

VFD with Bypass package
for HVAC Applications

Introducing the ABB E-Clipse Bypass



ABB E-Cclipse Bypass – What Is It?

- ABB's Next Generation HVAC Bypass
- Replacement to the Current ABB E-Bypass Offering

E-Cclipse Definition

- Outperform
- Surpass
- Outshine
- Beat
- Overtake
- Overshadow
- Outclass



ABB E-Clipse Bypass

- IBC 2006 Seismic Certified
 - Bypass has been subjected to the nationally recognized standard testing procedure ICC-ES AC 156
 - This test is referenced and accepted by ASCE/SEI 7-05 and IBC 2006
 - An importance factor of 1.5 has been assigned
 - Therefore the drive and bypass can be referred to as a *Designated Seismic System*
 - Operation of the VFD/Bypass is required after an event
- UL listed 100 KAIC short circuit rated as a package
 - No short circuit coordination concerns



ABB E-Cclipse Bypass

- **Building Automation Monitoring and Control of the Bypass**
 - Standard embedded protocols:
BACnet; JCI N2; SBT FLN; ModBus RTU
 - Optional fieldbus adapters:
LonWorks; ProfiBus; EtherNet IP; DeviceNet
 - One connection point for both VFD and Bypass
- **System Pass Through I/O**
 - Comms controlled bypass I/O independent of drive
 - Over 100 points of information and control
- **Single Phase and Brownout Protection in VFD and Bypass**
- **Drive Independent Bypass Control and Functionality**
 - Bypass is fully controllable and functional even with the drive removed



ABB E-Clipse Bypass

- Standard ABB 115 VAC Contactors
- No Contactor Chatter
 - Positive contactor control over + 30 / - 35% voltage range (brownouts)
 - Allows input single phase operation in drive mode (at reduced load)
 - Contactor chatter completely eliminated – all sizes and voltages
- Motor Control / Contactor Protection
 - Welded contact / open contactor coil detection and annunciation
 - Allows external shunt-trip removal of power for motor protection
- Conditional Auto-Transfer to Bypass Capability
 - Program which drive faults cause auto-transfer to bypass
 - Over current
 - Over voltage
 - Under voltage
 - Loss of analog input
 - **NO transfer with motor ground fault VFD trip**



E-Cclipse Bypass Features

- System “Proof-of-Flow” Indication
 - Programmable to cause a warning or fault and system shut down
 - Common system relay output (VFD and Bypass) – one place to look
 - System “ Proof of Flow” indication over serial comms
 - Temperature Control Contractors
 - No expensive CT’s required
 - Easily programmable



ABB E-Cclipse Bypass

- Enhanced Fireman's Bypass Override
 - Override 1 provides fixed smoke control operation
 - Override 1 acknowledges high priority safeties
 - Override 2 programmable to meet local requirements
- 100% Bypass Control and Functionality – Even with Drive Removed
 - Supervisory controller – controls bypass contactor state based on analog input
 - Cooling Tower; condensor water temperature controller



E-Cclipse Bypass Features

- Innovative Keypad with Display
 - Bypass safeties, faults and alarms displayed in plain English
 - Displays for AC line volts, amps, kWhrs, bypass run time etc.
 - Diagnostics displayed in plain English
 - System Mode of operation and status



Plain English Keypad



- Distinct Annunciation of Safety Interlocks
 - Selectable English annunciation: Firestat; Freezestat; Damper end-switch; Over pressure; Vibration trip; Low suction; Safety open
- Up to four (4) independent safeties
- Each safety input may be tied to an individual message

ABB E-Cclipse Bypass – Modularity

- Easy to service
- One Control Unit fits all
 - Keypad, Power Supply, Control Board, in one snap-in module



ABB E-Clipse Bypass – Conclusion

- Most Functional Drive Bypass on the market today
- The product will be BTL Listed and provide enhanced smoke control operation.

NOTE: none of this capability must be used. You can wire the bypass the same as today's unit and not touch the keypad – we have even installed the jumpers at the factory.

The E-Clipse bypass was designed for 100% backwards compatibility.



ABB E-Clipse Bypass – Conclusion

Top 10 Reasons to use/specify the E-Clipse Bypass

- Plain English display of bypass functions / operation
- Proof-of-Flow – no more expensive CTs
- Individual safety annunciation
- Bypass pass through I/O
- Selectable drive faults for auto transfer
- No Contactor Chatter-No more welded contactors
- 100% bypass control and functionality with complete removal of drive
- Single phase protection in bypass
- Selectable Motor Overloads Class 10, 20, and 30
- Serial Communications in bypass mode – no loss of control



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