

CCMT 2 - CCMT 8 and CCMT 16 - CCMT 42 Stepper Valve Inductor Extenders

Overview and Disclaimer

It is highly recommended that stepper valve harness lengths do not exceed 30 feet. If the customer MUST exceed this recommendation, the information in this bulletin may be used to increase chances of successful CCMT valve control. The following recommendations are based on observed Phase and Holding currents of the CCMT valves operating under no load conditions. Use of CCMT valves and Inductor Extenders in a real-world pressurized system should be considered as *Beta Tests* and the information in this bulletin used as general guidelines.

Wiring Recommendations

Use Belden 9418 or equivalent Shielded 4 x 18AWG for harness extensions of up to **75 feet MAXIMUM** total length. Using wire larger than 18AWG will not allow for longer harness lengths and can reduce the maximum length for Voltage Chopper Constant Current valve drivers. The Inductor Extender must be installed no more than 9 feet from the Valve Controller.

Valve Driver: Chopper vs. Constant Voltage

Voltage Chopper Constant Current valve drivers typically supply a voltage of 24V to 30V used for the Chopper to maintain a Constant Current in the valve windings. This current can be the Phase/Drive Current or the Holding Current.

The **CC200 and XM678D 5.4 US** supply 12V for the Chopper to emulate a Constant Voltage Driver. Due to the lower voltage (12V vs 24V), the valve winding will take longer to reach Peak Phase current and need to be operated at the CCMT Data Sheet Constant Voltage Drive Step Rate of **150 Steps/sec**.

CCMT 16 - CCMT 42 Valves

Voltage Chopper Constant Current valve drivers and XM678Dv5.4; with Phase Current of 300 mA and Holding Current up to 100 mA:

P/N 335-3501 300mA Inductor Extender may be used with valve harness lengths up to 75 feet to achieve cleaner Phase Current drive waveforms of acceptable magnitudes and Holding Currents with balanced magnitudes. **Caution do NOT set Chopper driver Phase Current or Holding Current parameters higher than 300mA when using P/N 335-3501 300mA Inductor Extender.**

The CCMT Data Sheet Chopper Current Drive Step Rate of **200 Steps/sec** is recommended for Voltage Chopper Constant Current valve drivers.

The CCMT Data Sheet Constant Voltage Drive Step Rate of **150 Steps/sec** is recommended for XM678Dv5.4 to achieve Data Sheet Phase Current and optimal Torque.

CC200:

No Inductor Extender is needed with valve harness lengths up to 75 feet. The CC200 Phase/Drive current is more than 300mA for the CCMT 16 - CCMT 42 Valves; **do NOT use P/N 335-3501 300mA Inductor Extender.**

The CCMT Data Sheet Constant Voltage Drive Step Rate of **150 Steps/sec** is recommended for CC200 to achieve maximum Phase Current and Torque.

CCMT 2 - CCMT 8 Valves

Voltage Chopper Constant Current valve drivers and XM678Dv5.4; with Phase Current of 100 mA and Holding Current up to 100 mA:

P/N 335-3500 Inductor Extender may be used with valve harness lengths up to 75 feet to achieve cleaner Phase Current drive waveforms of acceptable magnitudes and Holding Currents with balanced magnitudes. **Caution do NOT set Chopper driver Phase Current or Holding Current parameters higher than 200mA when using P/N 335-3500 Inductor Extender.**

The CCMT Data Sheet Chopper Current Drive Step Rate of **200 Steps/sec** is recommended for Voltage Chopper Constant Current valve drivers.

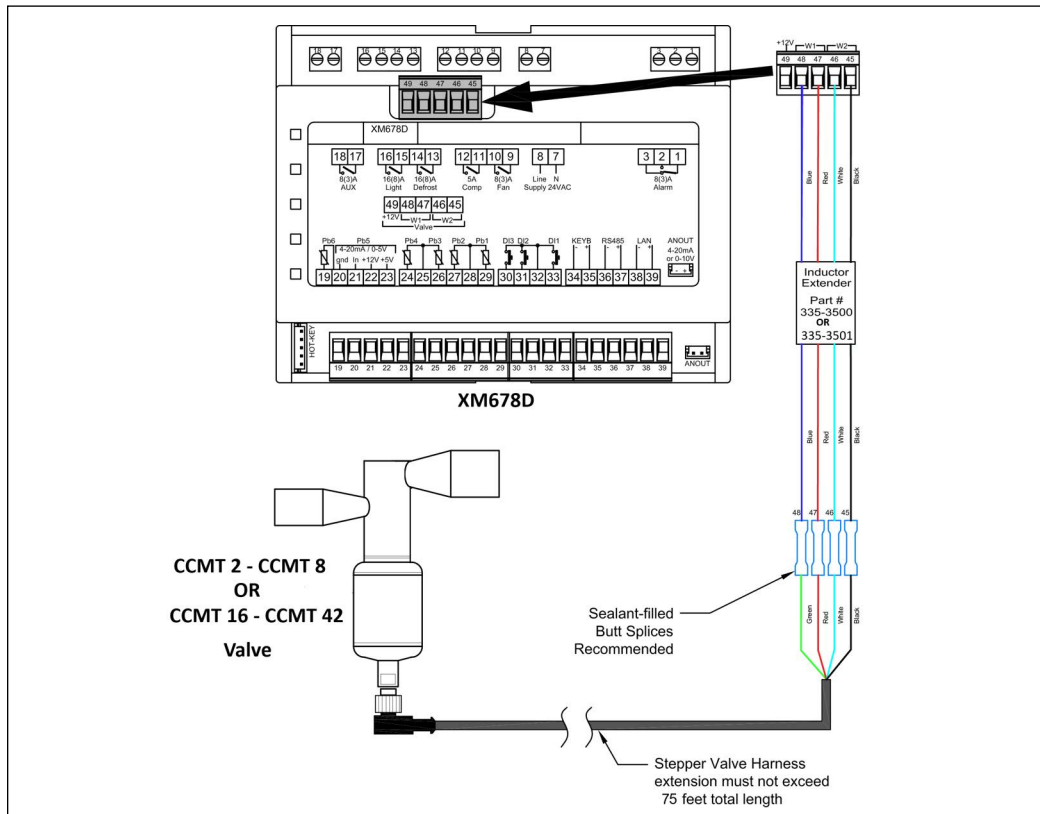
The CCMT Data Sheet Constant Voltage Drive Step Rate of **150 Steps/sec** is recommended for XM678Dv5.4 to achieve Data Sheet Phase Current and optimal Torque.

CC200:

The CC200 does **NOT supply Holding Current and CANNOT** be used in applications that require Holding Current. Check with CCMT valve manufacturer to verify your application does not require holding current before designing in the CC200 controller.

No Inductor Extender is needed with valve harness lengths up to 75 feet, but **P/N 335-3501** Inductor Extender may be used. The CC200 Phase/Drive current is more than 200mA for the CCMT 2 - CCMT 8 Valves; **do NOT use P/N 335-3500 Inductor Extender.**

The CCMT Data Sheet Constant Voltage Drive Step Rate of **150 Steps/sec** is recommended for CC200 to achieve maximum Phase Current and Torque.



XM678D Inductor Extender Installation

Visit our website at copeland.com/en-us/products/controls-monitoring-systems for the latest technical documentation and updates.

For Technical Support call 833-409-7505 or email ColdChain.TechnicalServices@Copeland.com