FACTS
TCC 1600FS
Total Calender Control Systems

Experienced in Rubber and Plastic Calendering Systems including:

- Fabric
- Wire
- Innerliner
- Gum
- Vinyl
- All Configurations

Calendering Industry Specific Systems

- Single Point Gauging
- Roll Position Control
- Scanning Gauges
- Screw & Hydraulic Actuators

System Control Capabilities

- Electric Screw Actuators
- Roll Bending/Straightening
- Hydraulic Cushion
- Speed Compensation
- Motorized Valves
- Roll Temperature Control
- Extruder Speed & Temperature
- Hydraulic Actuators
- Cross-Axis
- Servo Position Control
- Roll Prepositioning
- Servo Position Control
- Mill Knife Position

Available Options:

- Statistically Optimized Target Control
- Actuator Upgrades/Replacements
- Width Measurement
- Ticket Printer
- Autoatic Mill Knifes
- Calender Report Generator
- Post Calender Web Profile Scanner(s)
- Total Line Control

On-Calender Gauge Advantages

- Short Transport Lag
- Continuous Measurement of Product in All Measurement Zones
- High Accuracy
- Stable Low Drift Design

On-Calender Gauge on Standard Mount

Total Calender Line Control

The ***FACTS*** **TCC 1600FS** Total Calender Control System is designed specifically for optimized calender gauge control thru the use of "On-Calender" fixed gauges and optional post calender sheet scanners. The ***FACTS*** "On-Calender" sensors enable the **TCC 1600FS** to provide precise machine direction and cross direction control of the calender process. ***FACTS*** can coordinate and control the complete calender line, including all feed mills and/or extruder systems, calender and line speeds & ratios, temperatures, tensions, let-offs, and windups.

The system incorporates a high-resolution 17" LCD flat panel color touchscreen for operator command input plus data and graphics display. The **TCC 1600FS** is operator-configurable, requires no computer skills and comes as a completely configured software system for your specific line.

The application of Total Line Control has resulted in a fast payback as measured by:

- Material Savings
- Increased Productivity
- Reduced Scrap
- Improved Quality
- Reduced Maintenance Costs
- Reduced Labor

Control System Highlights

- Precision Control
- Easy to Use
- Low Cost of Ownership
- Adaptable
- Expandable
- Proven Performance

Features:

- 17" LCD Flat Panel Color Touch Screen
- Trend Plotting for All Gauges & Variables
- Multi-Language
- Eliminates Nuclear Sensor Cost, Complexity, & Regulatory Issues
- Low Initial Cost
- Very Low Maintenance Design

Only ***FACTS*** integrates both control and management of your manufacturing process, equipment, and job histories to provide optimum production efficiency.

Additional Features

- Real Time Trend Plotting
- Product recipe system
- Security code system
- Cascade/strategy loop control (configurable)
- PID loop control (configurable)
- Numerous **Industry Specific** Features
- Master/slave speed control (configurable)
- Failed/broken thermocouple override
- Alarm/new alarm function
- Math function calculations
- Transaction & Alarm logging (with optional **3001 NT Host**)
- Boolean logic functions for complex process logic operations
- Digital speed control loops for all speed loops

Alarm System

- Keeps track of three types of alarms: new, acknowledged and cleared
- New alarms alert the operator to their existence
- Alarm display can be called from all menus

Operation Logging

- Tracks all system activities that have an impact on modes of operation, editing operations or system problems
- Color coded display for new and previously viewed entries

Security

- Security structure with 10 levels and up to 160 codes
- Only operations that are not a part of normal operation are secured, i.e. editing or maintenance functions

CPU and I/O

- Intel Pentium CPU, 512 K Cache, 4 Mbyte Video RAM
- Two RS-232 serial ports
- Passive Backplane industrial computer
- One Parallel printer port
- Ethernet support
- 128 Mbyte RAM
- 20 GByte Hard Drive
- 1.44 MByte Floppy Drive
- 32 Analog inputs, each with selectable gain
- 32 Digital Inputs/Outputs - DC or 115VAC (all user configurable)
- 40 Duty Cycle or Time Pulse Outputs, or Frequency Inputs or Outputs
- All I/O is fully expandable and configurable

Please refer to the On-Cal 2 data sheet for details for the On Calender Gauges.

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Configuration

- Freestanding NEMA 12 enclosure - environmentally protected
  - Contains the computer, I/O subsystem, and manual back-up operator controls
  - Complete power regulation and isolation
  - Optional chemical purification for corrosion prevention
  - Internal air temperature control through electronics grade air conditioner
- 32 bit processor in a distributed architecture
- Real Time Executive operating system
- Communications support for
  - Remote control or display stations
  - Local or remote printers
  - Bar Code readers & printers
  - Intelligent peripherals such as scales & digitizing calipers
- 17" sealed LCD Flat Panel high-resolution color touchscreen
  - Provided in NEMA 12 enclosure for remote mounting at calender on pedistal or swing arm
  - Menu-driven command input and data display, Real-Time SQC charts & Trend plotting of <u>All</u> inputs

Hardware Specifications

- Environmental capabilities
  - Electrical noise - the supplied line conditioner provides better than 60 db of noise rejection
  - Electrical variation +/- 20%, short-term variations +/- 50%
- Ambient temperature 32-125 °F (0-50 °C)
- Relative humidity - 0-95% non-condensing
- Power Requirements
  - 120 or 220 volts AC nominal, +/- 20% (customer specified)
  - 60 Hz or 50 Hz as specified
  - 2500 VA including optional air conditioner
- Physical
  - Main control cabinet/operator's station - 72"H x 42"W x 30"D
  - HMI color touchscreen encosure - 22.5"H x 21.75"W x 14"D
  - Weight (estimated): Main Enclosure 750 lbs., HMI 75 lbs.

Total Information Manager 3001 NT Host System: TIM 3001 NT

- Off-line data collection and complete analysis for historical data (i.e. trending, SQC charting, X/Y analysis, etc.)
- Complete hardware and software
- Transaction logging of any or all operator activity such as set-point changes as well as logging of all alarms
- Provides full Job or Work Order system support including job sheet presentation to operator at touch screen operator interface

***FACTS* Total Control Solutions means Total Profit Control.**

The *FACTS* Formula
+ Increased Productivity
+ Improved Quality
+ Improved Efficiency
+ Reduced Material Usage
+ Reduced Labor
+ Reduced Scrap

= Increased Profits