



DECADE



## The DECADE 160 Series.

### The system of choice for all the top Power Presses.

With its intuitive easy-to-use operator interface and host of features its easy to see why the 160 Series is setting the standard in Press Automation Controls. Competitively priced and backed up by expert service — get the most out of your presses with the 160 Series.

The 160 System is a modular system, you can choose the features you require. Designed, developed and manufactured by DECADE in the UK

### 160 Features

- **32 Bit RISC/DSP Processor.** At the heart of the 160 is a high speed 32bit processor.
- **Back-lit 10.4" TFT Colour Display & Resistive Touch Screen** with Visual Feedback. The TFT screen is bright with visibility from virtually all angles, the touch screen enables users to easily operate the unit without the need for complex large keypads.
- **Module Based IO** for easy interface & servicing. I/O uses OPTO-22 modules for interface to any voltage presses/systems. Each module has a fuse and an LED indicator.
- **Graphical Based Screens.** Screens are clear and easy to use, graphics are used to illustrate settings and status information.
- **8 Programmable CAM Channels.** Each CAM output channel can be separately programmed for angle/angle, angle/time, single, double, triple, interval and counter modes.
- **8 - 16 Die Sensor Channels.** Each sensor input channel can be programmed to check for signals of the types pulse, latch, static, windowed, counter & irregular modes. Logs faults to fault log.
- **Tool Database.** The tool database can store the setup of the system against the tool name, tool setups can then be easily recalled for next time. Depending on available memory up to 400 tools can be saved. Extra memory can be added to increase this number.
- **Automatic Tool Recognition Options.** Detects tool code and automatically loads the correct tool from the tool database.
- **Load Monitoring.** Displays peak load and load signatures. Checks press limits, tool limits, window min/max limits, trending limits and 2D signature limits. Checks through the stroke against press manufacturers capacity curve. Logs faults to fault log.
- **Brake Efficiency Monitor.** Measures the stopping angle and checks against limit parameters and warns if out of range.
- **Automatic Adjust Top-Stop CAM.** Automatically compensates for speed the Top-Stop CAM output signal ensuring the press always stops at TDC.
- **Multi-Mode Counters.** Programmable counters can count parts/stroke or stroke/part, can stop press on complete or operate output signals to ancillaries. Estimated time of completion for Batch and Job is also shown.
- **Servo Roll Feed Interface.** Uses the serial port on the roll feed controller to send and receive feed setup parameters.
- **Slide Position Indicator & Controller.** Measures the slide adjustment position and displays on the screen, can also operate slide adjust motor to position the slide to one of three target positions.
- **Production Recording System.** Measure productive and non-productive time over tool runs or shifts. Saves production data to memory for recall and outputting.
- **Free Standing or Panel Mounting.** The controller unit can be panel mounted flush or located on a sturdy pedestal base.)



# Decade 160 Series Press Automation System

## Main Screen.



An overview of the complete system can be viewed from one screen, or select a specific feature to set-up or view.

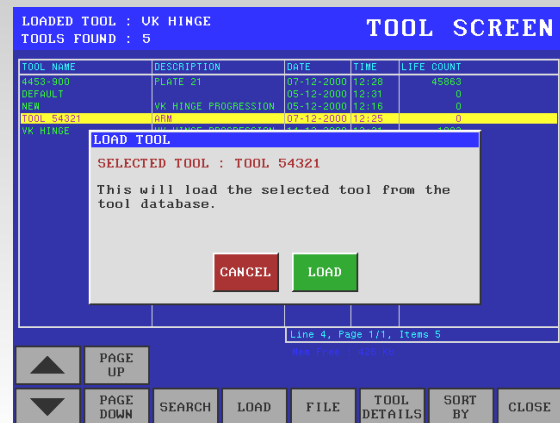
Information shown on Main Screen:

- Press Angle and Speed
- Press Braking Angle
- Batch and Job Counters
- Press Load
- Cam Output Conditions
- Enabled Tool Sensor States
- Current Slide Position
- Servo Roll Feed Settings
- Time and Date
- Current Tool

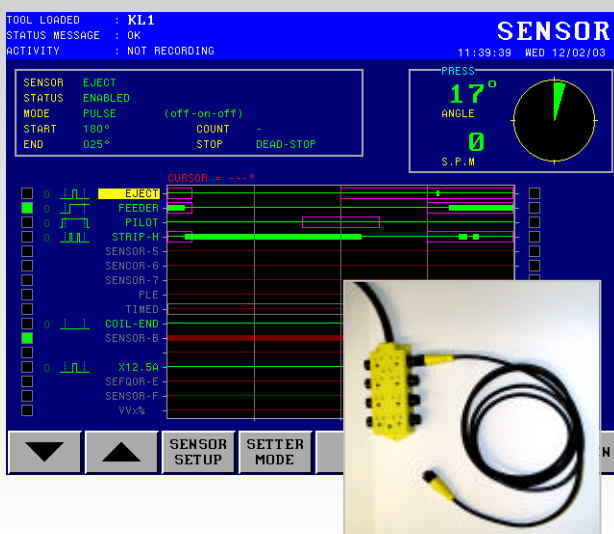
## Tool Database.

The Tool Database stores all the settings for each tool/die for use whenever that tool/die is required, the Tool Library makes tool/die changes quicker and more reliable as you use tried and tested settings from the last tool/die run.

The automatic Tool recognition feature allows each tool to be identified when it is fitted in the press, the operator simply acknowledges the new tool has been fitted and the 160 Series will then load the settings for that tool, CAM angles, slide positions, roll feed pitch and rate, load monitor limits and tool sensors, will be set up ready for the press to run.



## Tool Protection.



Press tooling represents a significant investment in both monetary and quality terms, manufacturing high quality components demands high quality tooling. In order to protect these investments and ensure that no accidental or avoidable damage could render the tooling out of production there are a number of methods available to perform these tasks.

The 160 Series offers an In-Tool Protection feature where up to 16 sensors can be monitored for correct operation and in the event of a fault stop the press before irreparable damage is done.

- Mechanical feeder or material in correct position.
- Buckle detection for long feeds of thin material.
- Successful scrap or component ejection out of the tool area.
- Correct positioning of material in transfer system.
- Presence of pilot holes in material strip / push back pilot.
- Detection of scrap carried along material strip.

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## Load Monitor.

The 160 Series Load Monitor feature allows a more accurate method of monitoring press and tool load. Trip levels are set automatically and adjust for gradual changes in running load, this process eliminates nuisance stopping and allows finer control over the press and tool conditions.

Shown below is a two channel Load Monitor Screen showing two dynamic bar graphs with limit boxes for each corner/ connecting rod, digital load values in Tonnes and local tool curve graph.



- 'Trend' based limit checking tolerates changing load values but maintains sensitivity.
- Integrates with Tool Setup Library to save target load values and limits values.
- Fault History file saves load faults with time/date stamp.
- "Setter Mode" disables load checking for N strokes during tool/die setup.
- Load values are displayed as large numbers and visually on a 'trend' graph.
- Available in 1, 2, 3 and 4 load channel versions.
- Monitor measures peak load during press stroke.
- Uses DECADE force transducers.
- Load Signature or Trend Graph option.

## Programmable Cams.

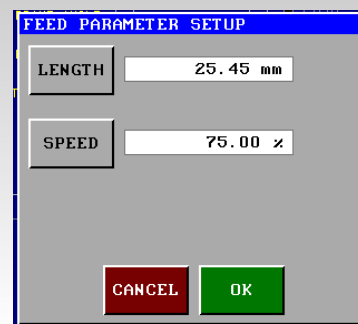
Power presses use rotary CAM signals to control equipment like feeders, scrap cutters, part ejection and strip lubrication. Conventional cam-boxes use mechanical switches operated by cam lobes which means if you need to adjust the on/off angles you have to physically move the cam lobes.

- Provides eight fully independent CAM channels for controlling ancillary equipment.
- Angles are entered in at the 160 Series screen, - no more fiddling with mechanical switches.
- As well as normal ON/OFF Angle CAM's, ON/Time Duration CAM's are Ideal for Air Blow-offs or Strip Lubrication.
- All CAM angles are saved in the Tool Library for recalling the next time the tool is used.
- Each CAM channel can be given a name for easy identification of what it is controlling.
- Single, double, triple and interval mode option for each CAM. Cyclic CAM option, will operate CAM's every X Strokes.



## Servo Roll Feed Interface.

Servo Roll Feed Interface for roll feed with a communications port, can be set with Pitch, Rate and Acceleration/ Deceleration information when a new tool is loaded from the tool database.



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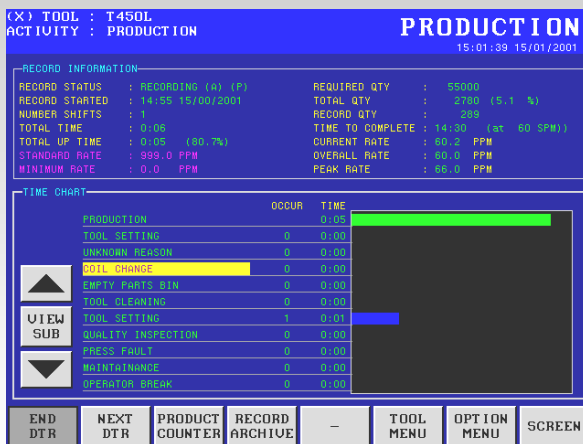
## Slide Position Controller.

Adjusting the press slide is a task that is constantly required when setting up a tool or die set in the press, whether this process is motorised or done manually the need for an accurate reference point is of obvious benefit. Being able to move the slide to a known reference point for a tool or die set can drastically reduce setup times and give setters valuable information.

- Displays the slide position in mm (shut height) to an available 0.01mm resolution.
- Has three target positions for Tool Removal, Tool Clamp/Unclamp and Tool Run.
- Stores all the target positions in the Tool Library for future setups and reference.
- Can connect to press to automatically adjust the slide to target positions.
- Uses 'Magnetostrictive' industrial linear position transducers, or Stegman Absolute Rotary encoders for reliability and high integrity. Uses SSI/SSD interface to transducer.



## Machine Production/Downtime Monitor.



The Production Recording module of the 160 system provides a means to measure your productive and non-productive times over shift or job runs. The 160 will record time and part counts while the press is in production, when the press stops the operator is prompted for a "downtime reason" which is then used to log the stop time against. Over a shift or job run a pattern of run/stop times is built up which is displayed on the 160 screen. This data can be exported to a PC for later analysis.

There is also the option of connecting together your 160 Units with the DECADE 160Net, this will give you remote monitoring power for the whole press shop. Now each monitor can be interrogated from the PC allowing individual press statuses to be seen from one remote point, without walking round the shop floor.

## Specifications.

<b>160 Control Unit.</b>	Stainless Steel enclosure, front panel mounted, size 216h x 305w x 105d, sealed to IP62, 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 1.5Mbyte.
<b>Terminal Connection Unit.</b> (single board type, 24 I/O lines)	Rittal steel enclosure 400h x 300w x 160d. Connections for AC power and machine interface via screw terminal connections. OPTO-22 G4 I/O modules handle electrical interface (24-60V dc, 24-280V ac). Power requirements 110/240V ac (±10%) 50Hz 75VA. A 24V dc 1A fused supply is available for general use.
<b>Tool Library</b>	Memory dependant. An average system (Load, Cams and Tool Sensor Options), could hold in excess of 200 Tools in the library, each with totally unique settings.
<b>Power Supply</b>	110 or 220v AC 50 Hz. 75VA Rated. (Control unit separately requires +24v DC, 2.0A).
<b>SSI Transducer Input</b>	Will connect to SSI output transducer, 24 bit binary data word, 250Khz sample rate, 24V dc transducer supply, connection via 9-way D plug.
<b>Crankshaft Encoder</b>	Stegmann CoreTech. Absolute 9Bit Grey-XS76 Code. Parallel data output, 24v DC supply voltage.