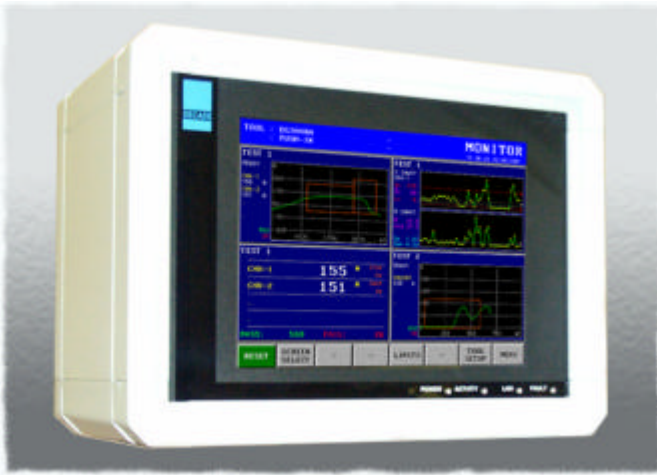


260 Series - Process Monitoring



The high-tech process monitoring system for assembly operations and product testing.

The 260 Series provides the facility to measure, analyze and then determine a pass or fail result during component assembly or test processes.

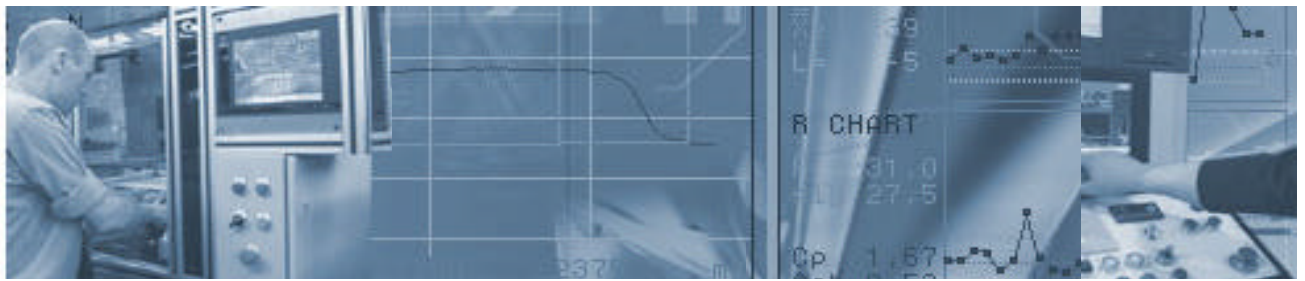
By measuring process variables such as Force and Position it is possible to determine the quality of assembled components - providing a Poke-Yoke 100% testing facility for every component made.

Key Features

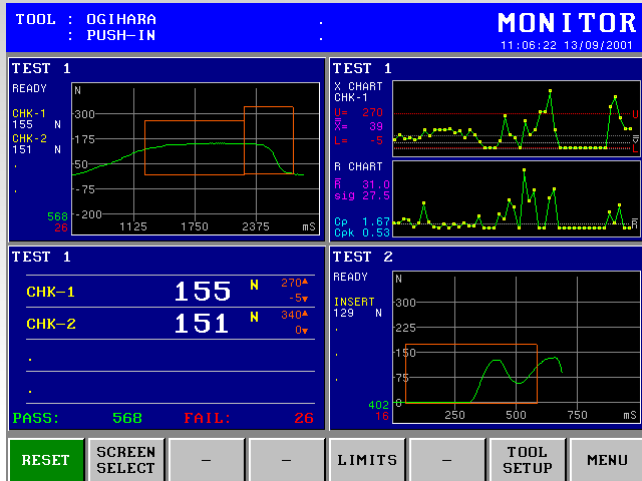
- The 260 can monitor up to eight separate Test Processes on one machine.
- Tool based system stores all process monitoring parameters in tool database. A tool can also be externally selected by controlling PLC.
- The Test Sequencer function can package individual test processes in multi-stage machines to give one overall result for each machine cycle.
- Each test process test can have up to four check-regions each with separate pass/fail criteria.
- A Fault Log provides historical failure information.
- Statistical Functions generate Xbar, Range, Cpk and sigma results from process results.
- Large 10.4" TFT colour touch screen for clear display of process data and an intuitive interface.
- Configurable I/O channels, and easy wiring to controlling PLC.
- Data output facility to get sampled data, SPC data and Fault Log data into spreadsheets.

Typical Applications

- General component insertion.
- PDI Test Machines.
- Bearing and Oil Seal insertion.
- Gear and Pinion pressing on to shafts.
- Valve Guide / Valve Seat insertion in to cylinder head.
- Cylinder Liner insertion.
- Core Plug insertion.
- Wheel Stud insertion.
- Spin riveting, Rivet setting.
- Pressure testing.
- Staking and Swaging operations.
- Single and multi point Bush insertions.
- Push-Out testing.
- Effort checking in sub-assemblies.
- Deflection testing.
- Torque, Friction testing.



Monitor Screen



The Monitor Screen displays results from each process test as it happens. You can select from a graphic display, a numeric display or a statistical display.

- The graphic display shows the process curves and the check box areas that have been applied to the test.
- The numeric display shows simply the overall process value in large easy to read digits.
- The statistical display shows Xbar and Range charts along with calculated Cpk values.
- Each process test has a pass/fail count that is displayed.
- Function keys at the bottom of the screen give quick access to the various features of the 260.

Tool Database

The Tool Database stores all the process setup parameters for the 260 unit. Typically the tool database can store up to 200 tool setups with the standard memory.

You can create different tools to accommodate different assembly processes or machine-tools.

Tool setup can also be automatically loaded via external BCD coded input signals from a PLC of machine control.

LOADED TOOL : WISHBONE
TOOLS FOUND : 4

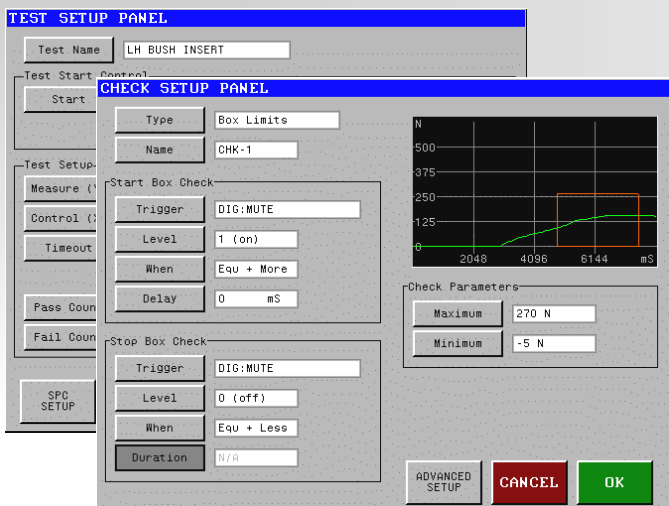
TOOL SCREEN

TOOL NAME	DESCRIPTION	DATE	TIME	LIFE COUNT	TID CODE
DEFAULT	TESTING	25-05-2001	09:40	0	x
LHS BUSH	LHS BUSH ONLY	25-05-2001	09:41	0	x
RHS BUSH	RHS BUSH ONLY	25-05-2001	09:41	0	x
WISHBONE	BUSH INSERTION	25-05-2001	09:39	0	x

Line 1, Page 1/1, Items 4
Mem Free: 1,388 Kb

PAGE UP, PAGE DOWN, SEARCH, LOAD, FILE, TOOL DETAILS, SORT BY, CLOSE

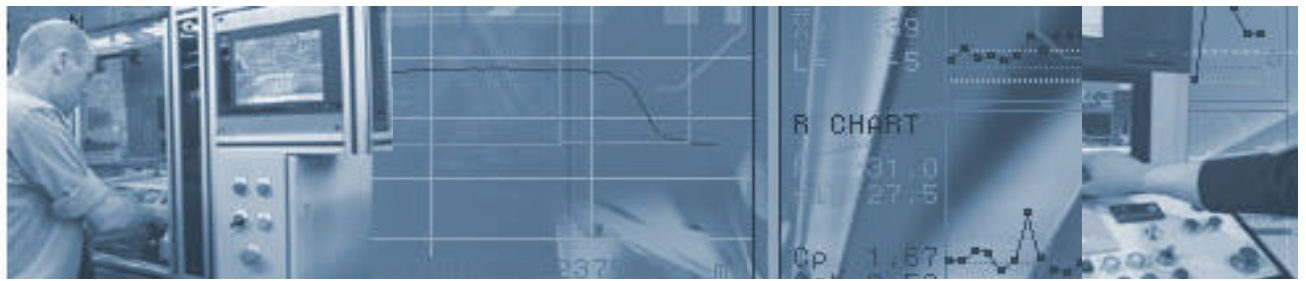
Intuitive Setup Screens



Setting up new process tests and checks is quick and simple.

The 260 units is designed to be extremely flexible but yet simple to understand. A single screen controls all of the process test parameters, and check setup screens control how the process is measured.

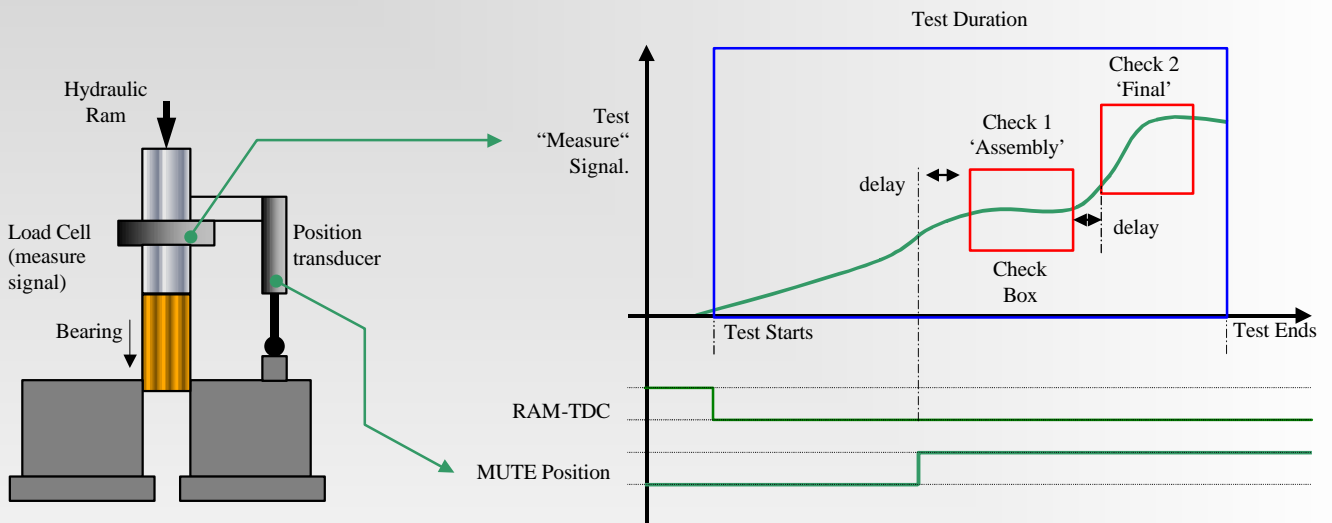
When setting up process checks you can see a graph of the measurement and control signals, and check boxes are clearly displayed on the graphs.



Process Monitoring

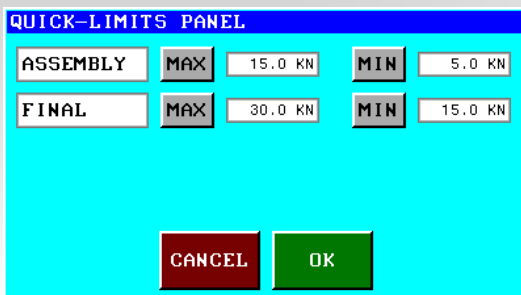
The 260 works by measuring process values such as Force, Pressure or Torque from a transducer situated in the tooling of the machine. Each one of these measurement signals is processed in a 'Test'. As a part is pushed into another part, or a torque is applied, or a pressure is built up the 260 is sampling these values into its memory. Then based on other controlling signals 'Checks' are made during the 'Test' that compare the measured values against pre-set process limits, and if the measured signal falls outside these set limits the whole Test is flagged up as failed.

The following example of a bearing insertion shows how a Test can be setup to measure the insertion force as the bearing is pushed into the bore and then the final force as the bearing reaches the bottom of the bore.



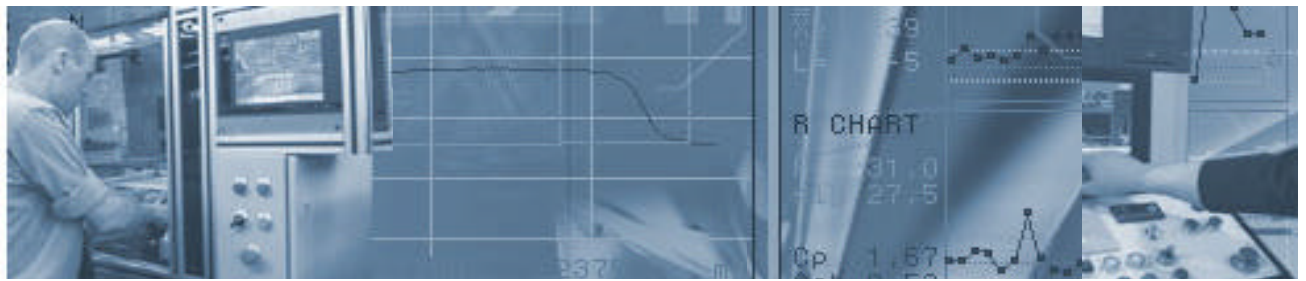
1. The 'Test' is signaled to start when the hydraulic cylinder moves away from the TDC position.
2. The 260 now starts to monitor the load cell and the position transducer signals.
3. The load then starts to increase as the bearing is pushed into the bore due to the interference fit.
4. When the position transducer reaches a pre-set position, and after a set delay, the 260 checks the load cell value stays inside the red limit box for the duration of the 'assembly' check.
5. When the 'assembly' check is over the 260 now moves to the second check, the 'final' check.
6. Again the 260 checks the load cell value stays inside the red check box until the check is over.
7. When all the checks are complete and if the measured load has stayed inside the red boxes the test process is passed.

Controlling Process Limits



Controlling the pass and fail limit parameters for the test is quick and easy. One key brings up a screen that shows just the pass / fail limits for the chosen test.

These limits, and all other setup parameters, can be protected by a versatile password system. Users can have their own PIN number identity and access level assigned to them.

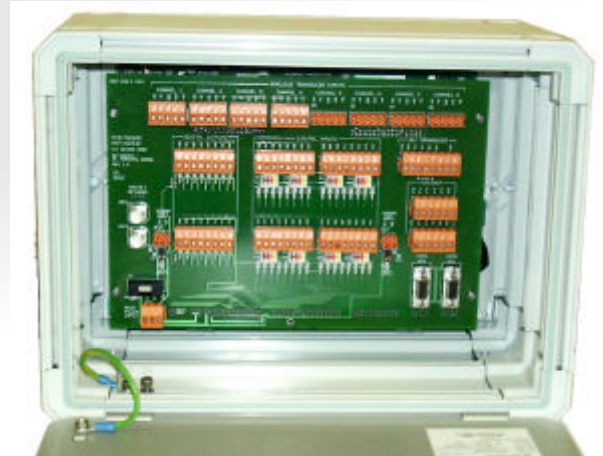


I/O Connections to Controlling PLC

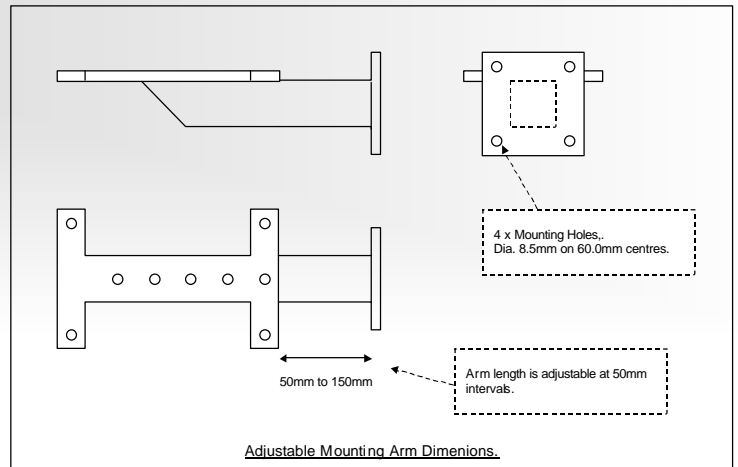
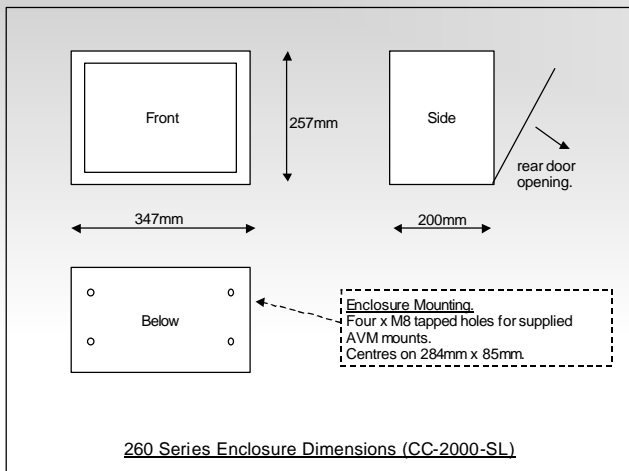
Opening the rear of the 260 enclosure provides access to the digital I/O, serial ports, power and transducer connections. The digital I/O signals are all 24v DC, inputs can be selected as NPN/PNP and outputs are supplied as PNP (source) as standard. Each I/O channel has a LED indicator and connections are made through removable plugs. There are 32 digital input channels and 16 digital outputs. The digital I/O can be electrically isolated and fed from an external supply.

Analogue transducers are also wired into removable plugs.

A 24v DC 3A power supply is required.



Specifications



260 Control Unit.	Extruded Aluminium enclosure, colour RAL7035 (light grey), mounted on supplied adjustable arm, size 257h x 347w x 200d, sealed to IP65, up to 8 analogue transducer inputs, 1 SSD transducer input, 2 RS232 serial ports. CE marked, fully Y2K compliant. 512Kbyte memory for tool data, data logging and fault-log data, expandable up to 1.0Mbyte. Power requirements 24v DC 2.5A supply (nominal load 0.7A @ 24v DC). Digital inputs 12-36v dc, 10mA, source/sink selectable. Digital outputs from supply or external voltage, 100mA per output PNP source (NPN at special request).
Number of Process Tests	From 1 to 8 process tests available, each test can have up to 4 in-process checks made to determine pass/fail result. Unit priced per number of tests required.
Analogue Transducer Inputs	Signal range mV up to V, 12 bit ADC +/-2048 bit resolution, 1Khz sample rate per channel, 5V or 10V dc excitation voltage available (50mA channel), connection via 9-way D plug.
SSI Transducer Input	Will connect to SSI output transducer, 24bit binary data word, 250Khz sample rate, 24V dc transducer supply, connection via 9-way D plug.