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CENTERLINE ® 1500 MV MCC EtherNet/IP IntelliCENTER®

Ver 2_18

PUBLIC

Allen-Bradley · **Rockwell Software**

Rockwell Automation

Agenda

Value of IntelliCENTER Technology

EtherNet/IP Hardware and Cabling

Intelligent Motor Control Devices

IntelliCENTER Software

Frequently Asked Questions

Summary

Value of IntelliCENTER Technology

- Faster Integration

  - Network is preconfigured (node number, IP address, baud rates, functionality verified)

- Faster installation compared to hardwired I/O

- Control and diagnostics

  - Intelligent Motor Control provide crucial feedback from motors

Adds up to a lower total cost of ownership

Value of IntelliCENTER Technology

- Precise control with intelligent motor control devices
    - Wide array of device level components
- More information – where you need it, when you need it
    - Enhances your plant asset management system
- Improved uptime
    - Warnings in advance of failure
    - Troubleshooting tools and information at your fingertips

Adds up to a lower total cost of ownership

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EtherNet/IP Design

- Design consistent with DeviceNet IntelliCENTER
  - Cables are in the 6x6 overhead wireway
  - Does not take up any additional space
  - 24V power supply required
  - 120V power supply option available, with required incomer
- Easy implementation in the field
  - All nodes will be preconfigured with the IntelliCENTER database pre-built at the factory
- Robust, noise immune network solution

EtherNet/IP Structure

- 600V UL-listed EtherNet cable
- Stratix™ 5700 Industrial Switches

EtherNet/IP Units

- E300 Overload Relays for Starters
- SMC-50 Soft Starters
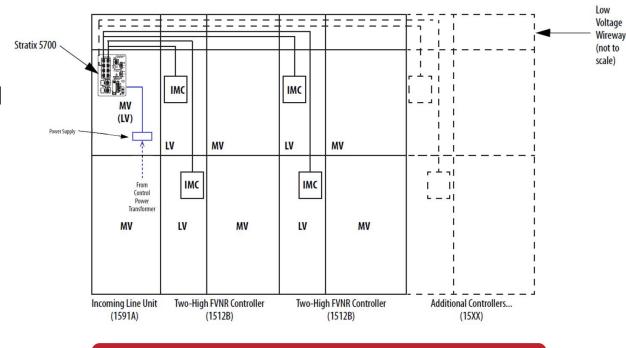- Bulletin 857/865
- IntelliVAC ™

- Stratix 5700 is mounted in the **Incomer's LV compartment** as a standard

- The Stratix 5700 is powered by a 24V DC Power Supply, which is powered by a CPT

- Customer can use their own power supply (must comply with ODVA requirements)

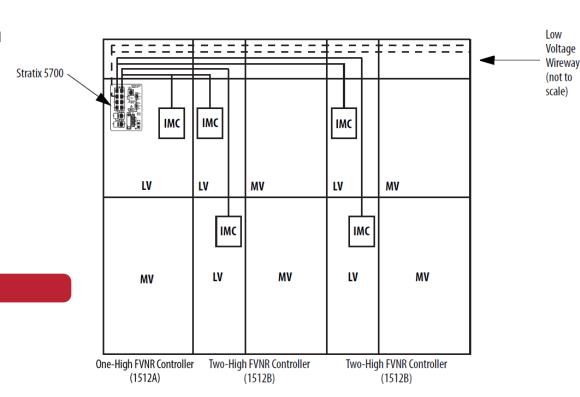**Refer to Publication 1500-TD001 for details**

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EtherNet/IP Network
in CENTERLINE 1500 MCCs

- Alternatively, the Stratix 5700 can be mounted in a controllers **LV compartment** as per customer request

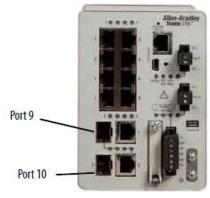- Needs to be separately powered

Refer to Publication 1500-TD001 for details

Stratix 5700

Low Voltage Wireway (not to scale)

IMC	IMC		IMC
LV	LV	MV	LV	MV

	IMC		IMC
MV	LV	MV	LV	MV

One-High FVNR Controller (1512A)

Two-High FVNR Controller (1512B)

Two-High FVNR Controller (1512B)

Rockwell Automation
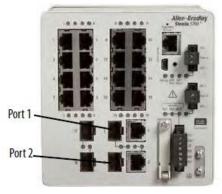
Stratix 5700 Switch – 10 Port

- For *eight* or less IMC devices

- Port 9 & 10 are reserved for switch-to-switch or uplink connections

- Standard offering for CENTERLINE MCCs with EtherNet/IP network

- One switch per lineup- unless otherwise needed

Catalog Number: **1783-BMS10CL**
User Manual Pub: **1783-UM007**

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Stratix 5700 Switch – 20 Port

- For *9 to 16* IMC devices
- Port 1 & 2 are reserved for switch-to-switch or uplink connections
- Option for CENTERLINE MCCs lineups with multiple IMC devices
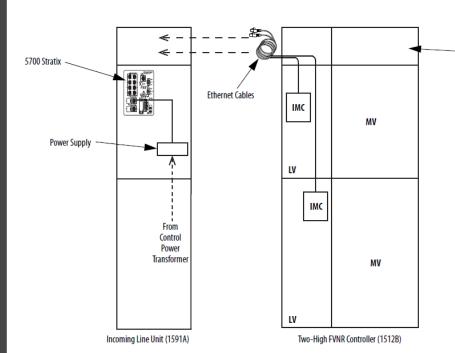- One switch per lineup- unless otherwise needed

Port 1
Port 2

Catalog Number: **1783-BMS20CL**
User Manual Pub: **1783-UM007**

EtherNet/IP Network
in CENTERLINE 1500 MCCs

5700 Stratix

Ethernet Cables

Power Supply

From Control Power Transformer

IMC

IMC

MV

LV

MV

LV

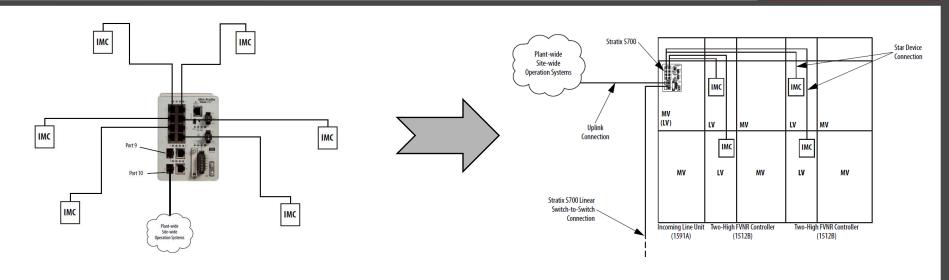Low Voltage Wireway (not to scale)

Incoming Line Unit (1591A)

Two-High FVNR Controller (1512B)

- Each MV Controller comes as an individual shipping split
- Stratix 5700 is **pre-wired within each shipping split**, cables need to simply be routed through the LV Wireway to plug into the switch port
- Cables are located as in the diagram when controllers are shipped

IntelliCENTER EtherNet/IP Network Topology

- The standard IntelliCenter EtherNet/IP MCC design uses a star topology for the IMC device connections
- Switch level ring configuration available
- Device Level Ring is not common within the MCC

Allen-Bradley EtherNet Cable

- UL / cUL listed for use with high voltage power cables
    - 600V cable designed to support high voltage applications
    - UL rated for use in Power Limited Trays
- Provides reliable network connection in harsh conditions
    - Protected from noise, chemicals, thermal and mechanical issues for the harshest possible industrial environments ($M_3I_3C_3E_3$ rated)
    - Foil and braided shield for maximum noise immunity
    - Wide thermal operational range (-20C … 80C)
- Cat 5e cable enables high speed data rate
    - More data can be transferred in a shorter period.

Cable Rating	UL, cUL TYPE CMG; UL PLTC or UL AWM 2570 80C 600V, TIA 568B
Certifications	UL and cUL Listed
Operating Temperature	-20…+80 °C (-4…+176 °F)

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Rockwell Automation

Intelligent Motor Control Components

Bulletin 857

- Advanced motor/feeder protection relay
- Built-in disturbance recorder for signal evaluations
- Freely configurable display with six selectable measurement values

IntelliVAC Control Module via POINT I/O adapter (1734-AENT)

- Intelligent solid-state control of the MV 400- and 800-Amp contactor
- Complete with Power Loss Ride through and altitude compensation
- Anti-kiss and anti-pumping protection to ensure the MV contactor remains closed

SMC-50 Soft Starter via 20COMM-E

- Modular and compact soft starter, offering advanced monitoring and protection capabilities.
- Includes I/O, electronic overload, THDV & THDI

Intelligent Motor Control Components

E300 Electronic Overload Relay

- Enhanced thermal overload motor protection with inherent phase loss, temperature, ground fault, voltage monitoring, and underload protection
- Advanced motor diagnostic information to assist with preventative maintenance programs resulting in reduced downtime

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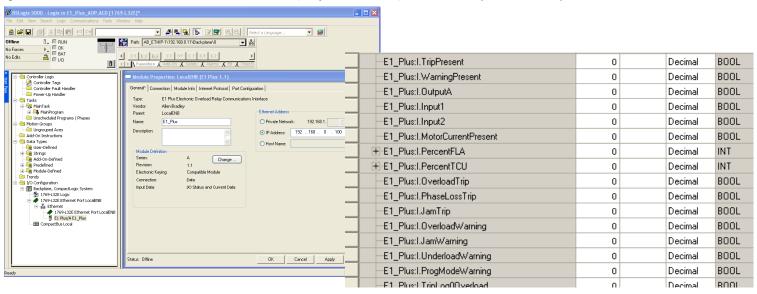Value of IntelliCENTER Technology

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Premier Integration with Studio 5000

- Device parameters are mapped automatically to controller tags in Studio 5000 Logix Designer software
- Configure and program all intelligent motor control devices in Studio 5000
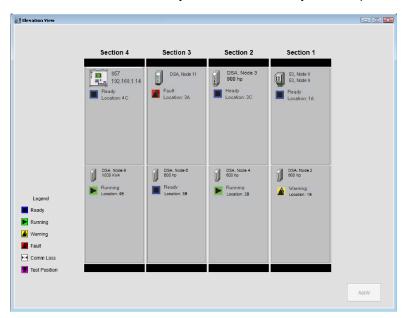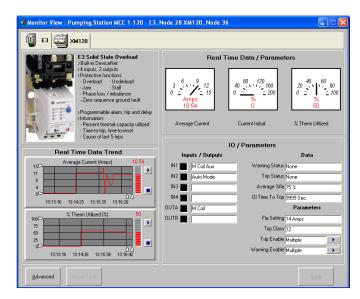- Configuration is stored in the controller to simplify device replacement (in ACD file)

Premier Integration available in CENTERLINE MCCs with IntelliCENTER

Improved Availability

Access to information and diagnostics reduces unplanned shutdowns

- Identify issues in advance of a fault results in a shut-down
- Diagnose issues without having to shut-down, lock-out, or remove the device
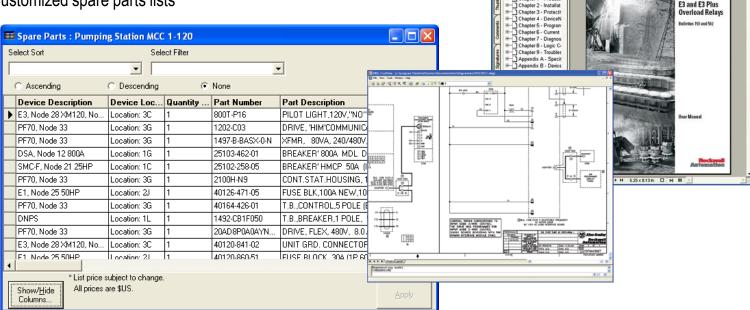- Access information from any remote location on your enterprise network

Customized Documentation

Documentation and asset management features

– Immediate access to wiring diagrams

– User manuals for your devices

– Customized spare parts lists

Simplified Troubleshooting

Improved Access to Information

- – Capture elusive/intermittent problems with trending and event logging capabilities
- – Email notification of alarms, warnings, and faults
- – ActiveX Controls included for easy integration with on-machine HMI
- – Monitor and diagnose your system remotely without interrupting the process
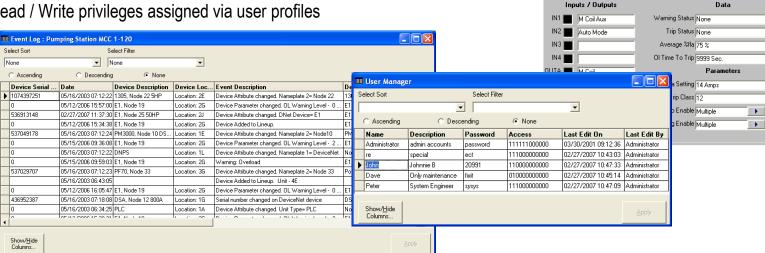
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Increased Safety and Security

Increased Safety

- Remote monitoring of key parameters
- Set, reset, and configure devices with the door closed

Increased Security

- Tracking of all configuration changes through the event log
- Read / Write privileges assigned via user profiles

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What type of managed EtherNet switch can I select?

You can select either the 10 Port or 20 Port Stratix 5700 managed EtherNet switches.

What supply voltage do I need to power my EtherNet system in my MV MCC?

Customers can either supply 24V or 120V to power their EtherNet system in the their MV MCC. If customers wish to supply 120V, they will require a incomer section to house the 24V DC power supply.

- Refer to 1500-TD001

Will there be a limit to the number of EtherNet devices we can put in the lineup?

No- in the case that no more ports are available in the installed Stratix Switch, another switch can simply be purchased and installed to accommodate for more EtherNet devices. Refer to 1500-TD001 for more details.

Frequently Asked Questions
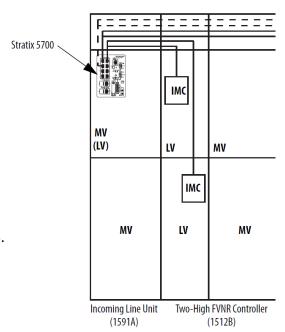
Where is the Stratix 5700 located in this design?

> The switch will be located in the LV Cell of the incomer.
>
> It can also be placed in the LV Cell of a controller, based
>
> on customer preference (requires CMOD)
>
> - Refer to slide 7 & 8 of this presentation

How do I accomplish the Distributed I/O functionality that the DSA

provided for DeviceNet?

> Point I/O is available to provide this functionality in the EtherNet/IP enabled MCCs.

Stratix 5700

MV (LV)   LV   MV

IMC

IMC

MV   LV   MV

Incoming Line Unit (1591A)   Two-High FVNR Controller (1512B)

Frequently Asked Questions

Can I have DeviceNet and EtherNet in the same lineup?

No. We have made these two options mutually exclusive.

How many EtherNet switches are there in each lineup?

There is one EtherNet switch per Incomer or Lineup, but is also dependent on how many IMC devices are in the lineup.

Do I need to select any special wireway?

Yes, you need to add a 6 x 6 wireway to accommodate the cables.

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Benefits of EtherNet/IP

- Reduce programming errors and training needs while improving installation time with a single software package for configuration, control and programming

- Increase access to information with a single network from plant floor to your front office

- Reduce support needs with only one network throughout the enterprise

- Information, configuration and I/O data on the same high-speed network

Plus the value of IntelliCENTER Technology in CENTERLINE MCCs

- 600V UL-listed Tray Rated Cable for code compliance and maximum performance

- Network cable is integrated into CENTERLINE MCC for maximum protection

- Factory tested network and pre-configured nodes to simplify startup and commissioning

- Seamless support for EtherNet/IP in the lineup

- Integrated network design makes it easy to add to your existing installation

Refer to Publication 1500-TD001 for further details

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Thank you!

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