

Modular Control Units



MCS2000 Series Digital Web Tension Controls

The MCS2000 Web Tension Controller handles all winding, intermediate zone and unwinding applications. MCS2000 easily interfaces to the appropriate clutch/brake driver or motor drive. The digital controller ends the problem of handling large diameter ratios greater than 10:1. See page 46.

- P-I-D parameter programming
- Automatic P-I-D parameter adaption
- Dual outputs in either current or voltage operation modes
- Auto-splice circuit
- Optically isolated I/O
- PLC compatible
- Auto ranging of sensors
- Programmed via hand held programmer or Windows PC program
- Programmable based parameters may be saved on a plug-in memory card
- Multilingual programming
- Usable for unwind/zone/rewind: Electric or Pneumatic Clutches and Brakes, AC, DC, Servo or Stepping Motor Drives.

Analog Controls



TCS Series Analog/Manual Controls

The TCS-200 is a manual analog control for the Electro Disc Tensioning Brake. The control is a constant-current output type that uses a front panel or remote potentiometer to adjust the output. The TCS-200-1/-1H is a manual analog control for any 24 VDC tension brake. It can also accept a 0-10 VDC or 4-20mA analog input for adjusting the output. See page 56.

TCS-200

- Input: 24–30 VAC, 50/60 Hz
- Output: 0-270 mA continuous per magnet up to 12 electro disc magnets, adjustable 3.24 amps
- Torque adjust, brake on, run, brake off switch on front panel
- Remote torque adjust, roll follower inputs

TCS-200-1 Selectable Voltage

- Input: 115/230 VAC, 50/60 Hz
- Output: 0-24 VDC adjustable, 4.25 amps continuous
- Torque adjust, brake on/off, run switch
- Remote torque adjust, roll follower inputs

TCS-200-1H

- Input: 115/230 VAC, 50/60 Hz
- Output: 0-24 VDC adjustable, 5.8 amps continuous
- Torque adjust, brake on/off, run switch
- Remote torque adjust, roll follower, analog voltage or current option



TCS-220 Analog Tension Control

The TCS-220 operates an Electro Disc or other electromagnetic tension brake from an analog input (customer supplied) or the manual setting of the "Torque Adjust" dial on the control face. See page 58.

- Input: 48 VDC. 1.6 amps continuous, 6 amps intermittent. Analog inputs from roll follower or current loop.
- Output per magnet is 0–270 mA running, 270–500 mA stopping
- Cabinet mounting enclosure with exposed wiring or wall/shelf mounting enclosure with conduit entrance.

MCS-208 Analog Tension Control

The MCS-208 operates pneumatic tension brakes through an E to P transducer, which varies air pressure accordingly. Control output is based on an analog input (customer supplied) or the manual setting of the "Torque Adjust" dial on the control face. See page 59.

- Input: 26 VDC. Analog inputs from roll follower or current loop
- Output: 1–9 VDC; 1–5 mA, 4–20 mA, or 10–50 mA, depending on transducer needs
- Cabinet mounting enclosure with exposed wiring or wall/shelf mounting enclosure with conduit entrance.

TCS-320 Analog Splicer Control

The TCS-320 is a solid state splicer control that operates two Electro Disc or other electromagnetic tension brakes, one brake controlling and one brake holding, or two tension brakes operating simultaneously. It can also be used as a dual brake control operating up to 24 MTB brake magnets. See page 60.

- Input: 48 VDC, 3.2 amps continuous, 12 amps intermittent
- Output per magnet is 0–270 mA running, 270–500 mA stopping, 9–90 mA holding
- Available as open frame or with NEMA 4 enclosure



MCS-204 Analog Tension Control

The MCS-204 is a solid-state control designed for manual or analog input to operate one or two 24 VDC tension brakes. It is designed for use with the MCS-166 power supply. See page 57.

- Input 24–28 VDC @ 3 amps
- Operates from torque adjust control knob on front, remote potentiometer, roll follower, or current loop
- Panel mount with exposed wiring or wall/shelf mount enclosure with conduit entrance.

Dancer Controls



MCS-203 Dancer Control

The MCS-203 automatically controls web tension through a dancer roll and sensor. It has 24 VDC output for use with TB, ATTB & ATTC, and Magnetic Particle clutches and brakes. See page 61.

- Operates two 24 VDC tension brakes in parallel when using dual MCS-166 power supplies
- Full P-I-D loop adjustment and system gain adjustment for optimum control.
- Available in open frame or enclosed wall/shelf mount enclosure.

TCS-210 Dancer Control

The TCS-210 automatically controls web tension through a dancer roll and position sensor. It outputs to an Electro Disc or other electromagnetic tension brake. See page 62.

- Input: 48 VDC, 1.6 amps continuous, 6 amps intermittent
- Output per magnet: 0–270 mA running, 270–500 mA stopping
- Cabinet mounting enclosure with exposed wiring or wall/shelf mounting enclosure with conduit entrance.

MCS-207 Pneumatic Dancer Control

This control provides automatic web tensioning using a dancer roll and pivot point sensor. See page 63.

- Operates most pneumatic clutches and brakes
- Automatic control for precise tensioning with minimal operator involvement
- Full P-I-D loop and system gain adjustments for optimum control
- Switch selectable output operates E to P transducers (0–10VDC) or I to P transducers (1–5mA, 4–20mA, 20–50mA) with zero and span adjustments.

TCS-310 Dancer Splicer Control

The TCS-310 is an automatic splicer control that operates two Electro Disc or other electromagnetic tension brakes, one brake controlling and one brake holding, or two tension brakes operating simultaneously. It can also be used as a dual brake control operating up to 24 MTB brake magnets. See page 64.

- Input: 48 VDC, 3.2 amps continuous, 12 amps intermittent
- Output per magnet is 0–270 mA running, 270–500 mA stopping, 0–90 mA holding
- Available as open frame or with NEMA 4 enclosure

Power Supplies



MCS-166 Power Supply Module

The MCS-166 Power Supply Module provides power for the MCS-203, MCS-204, MCS-207, or MCS-208 control modules. See page 65.

- 120V/220V/240 VAC, 50/60 Hz
- 24 VDC, 1.5 amp output
- May be connected in parallel for increased current capacity.

TCS-167 Power Supply

The TCS-167 Power Supply provides power for either the TCS-210 or TCS-220 control modules. See page 65.

- 120V/240 VAC, 50/60 Hz operation, switch selectable
- Output: 9 VDC @ 1.5 amps and 48 VDC @ 1.6 amps continuous, 6 amps intermittent
- Internally fused for protection.
- Available in open frame or enclosed wall/shelf mount enclosure.

TCS-168 Power Supply

The TCS-168 Power Supply provides power to either the TCS-310 or 320 dancer tension controls. See page 65.

- Input switch selectable for 120 or 240 VAC, 50/60Hz
- Output 3.2 amps continuous, 12 amps intermittent

Electric Brakes & Clutches

TB Series Basic Tension



Annular style 24 VDC tension brakes for light to medium duty unwind tension applications.

- Sizes: 1.7" to 15.25" diameter
- Torque range: 0.50 lb.ft. to 256 lb.ft.
- Thermal range: .019 HP to 1.09 HP

ATT Series Advanced Technology



Designed for intermediate web tension ranges. Three size ranges.

- One piece clutch design for easy shaft mounting
- Brakes are flange mounted and the armature is the only rotating member
- Clutch torque ranges 7 to 41 lb.ft. Brake torque ranges from 8 to 62 lb.ft.
- Replaceable friction faces and armature rings.

MTB Series Modular Tension



Modular Tension Brakes (Electro-Disc) are modular caliper type electric brakes used for unwind tensioning. Torque is varied by disc diameter and by changing the number of magnets on the friction disc(s).

- 10", 13", 15" and 20" diameters
- Torque ranges to 1120 lb.ft.
- Thermal capacities to 8 HP
- Brakes rebuildable by changing only friction pads and armature disks.

M Series Permanent Magnet



Permanent magnet brakes and clutches are ideal for light tensioning applications, such as film and fine wires. They require no external power, have a wide range of torque adjustment, have no friction surfaces to wear, and offer chatter-free torque control even at very low speeds.

- Torque range from 1 oz.in. through 65 lb.in.
- Manual torque adjustment
- Constant torque with varying speeds.



Magnetic Particle

Self-contained magnetic particle clutches and brakes for a wide range of unwind/rewind applications offer smooth operation at very low speed and electronic control compatibility.

- Torque range from 2 lb.in. through 578 lb.ft.
- Shaft or flange mounting
- Fan cooled in largest sizes.

Pneumatic Brakes & Clutches

Mistral

Mistral Pneumatic Tension Brakes' compact design meets the special needs of the corrugating industry.

- Fan cooled for longer life
- Three sizes for multiple applications
- Torque range: 1 lb.ft. to 442.5 lb.ft.
- Thermal capacity to 3.5 HP
- Three sizes from 9" to 16" diameter. Eases handling small roll ends.



Magnum

Note: Being Discontinued.

AD Series Air Disc Brakes

Note: Being Discontinued



ModEvo

Modular Pneumatic Tension Brake allows for a wide range of tension applications with the modular design. Actuator configuration with

different friction material coefficients allow for much greater range capabilities.

- Torque range from 16 lb.ft. to 3180 lb.ft.
- Optional guards and cooling fan assemblies
- Thermal capacities to 18 HP
- Optional high speed armatures



Sensing Devices

Ultrasonic Sensors

- Analog outputs with selectable 0–10V – 4–20mA
- Input voltage 20–30VDC
- Range control zero and span
- Short circuit protected
- 80° max. distance
- Response time 50 mSec



Pivot Point Sensors

The TCS-605-1 and TCS-605-5 pivot point sensors close the feed back loop to the tension control by sensing dancer roll position.



- TCS-605-1 is a single turn potentiometer with a resistance of 1K Ω for normal dancer operating ranges within 60° of arm rotation.
- TCS-605-2 is a single-turn potentiometer with a resistance of 5K Ω for normal dancer operating within a 60° range used with AC & DC drives.
- TCS-605-5 is a five-turn potentiometer with a resistance of 1K Ω for festooned dancer systems, with a 300° rotational range.

Load Cell Sensors

These devices are used in tension systems to provide closed loop feedback of the actual tension on the web.

FM – Foot Mounted

The foot mounted style load cells (used with pillow blocks) provide easy and convenient mounting to the roll that is being measured. It is a strain gauge style unit that is ideal for heavy tension applications.

- Load ratings: 22, 56, 112, 225, 562, 1122, 2248 lbs.
- Sensitivity (output): 1 mV/V at nominal load
- Power Supply: 10 to 15 VDC

ES – End Shaft Mounted

The end shaft style load cells mount to the end of the roll that is being measured. It is a LVDT (Linear Variable Differential Transformer) style which can withstand overloads up to 10 times its rated load capacity. There are several models offered: dead shaft (no bearing), live shaft and cantilever where a single load cell can be used to measure the tension on the roll. Some units are powered with DC voltage and other units are powered with AC voltage. The AC units offer a price advantage over the DC.

- Load Ratings: 20, 50, 90, 200, 500
- Sensitivity (output): 3VDC at nominal load
- Power Supply: ± 12 to ± 15 VDC, $\pm 5\%$