

Dancer Control for Electric Brake Systems

MCS-203

(P/N 6910-448-014)

(Shown with Housing)



The completely solid state MCS-203 Dancer Control Module is designed for automatic web tensioning through the use of a dancer roll. The MCS-203 can control two 24 VDC tension brakes in parallel. It works on the concept of a P-I-D controller and has internal P, I & D adjustments for optimum performance regardless of brake size.

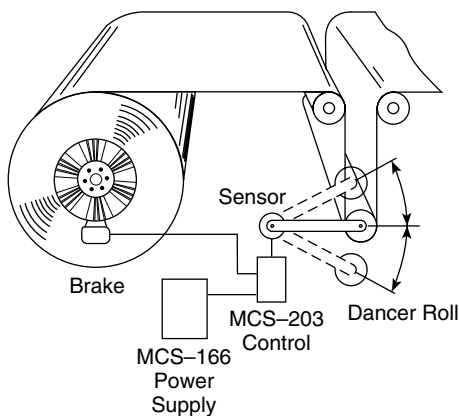
MCS-166 Power Supply, (page 53).

Specifications

Input	24–28 VDC @ 3 Amps (from MCS-166, 1.5 amps for single MCS-166; 3.0 amps from dual MCS-166's) or other power source.
Output	Pulse width modulated 0–24 VDC for 24 volt Warner Electric tension brakes.
Ambient Temperature	–20° to +113°F (–29° to +45°C).
External Inputs	
Dancer Potentiometer	Provides the feedback signal of dancer position and movement for input to the control.
Brake On	Applies full current to tension brake.
Brake Off	Removes brake current and applies antiresidual current to eliminate brake drag. Useful when changing rolls.
Antidrift Input	Nullifies integrator portion of control for faster brake response. Important for splicing and mid-roll starting.
Mounting	Available for panel mounting with exposed wiring or wall/shelf mounting with conduit entrance. Must be ordered with either wall/shelf or panel enclosures.

Requires enclosure, see page 54.

Typical System Configuration



The complete system consists of:

1. Tension brake
2. Dancer tension control
3. Control power supply
4. Pivot point sensor
5. Dancer roll assembly (customer supplied)

The control unit maintains a current output to the tension brake based on an analog input or the manual setting of the control tension adjustment dials. Varying the current from the control creates more or less brake torque for tension adjustability.

Tension Controls

Dancer Control for Electric Brake Systems

TCS-210

(P/N 6910-448-026)

(Shown with Housing)



This closed loop tension control system automatically controls tension on unwinding materials such as paper, film, foil, cloth and wire.

TCS-167 Power Supply, (page 53).

Note: When used with other than MTB magnets, a 68 ohm, 25 watt resistor must be added. Consult factory for details.

Specifications

Input

TCS-210 – 48 VDC @ 3.2 Amps continuous, 48 VDC @ 6 Amps intermittent, 1.6% duty cycle, 30 sec. on time, 8–12 VDC @ 1.5 Amps.

TCS-167 – 120 VAC, 50/60 Hz or 240 VAC, 50/60 Hz (Switch selectable).

Output

TCS-210/TCS-167 – 0–270 mA/magnet (running); 270–500 mA magnet (stopping), up to 12 magnets.

Ambient Temperature

–20° to +113°F (–29° to +45°C).

External Inputs

Dancer Potentiometer

Provides the feedback signal of dancer position and movement for input to the control.

Brake On

Applies holding brake voltage.

Anti-Drift Input

Nullifies integrator portion of control for faster brake response. Important at startup and for mid-roll starts.

Brake Off

Removes brake current and applies antiresidual current to eliminate brake drag. Useful when changing rolls.

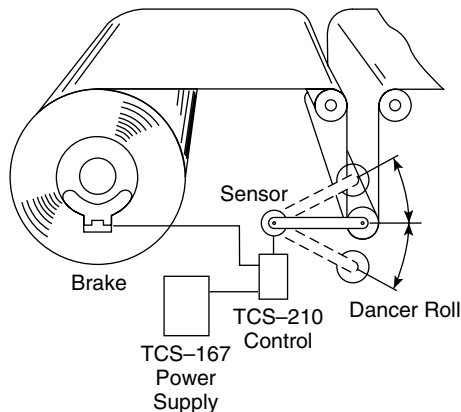
Mounting

TCS-210 – available as panel mounted with exposed wiring, or wall/shelf mounted with conduit entrance.

TCS-167 – available with open frame or wall/shelf mounted enclosure with conduit entrance.

Requires enclosure, see page 54.

Typical System Configuration



The complete system consists of five components:

1. Tension brake
2. Dancer tension control
3. Control power supply
4. Pivot point sensor
5. Dancer roll assembly (customer supplied)

The weight of the dancer roll or loading on the dancer determines the tension on the web and the remainder of the system operates to hold the dancer roll as steady as possible. When the dancer position changes, the Warner Electric pivot point sensor tracks the direction and speed of the change and sends an electric signal to the closed loop control, which, in turn, relays a corrective signal to the Electro Disc tension brake. Increasing current to the Electro Disc increases braking

torque to elevate the dancer to the desired position, while reducing brake current lowers the dancer.

The closed loop dancer control system is completely automatic, limiting the need for operator involvement and the potential for inaccurate tension control. The system offers exceedingly rapid response that, in effect, corrects tension errors before they reach the work area of the processing machine.

Dancer Control for Pneumatic Brake Systems

MCS-207

(P/N 6910-448-066)

(Shown with Housing)



The dancer control, MCS-207 is designed for automatic web tensioning through the use of a dancer roll. The MCS-207 can control either a voltage to pneumatic or current to pneumatic transducer with an air operated clutch or brake. It works on the concept of a P-I-D controller and has internal adjustments of the P-I-D loops for optimum performance regardless of the brake size.

MCS-166 Power Supply, (page 53).

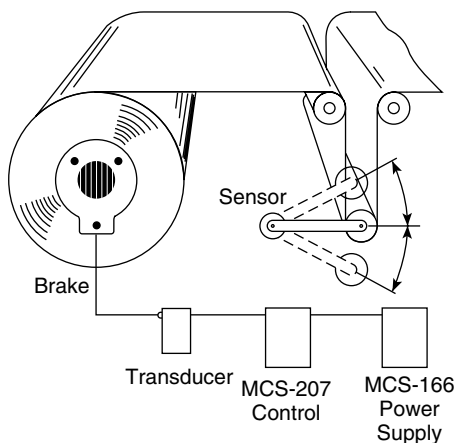
Note: When used with other than MTB magnets, a 68 ohm, 25 watt resistor must be added. Consult factory for details.

Specifications

Input	24–28 VDC, 0.5 amps maximum (from MCS-166 or other power source)
Output	Switch selectable current or voltage Voltage: 0–10 VDC Current: 1–5 mA, 4–20mA, 10–50mA Will operate most electric to pneumatic transducers available.
Ambient Temperature	+32° to +120°F (0° to +49°C).
Control Input	Pivot point sensor, MCS-605-1 or TCS-605-5
External Inputs	
Brake On	Applies maximum output signal (voltage or current) to the transducer
Brake Off	Removes output from the transducer and applies minimum level
Anti-Drift	Provides integrator reset function for mid-roll starting
Adjustments	
Front Panel	Dancer Position: sets dancer operating position Gain: Controls overall system response based on change of dancer input signal
Mounting	Available as panel mounted with exposed wiring, or wall/shelf mounted with conduit entrance. Note: Must be ordered with wall/shelf enclosure or with panel mount enclosure.

Requires enclosure, see page 54.

Typical System Configuration



The complete system consists of:

1. Pneumatic tension brake
2. Dancer tension control
3. Control power supply
4. Pivot point sensor
5. E to P transducer
6. Dancer roll assembly (customer supplied)

The control unit maintains an output to the tension brake based on an analog input or the manual setting of the control tension adjustment dials. Varying the signal from the control creates more or less brake torque for tension adjustability.

Tension Controls

Dancer Splicer Control for Electric Brake Systems

TCS-310

(P/N 6910-448-042)



This closed loop tension control system automatically controls tension on unwinding materials such as paper, film, foil, cloth and wire.

TCS-168 Power Supply, (page 53).

Note: When used with other than MTB magnets, a 68 ohm, 25 watt resistor must be added. Consult factory for details.

Specifications

Input

TCS-310 – 48 VDC @ 6.4 Amps continuous, 48 VDC @ 12 Amps intermittent, 1.6% duty cycle, 30 sec. on time, 8–12 VDC @ 3.0 Amps.

TCS-168 – 120 VAC, 50/60 Hz or 240 VAC, 50/60 Hz (Switch selectable).

Output

TCS-310/TCS-168 – 0–270 mA/magnet (running); 270–500 mA/magnet (stopping) on controlled output channel 0 to 90 mA holding channel, up to 12 magnets per channel.

Ambient Temperature

–20° to +113°F (–29° to +45°C).

External Inputs

Dancer Potentiometer

Provides the feedback signal of dancer position and movement for input to the control.

Brake On

Applies holding brake voltage.

Anti-Drift Input

Nullifies integrator portion of control for faster brake response. Important for start-ups.

Brake Off

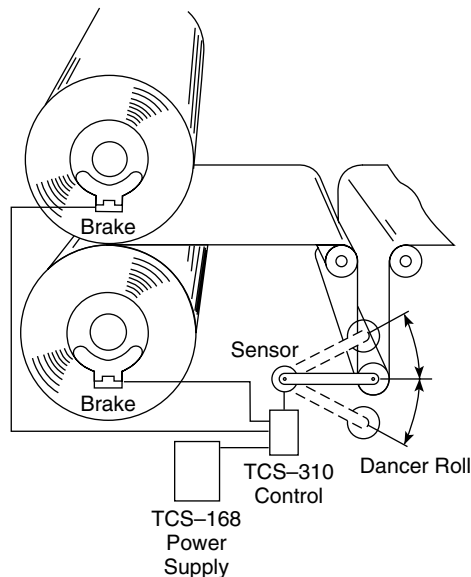
Removes brake current and applies antiresidual current to eliminate brake drag. Useful when changing rolls.

Mounting

TCS-310 – available as NEMA 4 enclosure with remote control station.

TCS-168 – available with open frame or wall/shelf mounted enclosure with conduit entrance.

Typical System Configuration



The complete system consists of five components:

1. Two tension brakes
2. Dancer splicer control
3. Control power supply
4. Pivot point sensor
5. Dancer roll assembly (customer supplied)

The weight of the dancer roll or loading on the dancer determines the tension on the web and the remainder of the system operates to hold the dancer roll as steady as possible. When the dancer position changes, the Warner Electric pivot point sensor tracks the direction and speed of the change and sends an electric signal to the closed loop control, which, in turn, relays a corrective signal to the Electro Disc tension brake. Increasing current to the Electro Disc increases braking torque to ele-

vate the dancer to the desired position, while reducing brake current lowers the dancer.

The closed loop dancer control system is completely automatic, limiting the need for operator involvement and the potential for inaccurate tension control. The system offers exceedingly rapid response that, in effect, corrects tension errors before they reach the work area of the processing machine.