

ECP Braking

ECP-4200 Freight Car Braking System

Business Unit: Wabtec Railway Electronics and WABCO Freight Car Products

Wabtec offers an Electronically Controlled Pneumatic braking equipment that integrates electronic and pneumatic communications hardware into one package that instantly responds to locomotive braking commands.

Features / Benefits:

- Wabtec's field-proven ECP braking solutions are AAR-approved under S-4200 series specifications
- ECP options include an overlay to conventional AAR pneumatic brake equipment and a stand-alone ECP manifold
- Allows for simultaneous brake applications, with shorter stopping distances
- Graduated release of brakes
- Lowers in-train forces and fuel consumption
- Reduces wheel wear
- Application with pneumatic emergency valve
- Mechanical manual release valve
- Single and multi-pack car configurations
- Extended battery life
- Rugged end-of-car connector
- Pneumatic emulation options
- Supports "smart car" sensors



Overlay Manifold



Stand Alone Manifold

ECP Manifold

Mounts on a conventional or single sided air brake pipe bracket, replacing the pneumatic service portion, and provides pneumatic control and sensor functions. The manifold connects to the conventional mechanical manual release rod.

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Miscellaneous



Car Control & ID (CCID) Junction Box

The ECP Car Control Device (CCD) is contained in a field removable lid to a junction box package. The junction box provides termination of car cabling, and houses the Car ID module and battery.



End of Car Connector, with ECP Trainline Cable

- Provides termination to the intercar connector cable



ECP Empty-Load

- Standard ELX sensor arm set-up
- No equalizing volume
- Maximum empty-car brake cylinder pressure is limited to equivalent pneumatic emergency level
- ECP controls empty-car brake cylinder pressure below maximum pressure limit
- Direct graduated application/release control of empty-car brake cylinder pressure



ECP Vent Valve

The ECP Vent Valve is basically an auxiliary venting device that is functionally similar to Wabtec's other vent valves with one important difference – the sensitivity, signal transmission and 'jump' capability of the standard pneumatic emergency portion is maintained.

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Miscellaneous ECP Components (continued)



Intercar Cable

The ECP Inter-Car Cable and Lanyard is used to connect the 230VDC Trainline between ECP wagons and locomotives. The cable complies with the S-4210 Standard and has been approved by the AAR for use on S-4200 compliant ECP trains. The connector end is designed to allow the cars and locomotives to be easily connected and disconnected. When in operation, the cable and lanyard lengths are specified to pull apart prior to the brake pipe separating to initiate an ECP Emergency.



ECP Hand Brake

- 9300-ECP, 9300-3ECP, 4493-ECP, 4493-3ECP
- AAR Group N and O
- Allows locomotive ECP logic to query for set brakes at any time
- Works in 'ECP Run' or 'ECP Switch' modes with no operational impact on communication bus loading
- Car ECP logic instantaneously sends warnings to the locomotive ECP display when the handbrake is applied and the Train Brake
- Command transitions to 0%
- Integrates to Wabtec's "CarNet" onboard ECP Wagon Communication system
- Provides a path for ECP controlled parking brakes