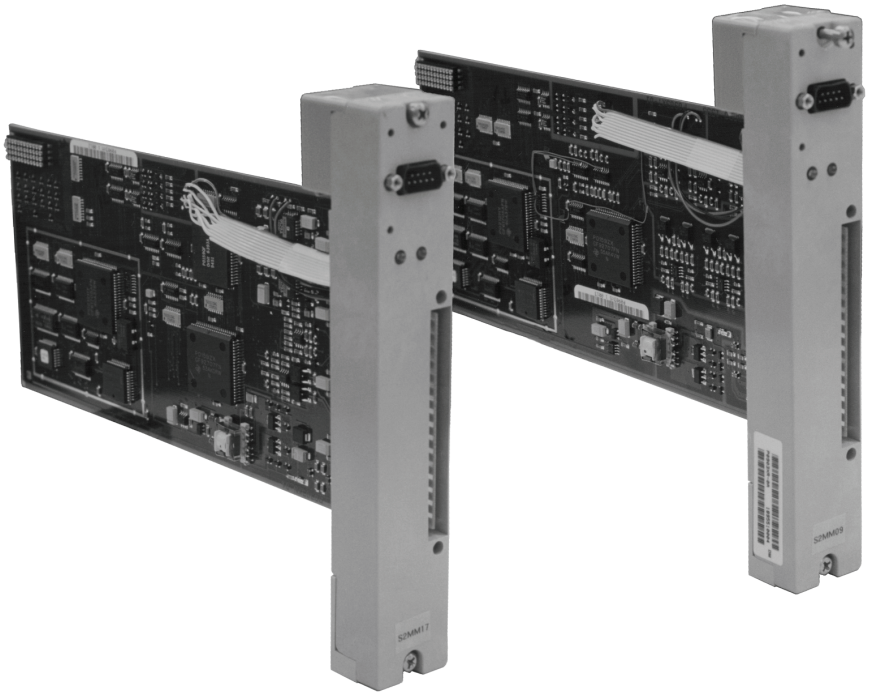
I/A Series® HARDWARE
Product Specifications

invensys
Foxboro®

PSS 21H-7R2 B3

SPEC 200 MICRO® Control Integrators



Used for migration from SPEC 200 MICRO control components to I/A Series display and supervisory, the SPEC 200 MICRO Control Integrator (S2MI) provides translation for single point configuration, integrated system management, and advanced I/A Series control features.

The SPEC 200 MICRO Control Integrator (S2MI) hardware is a translator that plugs directly into the electronic nest to replace the SPEC 200 MICRO control card. This achieves significant advantages:

- Single point of configuration
- Integrated System Management.
- Advanced I/A Series control and features.

The SPEC 200 MICRO Control Integrator family provides a migration path from SPEC 200 MICRO control components to I/A Series display and supervisory functions. This can save up to 60% of the cost of total system replacement by preserving existing process interface and wiring.

The SPEC 200 MICRO Control Integrator (S2MI) product includes appropriate connectors to enable Integration of SPEC 200 MICRO control to I/A Series while keeping the field interface and wiring intact. Control is performed by a single or fault-tolerant I/A Series control station: Field Control Processor 270 (FCP270) or Z-Module Control Processor 270 (ZCP270).

DESCRIPTION

The S2MI hardware consists of an I/A Series interface component, an I/A Series Fieldbus Isolator, and local Fieldbus cables. A basic interface replaces single-width 2CCA-S controller cards in SPEC 200 MICRO nests. It provides SPEC 200 MICRO control loop process connections to the I/A Series Fieldbus. An extended control interface, used in conjunction with a basic control interface, provides additional digital inputs/outputs to support replacement of double-width extended 2CCA-D controller cards. A specially packaged I/A Series Fieldbus Isolator mounts into an empty nest slot in SPEC 200 or NCM nests. This isolator provides Remote-to-Local Fieldbus electrical isolation.

HARDWARE PLATFORM

The S2MI hardware is a SPEC 200 MICRO single-width form factor card. The card fits into a single SPEC 200 MICRO nest mounting slot. The mounting slot may be within a SPEC 200 2ANU nest or a 3CDC Network Communications Module (NCM) nest. This unit provides a basic interface of the voltage and logic signals of SPEC 200 MICRO.

Basic Control Interface (S2MM17)

The basic control S2MI (S2MM17) receives power from the nest power connector and process signals from the original SPEC 200 MICRO front plate connector. The S2MM17 handles four analog 0 to 10 V dc inputs, two 15 V dc logic inputs, two 15 V dc logic outputs, and two analog 0 to 10 V dc outputs. The basic control interface design provides single loop integrity at the lowest possible cost. The S2MM17 directly replaces a 2CCA-S card in a "plug-and-play" manner. No re-wiring of process signals is required for installation.

Local Fieldbus connections are accomplished from the S2MI front plate. One 9-pin "D" connector is used. Both Local Fieldbus A and Local Fieldbus B are routed through one 9-conductor cable to each module. Individual S2MI modules may be removed from the Fieldbus without losing communication to other modules. Modules may be added to an implemented Fieldbus using up to two extension cables for a total of 30 feet maximum.

I/A Series Fieldbus addressing is accomplished by a standard "letterbug" fixture mounted on the module substrate. All I/A Series addressing, configuration, and documentation is consistent with current I/A Series software operation. All versions of I/A Series software supports the S2MM17.

Extended Control Interface (S2MM09)

The extended control S2MI (S2MM09) receives power from the nest power connector and process signals from the original SPEC 200 MICRO front plate connector. The S2MM09 handles eight 15 V dc logic inputs and eight 15 V dc logic outputs. The extended control interface design provides single loop integrity at the lowest possible cost. The S2MM09 directly replaces the extended portion of a 2CCA-D card in a "plug-and-play" manner. When used together, an S2MM17 card and an S2MM09 card replace a complete 2CCA-D module. No re-wiring of process signals is required for installation.

Fieldbus connections are accomplished from the S2MI front plate. One 9-pin "D" connector is used. Both Local Fieldbus A and Local Fieldbus B are routed through one 9-conductor cable to each module. Individual S2MI modules may be removed from the Fieldbus without losing communication to other modules. Modules may be added to an implemented Fieldbus by using up to two extension cables for a total of 30 feet maximum.

I/A Series Fieldbus addressing is accomplished by a standard "letterbug" fixture mounted on the module substrate. All I/A Series addressing, configuration, and documentation is consistent with current I/A Series software operation. All versions of I/A Series software supports the S2MM09.

SPEC 200 MICRO Fieldbus Isolator (MSFBI and MDFBI)

Remote Fieldbus communications signals must be isolated and repeated to a local Fieldbus media. The SPEC 200 MICRO Single Fieldbus Isolator (MSFBI) and redundant option SPEC 200 MICRO Dual Fieldbus Isolator (MDFBI) are special form factors of the standard I/A Series Fieldbus Isolator. These units mount in an empty slot in a SPEC 200 nest or in a multiplexer slot of the NCM nest (Figure 1).

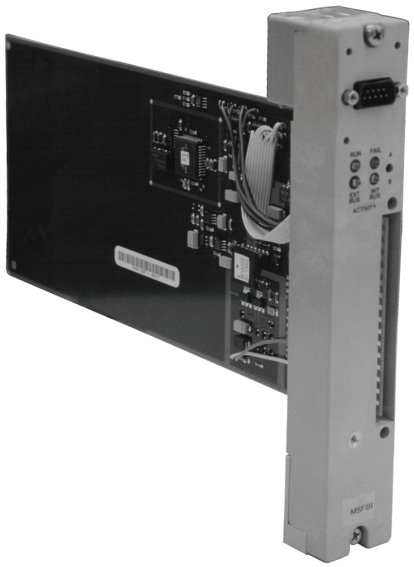


Figure 1. SPEC 200 MICRO Fieldbus Isolator

Remote and Local Fieldbus connections are accomplished from the front plate. The remote Fieldbus connects using an appropriate quick disconnect terminal block. Inbound and outbound remote Fieldbus wires are connected using screw type terminals on a quick disconnect connector. The entire connector assembly attaches to the module front plate. This allows the remote Fieldbus to be disconnected for servicing while maintaining remote Fieldbus continuity.

One 9-pin "D" connector is provided to connect the local Fieldbus. When redundant Fieldbus is implemented, the MDFBI is used. The MDFBI consists of a pair of MSFBI modules that are independent in serving each Fieldbus. Each isolator can communicate with any combination of up to 30 S2MM17 or S2MM09 modules. The isolator may also be used with I/A Series SPEC 200 Integrators S2BM04 and S2BM17. I/A Series SPEC 200 and SPEC 200 MICRO Integrator cards may be intermixed on the same local Fieldbus in any combination. The maximum distance for the local Fieldbus is 30 feet.

HARDWARE FUNCTIONALITY

Each migrating 2CCA controller card is removed and replaced with a corresponding S2MM17 or S2MM09. This integrates all control loops on the SPEC 200 MICRO card to I/A Series control. The associated panel display is decommissioned upon migration. All operator functions revert to the I/A Series operator interface.

Each cluster of up to 30 S2MM17/09 modules requires a corresponding MSFBI isolator (MDFBI if redundant Fieldbus is used).

MSFBI/MDFBI mounts in any empty slot of a SPEC 200 nest. In the NCM, this isolator mounts in place of communications multiplexer cards.

SYSTEM CONFIGURATION FUNCTIONALITY

Process scanning and control configuration is accomplished by I/A Series Integrated Control Configurator (IACC). The configurator allows process engineers to configure control station blocks (in the FCP270) to provide equal or enhanced control to the SPEC 200 MICRO control loops being integrated. Configuration requires no special software and is supported by all versions of I/A Series software from the earliest to the most current.

SPEC 200 Interface Kit (P0914NA)

Additionally, the S2MM17 can be used in a SPEC 200 migration. Process measurements used for indictor or recorder purposes may not be associated with migrated control loops. Indicators and Recorders connect to a 2AX+DIO, 2AX+DS1 or 2AX+DSP that is used with these process signals. The SPEC 200 Interface Kit is designed to replace 2AX+DIO, 2AX+DS1, and 2AX+DSP modules used in these applications. The kit provides one S2MM17 module, nest card guides, and a connector. The connector is wired with the indicator or recorder signals that are relocated when the corresponding 2AX+DIO, 2AX+DS1, or 2AX+DSP is removed and replaced by the interface kit.

S2MM17 FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
15 V dc

CONSUMPTION
3 W

HEAT DISSIPATION
3 W

Input Channels

ANALOG INPUT (FOUR CHANNELS)

Analog Input Range
0 to +10 V dc

Rated Mean Accuracy
0.25% of span

Resolution
Programmable 12 to 15 bits

CONTACT INPUT (TWO CHANNELS)

Contact Range
Open (off) and Closed (on)

Open Circuit Voltage
24 V dc

Short Circuit Current
2.5 mA

On-State Resistance
1 K (maximum)

Off-State Resistance
100 K (minimum)

Output Channels

ANALOG OUTPUT (TWO CHANNELS)

Analog Output Range
0 to +10 V dc

Rated Mean Accuracy
0.25% of span

Resolution
12 bits

CONTACT OUTPUT (TWO CHANNELS)

Applied Voltage
60 V dc (maximum); 15 V dc (typical)

Load Current
0.5 A (maximum)

Shorted Load Duration
Indefinite (duty cycle current limit on overload)

On-State Current Limit
0.75 A (typical)

Off-State Leakage Current
1.0 mA (maximum)

Communication

Redundant IEEE P1118 Fieldbus

S2MM17 PHYSICAL SPECIFICATIONS

Mounting

SPEC 200 MICRO Form Factor (2CCA-S Module Replacement)

Indicators

Red and green light-emitting diodes (LED)

Connections

DB9 9-pin male Redundant IEEE P1118 Fieldbus connector; mating connector for original process signal connector on front plate

S2MM09 FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
15 V dc

CONSUMPTION
3 W (maximum)

HEAT DISSIPATION
3 W (maximum)

Input Channels

CONTACT INPUT (EIGHT CHANNELS)

Contact Range
Open (off) and Closed (on)

Open Circuit Voltage
24 V dc

Short Circuit Current
2.5 mA

On-State Resistance
1 K (maximum)

Off-State Resistance
100 K (minimum)

Output Channels

CONTACT OUTPUT (EIGHT CHANNELS)

Applied Voltage
60 V dc (maximum)
15 V dc (typical)

Load Current
0.5 A (maximum)

Shorted Load Duration
Indefinite (duty cycle current limit on overload)

On-State Current Limit
0.75 A (typical)

Off-State Leakage Current
1.0 mA (maximum)

Communication

Redundant IEEE P1118 Fieldbus

S2MM09 PHYSICAL SPECIFICATIONS

Mounting

SPEC 200 MICRO Form Factor (Replaces left side of 2CCA-D Module when used with S2MM17)

Indicators

Red and green light-emitting diodes (LED)

Connections

DB9 9-pin male Redundant IEEE P1118 Fieldbus connector; mating connector for original process signal connector on front plate

MSFBI/MDFBI FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
15 V dc

CONSUMPTION
2.4 W

HEAT DISSIPATION
2.4 W

Communication
Single IEEE P1118 Fieldbus

Local Fieldbus Length
10 m (30 ft) (maximum)

Fieldbus Devices
30 (maximum)

MSFBI/MDFBI PHYSICAL SPECIFICATIONS

Mounting
Mounts in a spare empty slot within SPEC 200 or NCM nest.

Indicators
Red and green light-emitting diodes (LED); remote and local Fieldbus communication indicators

Connections

POWER CABLE
30-pin standard SPEC 200 display connector

LOCAL FIELDBUS
DB9 9-pin male Redundant IEEE P1118 Fieldbus connector

REMOTE FIELDBUS
32 terminal I/O connector block

COMMON ENVIRONMENTAL SPECIFICATIONS

Operating

TEMPERATURE
5 to 50°C (40 to 120°F)

RELATIVE HUMIDITY
5 to 95% (Noncondensing)

ALTITUDE
-300 to +3,000 m (-1,000 to +10,000 ft)

Storage

TEMPERATURE
-40 to +70°C (-40 to 158°F)

RELATIVE HUMIDITY
5 to 95% (Noncondensing)

ALTITUDE
-300 to +12,000 m (-1,000 to +40,000 ft)

Contamination
ISA Standard S74.04 Class G1 (Mild)

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