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INFOMATE

Introduction

Welcome to the 11th issue of our newsletter. The newsletter is used to send product and information updates to our customers on a regular basis. Starting with issue 9, we added a brief technical review section to inform you of some of the MACHINEMATE® features and capabilities.

I News

IMTS 2002

MACHINEMATE, INC recently exhibited at IMTS 2002 in Chicago, Illinois. The show was not as busy as previous years but there were still many visitors. Our booth had several MACHINEMATE CNC products on display, including both of the new (in 2002) operator panel configurations (19" rack mount with 12" TFT color display and the two-piece slim line panels with separate display and keypad) and the L2 (with integrated analog drive interface and I/O modules).

We shared our booth with Rockwell Automation, one of our customers, who is working with their customers and integrators on the new RA CNC – based on the MACHINEMATE CNC technology (replacing their 9 series CNC products). Rockwell Automation did the machine retrofit on an Acme Gridley screw machine, built in about 1950, with a CNC and several servo drives and motors. This screw machine was also in our IMTS booth; it was rather large and captured the attention of many visitors. Ecorse Machine Tool, the owner of this screw machine, is a company that specializes in support, maintenance and retrofits of Acme Gridley screw machines. The CNC on this Acme Gridley was an Allen Bradley IPC with a touch screen, running both the MACHINEMATE CNC software with its connections to several analog Allen Bradley drives and the RSView software for the custom operator displays necessary for running the screw machine. The addition of servos to one of the stations enabled lathe-type CNC programming of simple to complex profiles on the part. This part program's feedrate can be electronically geared to the variable speed spindle drive offering a flexibility that was not available in the original all-mechanical gearbox configuration.

Our booth also contained an exhibit from PanelTEK; their display stand is shown in the picture to the right. PanelTEK (in Fond du Lac, Wis.) is a spin-off company from Giddings & Lewis that specializes in electrical panels and cabinets (e.g., they provide G&L with those panels and cabinets for the G&L machine tools). PanelTEK can provide a standard subpanel to accompany a MACHINEMATE CNC on a control retrofit – an example of this subpanel was presented on a display stand, with our CNC. Custom subpanels are also available, based on the numbers of drives, inputs, outputs and relays. These subpanels include the electrical drawings (that are ready to identify the existing wire numbers in the interconnect). By

having the IO modules already wired to terminal strips, this subpanel makes the wiring task much easier for a retrofitter doing a control replacement. More information about the PanelTEK company and products can be found at their web site, www.paneltekinc.com/.

Overbeck, an OEM of ID and OD grinders based in Long Island, New York, had two grinders in its IMTS booth with MACHINEMATE CNC controls. One of them was the Zetto grinder that had been retrofit for display in our Eastec 2002 booth, but at IMTS it had a special operator pendant (this machine is in the picture below left). The other was a new grinder being announced at IMTS. This machine has a unique design (through a cooperative engineering effort by Overbeck and MIT) for the grinder industry. The grinder has linear motors, a single piece machine cover (to keep out contaminants) and a special granite bed; the innovative design enables very high accuracy grinding. This Overbeck machine (in the picture below right) will be featured in the upcoming American Machinist magazine article in January 2003. More information about the Overbeck company and products can be found at their web site, www.overbeck-usa.com/.

Amera Seiki, an OEM of CNC turning centers, horizontal and vertical machining centers based near Chicago, Illinois, had two machines in its IMTS booth with MACHINEMATE CNC technology. One was the Cyclone 1, a new small vertical machining center. The Cyclone 1 offers travels of 17.7" in X, 11.8" in Y and 13.7" in Z. The 10HP spindle has a standard speed of 10000RPM with BT-30 taper tooling. The 20 tool ATC features a tool-to-tool change time of 1.5 seconds.

The other was the Cyclone 3, a new medium-sized vertical machining center (pictured at right). The Cyclone 3 offers travels of 42" in X, 22" in Y and 20" in Z, with optional 4th and 5th rotary axes. The 20HP spindle has a standard speed of 8000RPM with CT-40 tooling. Its 24 tool high-speed ATC features a tool-to-tool change time of less than one second. For both machines, the new Amera Seiki Apex PC20 CNC control is driven by MACHINEMATE technology. More information about the Amera Seiki company and products can be found at their web site, www.amera-seiki.com/.

II New Products

Encoder direct size replacements for Size 11 Resolvers

MACHINEMATE, INC has announced two size 11 encoder models. These encoders are direct size replacements for the size 11 resolvers often used in many older CNC machines. The MACHINEMATE CNC requires encoder

feedback for the analog servo drives. Rather than purchasing an analog to digital converter to convert the resolver signals to encoder A quad B signals (5 VDC TTL), these size 11 encoders replace those old worn out resolvers with new feedback devices. Each encoder has 1024 pulses per revolution. The CNC uses all four (4) wave fronts giving 4096 encoder counts for the CNC per one encoder revolution. The two models are similarly sized but have slightly different mountings.

- MACHINEMATE part number M170

This is an encoder direct size replacement for a NEMA 11 resolver. The data sheet is available from our web site (www.machinemate.com/encoders.htm). The list price for this model is $290.

- MACHINEMATE part number M171

This is a 1024PPR encoder with a 1/8" shaft and servo mount faceplate. The data sheet is available from our web site (www.machinemate.com/encoders.htm). The list price for this model is $199.

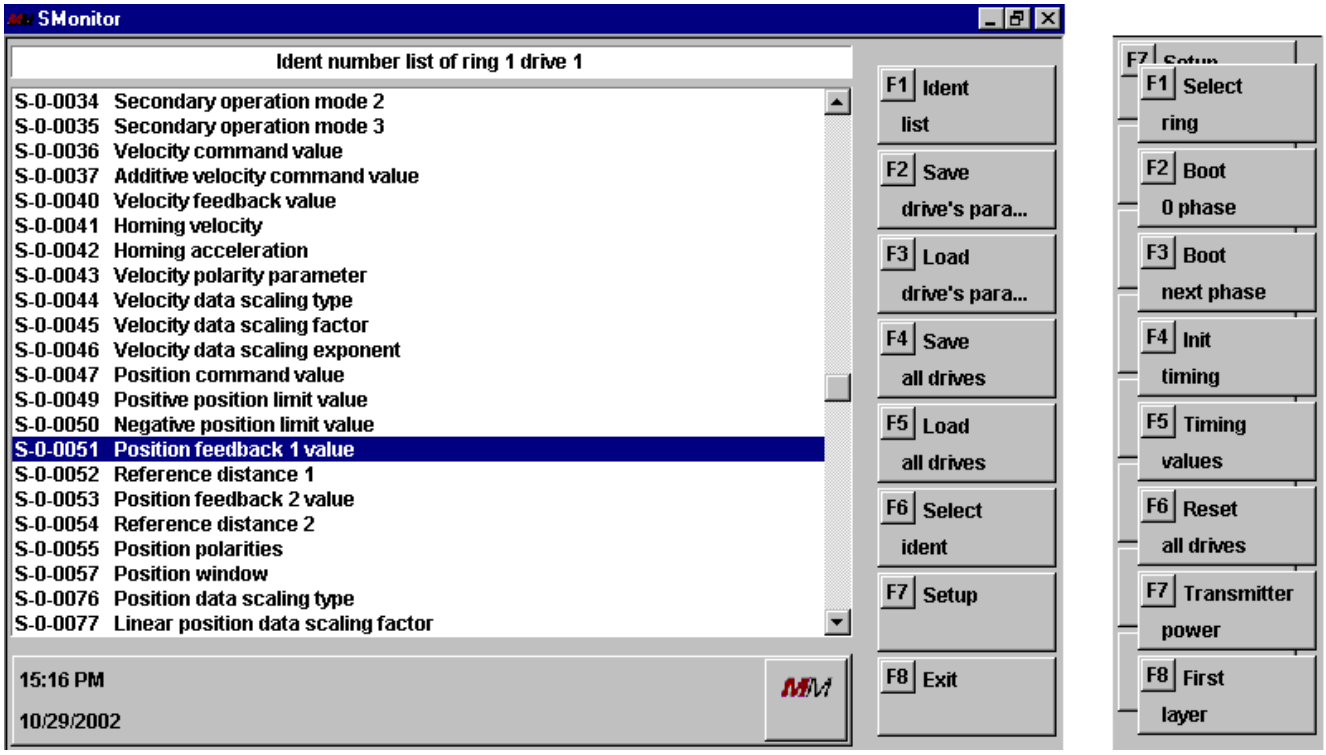
III Technical Reviews

SERCOS Monitor

One of the standard features of the MACHINEMATE SERCOS control is its SERCOS Monitor utility. This utility enables the MACHINEMATE technician to configure the individual SERCOS drives over the fiber optic ring without having to connect special software from a drive manufacturer.

This tool can automatically configure the fiber optic ring for the number of drives that are connected to the CNC. In SERCOS, each drive is assigned a specific time within each communication sequence from the CNC to all the drives on the ring. This timing is determined by the CNC, based on the number of drives and the length of the fiber in the ring.

Two display captures are shown below (one full screen, the other partial), with the list of drive SERCOS parameters shown in the main window and with the associated soft keys shown adjacent. The F1 Ident List soft key allows the technician to view the set of drive SERCOS parameters for any of the drives in the ring. The F6 Select Ident soft key allows the technician to view any SERCOS parameter in the drive; those parameters that can be changed will have an entry field in the subsequent dialog. The F7 Setup soft key results in the next set of soft keys shown to the right. In this Setup mode, the technician can command the SERCOS ring to boot to each phase. The very first time that the SERCOS ring is powered (with the CNC and drives connected with the fiber optic cables), the technician can easily initialize the ring's timing (with F4) based on the physical characteristics of that ring. In automation applications with multiple SERCOS rings, the technician can select (with F1) which particular ring is involved in the Setup mode (and after that ring selection, the Ident lists for all the drives in that ring are available to the operator, to view or modify).



The utility allows the technician to save all the drive's parameters to a disk file (in the MACHINEMATE) so that they could be restored at a later date, or to a different drive. The tool also allows the value of each drive parameter to be displayed. The technician can change drive parameters based on the particular CNC application (e.g., axis feedback resolution, spindle operations, homing parameters, etc.). The SERCOS ring has defined phases of its startup sequence; some drive parameters can be changed only in one of the startup phases, not in the final operational phase (when the CNC is giving the drives their new position commands and the drives are responding with the current actual positions).

This utility becomes very useful for drive troubleshooting since all the SERCOS drives are available over this fiber network. If a drive fault occurs, the SERCOS Monitor can be used to inspect the drive parameters associated with the fault. For example, the SERCOS parameter S-95 is the text message associated with the last event in the drive, where the event might be the successful drive enable or it could be the description of the fault of interest. Other SERCOS parameters can be referenced depending on the particular fault. This investigation can be done from the CNC without using another software package to connect or communicate with the individual drives.

Conclusion

If you do not want to receive this newsletter, please tell us with a phone call or just respond with an e-mail with 'unsubscribe' in the subject line. If you received a printed issue and you wish to receive it via e-mail, please tell us that by an e-mail to us at info@machinemate.com or call us at 920-907-0001.

Our web site www.machinemate.com has lots of information about our products and applications; a link can be provided to our customers for the complete manual set. A number of MACHINEMATE control retrofit articles are also available. Please periodically check the site for news.

Thank you,

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