

Tension Controls

Analog/Manual Control for Electric Brake Systems

INDUSTRIAL **MAGZA**® MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 15247 01 B (175) 83430 030 (442) 1 95 72 60 ventas@industrialmagza.com

TCS-200-1

(P/N 6910-448-086)

TCS-200-1H

(P/N 6910-448-087)

TCS-200

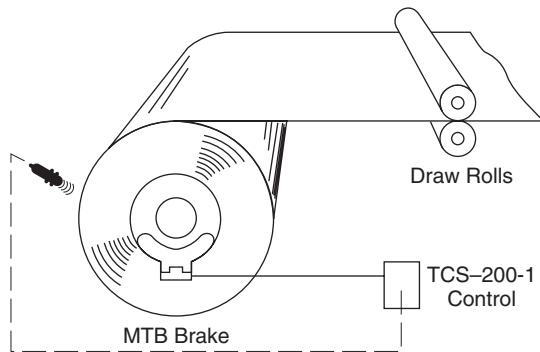
(P/N 6910-448-055)



Analog/Manual Control

The Analog/Manual Control is a basic, low cost, open loop control for manual type operation of Electro Disc tension brakes. A remote torque control function is available that enables the operator to control the desired tension from any convenient location. A roll follower provides automatic adjustment of brake torque proportional to roll diameter change. For the TCS-200-1 and TCS-200-1H analog inputs can be followed.

Typical System Configuration



The complete system consists of:

1. Tension brake
2. Analog tension control
3. Control power supply
4. Optional sensor inputs (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.

Specifications

Input

TCS-200 24–30 VAC, ±10%, 56/60 Hz, single phase
TCS-200-1, TCS-200-1H 115/230 VAC, ±10%, 50/60 Hz, single phase

Output

TCS-200 PWM full wave rectified, 0–3.24 amps current controlled
TCS-200-1 Adjustable 0–24 VDC, 4.25 amps maximum continuous
TCS-200-1H Adjustable 0–24 VDC
 Maximum of 5.8 amps continuous
 Can be used with any 24 VDC tension brake.
 TCS-200 requires sense coil for operation.
 Sense Coil – 275-3893
 TCS-200-1 and TCS-200-1H can be used with or without sense coil.

Ambient Temperature

TCS-200 –20° to +115°F (–29° to +46°C)
TCS-200-1, TCS-200-1H –20° to +125°F (–29° to +51°C)

Sensor Inputs

Remote Torque Adjust

TCS-200, TCS-200-1, TCS-200-1H 1000 ohms

Roll Follower

TCS-200 10K ohms
TCS-200-1, TCS-200-1H 1000 ohms

Analog Voltage Input

TCS-200-1, TCS-200-1H 0–10 VDC (optically isolated when used with an external 15–35 VDC supply)

Analog Current Input

TCS-200-1, TCS-200-1H 4–20 mA (optically isolated when used with an external 15–35 VDC supply)

Auxiliary Inputs

Brake Off (all models) Removes output current to the brakes. Puts the brake at zero current.

Brake On (all models) Applies full voltage to the connected brake.

Front Panel Adjust

Tension Adjust (all models) Provides current adjust to the brake from 0–100%.
 In the remote mode, provides for maximum output level set to the brake.

Brake Mode Switch

(all models) Allows for full brake on, run, or brake off modes of operation to the brake.

Indicators (all models)

Green LED power indicator showing AC power is applied to the control.
 Red LED short circuit indicator showing shorted output condition. Resettable by going to brake off mode with front panel switch.

General (all models)

The control chassis must be considered NEMA 1 and should be kept clear of areas where foreign material, dust, grease, or oil might affect control operation.

Note: When used with other than MTB magnets, inductive load must be supplied – PN 275-3843. Consult factory for details.

MCS-204

(P/N 6910-448-017)

(Shown with Housing)



Remote/Analog control

The MCS-204 control, also completely solid state, is designed for manual or analog input control. The MCS-204 can control two 24 VDC tension brakes in parallel. It also has an antiresidual (magnetism) circuit, a brake on and a highly accessible terminal strip for rapid connection. It is designed for use with the MCS-166 power supply.

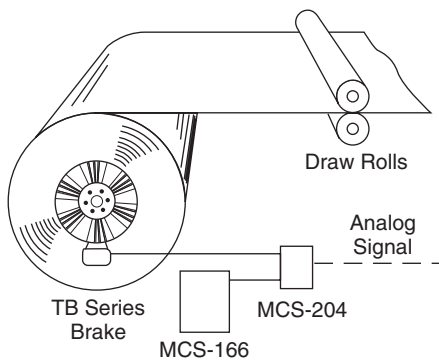
MCS-166 Power Supply (page 65).

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 with modulated 0-24 VDC for 24 volt Warner Electric tension brakes.
Ambient Temperature	-20° to +113°F (-29° to +45°C).
External Inputs	
Torque Adjust	Controls tension by applying the desired amount of current to the brake.
Brake On	Applies full current to tension brake.
Brake Off	Removes brake current and applies antiresidual voltage to eliminate brake drag. Useful when changing rolls.
Operating Modes	
Local Torque Adjust	Knob on front panel.
Remote Torque Adjust	Via remote potentiometer.
Roll Follower	Using external potentiometer.
Current Loop	1-5 mA, 4-20 mA, 10-50 mA. Voltage Input: 0-14.5 VDC.
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 66.

Typical System Configuration



The complete system consists of:

1. Tension brake
2. Analog tension control
3. Control power supply
4. Analog signal input (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

Analog Control for Electric Brake Systems



MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 QRO (442) 1 95 72 60 ventas@industrialmagza.com

TCS-220

(P/N 6910-448-027)

(Shown with Housing)



The remote analog input control is an open loop system designed to allow easy interface with existing or specially designed customer controls to complete a closed loop system. The system also offers complete operator controllability for manual tensioning control.

TCS-167 Power Supply, (page 65).

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

Specifications

Input

TCS-220 – 48 VDC @ 1.6 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-220/TCS-167 – 0–270 mA/magnet (running); 270–500 mA/magnet (stopping).

Ambient Temperature

–20° to +113°F (–29° to +45°C).

External Inputs

Torque Adjust

Controls tension by applying the desired amount of current to the brake.

Emergency Stop

Applies full current to tension brake.

Brake Off

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

Operating Modes

Local Torque Adjust

Knob on front panel.

Remote Torque Adjust

Via 1K to 10K ohm potentiometer.

Roll Follower

Via 1k to 10k ohm potentiometer.

Current Loop

1–5 mA, 4–20 mA, 10–50 mA current source.

Voltage Input

0–14.5 VDC.

Adjustments

Torque Adjust/Span

Controls output manually in local torque mode. Sets maximum control span in remote torque adjust, roll follower, current loop; or voltage input mode.

Zero adjust

Potentiometer adjustment for setting zero output level. Front panel access.

Brake off input

Terminal strip connection which provides for removal of brake current and applies antiresidual current to eliminate brake drag. Used primarily when changing rolls.

Brake on input

Terminal strip connection applies full current to brake when activated regardless of input control signal. Used for emergency stops.

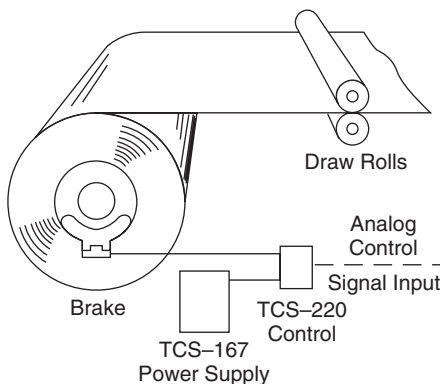
Mounting

TCS-220 – 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

Requires enclosure, see page 66.

Typical System Configuration



The complete system consists of:

1. Tension brake
2. Analog tension control
3. Control power supply
4. Analog signal input (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.

MCS-208

(P/N 6910-448-067)

(Shown with Housing)



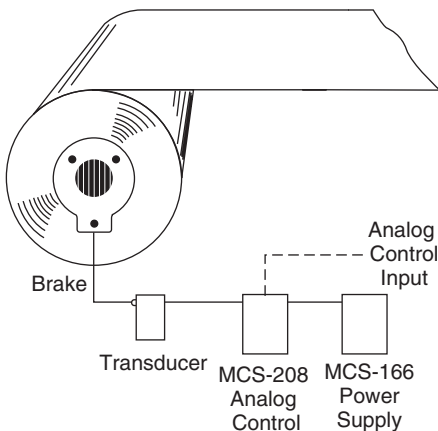
The MCS-208 control, also completely solid state, is designed for manual or analog input control. The MCS-208 features a highly accessible terminal strip for rapid connection, and it is designed for use with the MCS-166 Power Supply.

The remote analog input control is an open loop system designed to allow easy interface with existing or specially designed customer controls to complete a closed loop system. The system also offers complete operator controllability for manual tensioning control.

MCS-166 Power Supply, (page 65).

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

Typical System Configuration



Specifications

Input Power	24–28 VDC, 0.5 amps maximum (from MCS-166 power supply or other source)
Outputs	Switch selectable current or voltage Voltage: 0–10 VDC Current: 1–5 mA, 4–20 mA, 10–50 mA Will operate most electric to pneumatic transducers available.
Ambient Temperature	+32° to +120°F (0° to +49°C).
External Inputs	
Brake On	Applies maximum output signal (voltage or current) to the transducer
Brake Off	Removes output from the transducer and applies minimum levels
Adjustments	
Front Panel	Zero Adjust: Provides for adjustment of minimum input to correspond to minimum output levels Torque Adjust/Span: Provides for manual adjust in manual mode, or span adjustment when in other operating modes
Operating Modes	Local torque adjust Remote torque adjust Roll follower Analog voltage input Analog current input
Mounting	Available with panel mounting with exposed wiring or wall/shelf mounting with conduit entrances. Note: Must be ordered with wall/shelf enclosure or with panel mount enclosure.

Requires enclosure, see page 66.

The complete system consists of:

1. Pneumatic tension brake
2. Analog tension control
3. Control power supply
4. Analog signal input (customer supplied)
5. E to P transducer

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

Analog Splicer Control for Electric Brake Systems

INDUSTRIAL **MAGZA**® MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 BRAKE SYSTEMS S.A. CRO (442) 1 95 72 60 ventas@industrialmagza.com

TCS-320

(P/N 6910-448-043)



The analog splicer control provides dual brake functions with manual operator or analog input control requiring simultaneous brake tensioning and holding.

The system also offers complete operator controllability for manual tensioning control.

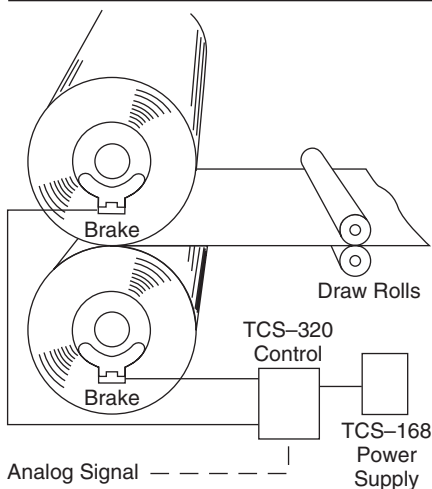
TCS-168 Power Supply, (page 65).

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

Specifications

Input	<p>TCS-320 – 48 VDC @ 3.2 Amps continuous, 48 VDC @ 12 Amps intermittent, 1.6% duty cycle, 30 sec. on time, 8–12 VDC @ 3.0 Amps.</p> <p>TCS-168 – 120 VAC, 50/60 Hz or 240 VAC, 50/60 Hz (Switch selectable).</p>
Output	<p>TCS-320/TCS-168 – 0–270 mA/magnet (running); 270–500 mA/magnet (stopping) on controlled output channel, 0 to 90 mA/magnet (typ.) on holding output channel.</p>
Ambient Temperature	–20° to +113°F (–29° to +45°C).
External Inputs	
Torque Adjust	Controls tension by applying the desired amount of torque to the brake.
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.
Operating Modes	
Local Torque Adjust	Knob on front panel.
Remote Torque Adjust	Via 1K to 10K ohm potentiometer.
Roll Follower	Via 1k to 10k ohm potentiometer.
Current Loop	1–5 mA, 4–20 mA, 10–50 mA current source.
Voltage Input	0–14.5 V DC.
Adjustments	
Torque Adjust/Span	Controls output manually in local torque mode. Sets maximum control span in remote torque adjust, roll follower, current loop, or voltage input mode.
Zero adjust	Potentiometer adjustment for setting zero output level. Front panel access.
Brake off input	Terminal strip connection which provides for removal of brake current and applies antiresidual current to eliminate brake drag.
Brake on input	Terminal strip connection applies full current to brake when activated regardless of input control signal. Used for emergency stops.
Mounting	<p>TCS-168 – available with open frame or wall/shelf mounted enclosure with conduit entrance.</p> <p>TCS-320 – available as open frame or a NEMA 4 enclosure with remote control station.</p>

Typical System Configuration



The complete system consists of:

1. Two tension brakes
2. Analog splicer control
3. Control power supply
4. Analog signal input (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.

The TCS-320 can function as a splicer control or a dual brake control. With the use of the jumper board (included), the TCS-320 can control up to 24 magnets.