel and job can be changed based on the loaded data when the identifier function is in use.



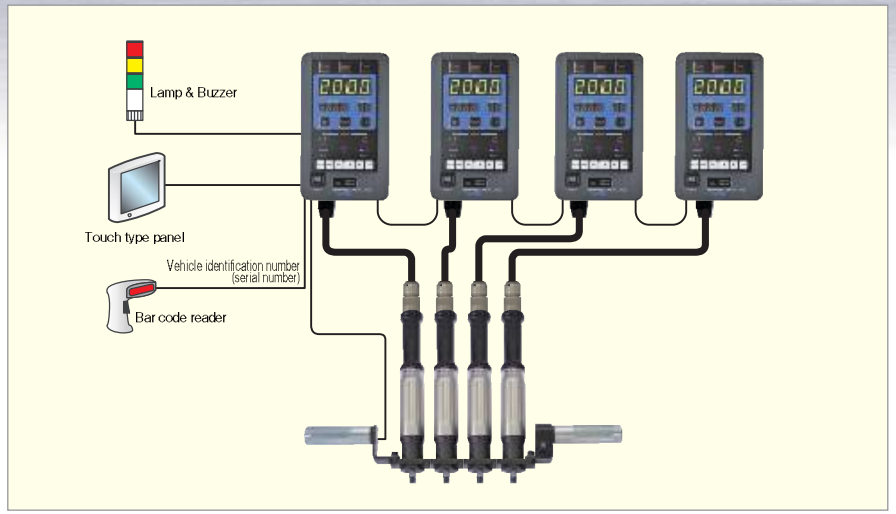
By reading bar codes
- Storage/transmission of vehicle number + fastening data
- Change of the model and operation to be carried out

Controller (system block diagram)



Multi spindle connection

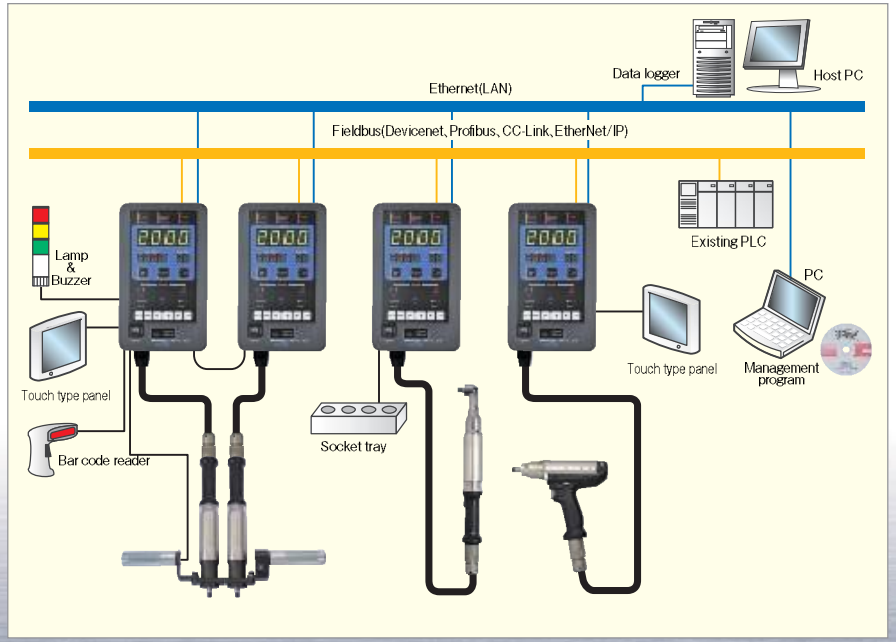
Channels can be freely selected depending on the vehicle identification number.The fastening condition is set on the master controller and sent to the local controllers via NET cables for each fastening.



Expanding network connection

The fastening results for up to 50 units* can be compiled via the hub unit on ETHERNET. This wire saving connection can be used for the channel setting and interlocking from the outside with the use of FieldBus.

* Variable depending on the network structure.

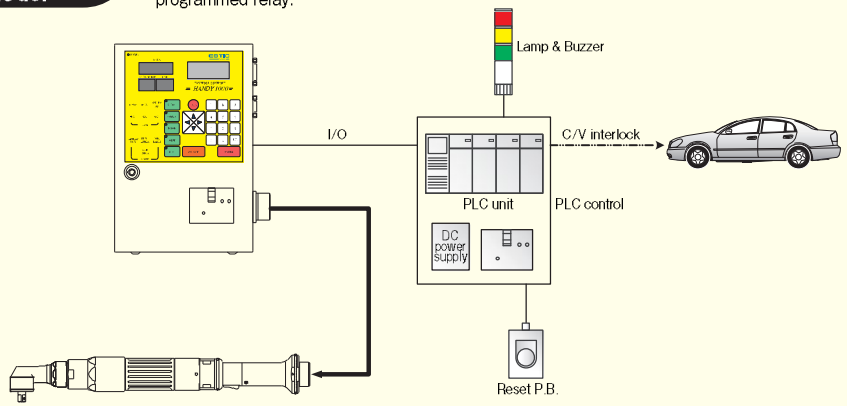


Peripheral units required in the past are not necessary
Low cost and space saving system can be configured

Lamp & Buzzer control

Conventional model

The lamp and buzzer are controlled with OK and NG signals sent from the controller via programmed relay.



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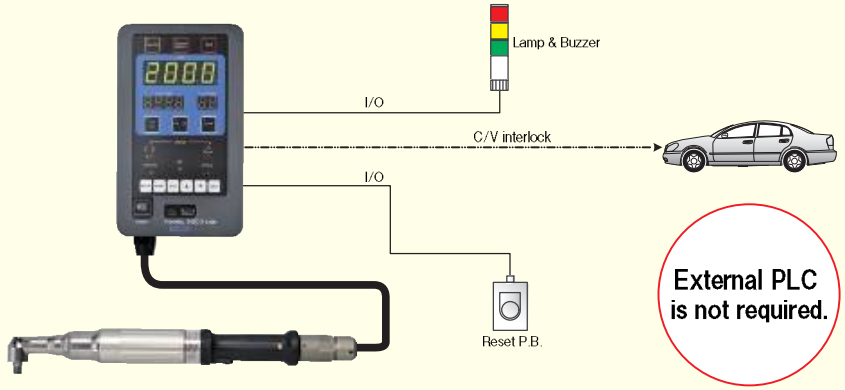
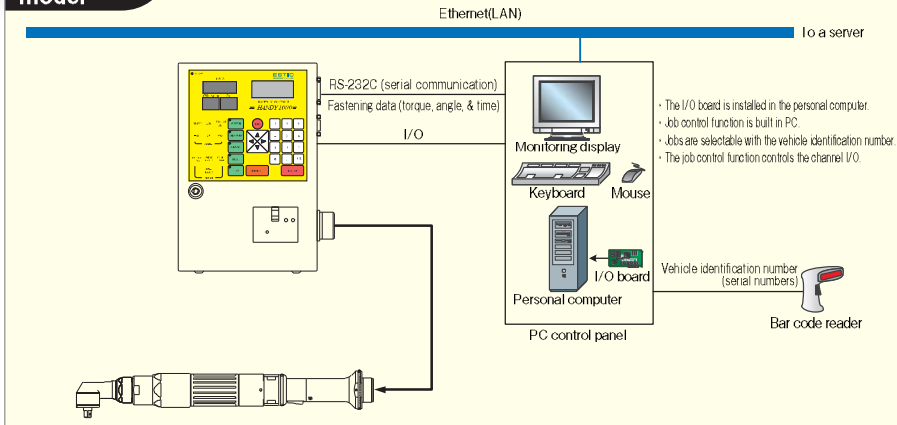
The lamp and buzzer can be directly controlled with the simplified PLC and I/O free allocation functions. Additional power supply for the peripheral units is not required as 24VDC power supply is provided.



Data control + Interlock control

Conventional model

The channels are controlled with the external PC.



Handy 2000 Lite

The fastening is controlled in the channels appropriate for the car model and parts with the job control function and job selecting function based on the vehicle identification number. 5VDC power supply for bar code readers is built in.