82 Series MAConnect™ with Sub-D

- Maximum of 20 solenoids can be powered by a single multi-pin connector.

- Up to 40 solenoids can be powered by means of a second multi-pin connector station.

- Left or right end connector adapters available.

- Maximum allowable coil amperage is 250 milliamps.

- Standard AC and DC voltage options available up to 240 volts.

- Current connection types available are:
  - 9, 15, and 25 pin Sub-D connectors.
  - 10, 16, 20, and 26 pin ribbon type connectors.
  - 24 pin AMP CPC connector.

- Washdown Sub-D connectors available (9, 15 and 25 pin) - designed to meet NEMA 4 and IP65 ratings.

- Flexibility to support remotely located stacks.

- Dielectric strength to ground in excess of 2000 volts.
82 Series MAConnect™ with SM16

- Maximum of 16 solenoids possible (24VDC with a maximum of 6.0 watts per solenoid).
- Left or right end SM16 adapters available.
- Flexibility to support remotely located stacks.
- Designed to meet NEMA 4 and IP65 ratings - washdown.
- Available with common through ports (i.e. inlet, exhaust and ext. pilot ports).
- DeviceNet compatible.
82 Series MAConnect™ with SM32

- Maximum of 16 solenoids possible (24VDC with a maximum of 6.0 watts per solenoid).

- Maximum of 4 inputs available with PNP or NPN capability.

- 16 inputs available with a tethered input module.

- All outputs are protected by self resetting fuses. This protects the electronics in the event of a short and enables the node to remain active.

- Left or right end SM32 adapters available.

- Flexibility to support remotely located stacks.

- Designed to meet NEMA 4 and IP65 ratings - washdown (except Allen Bradley Remote I/O).

- Protocols available (DeviceNet, Allen Bradley Remote I/O, Profibus, Interbus-S)
82 Series MAConnect™ with Tethered Input or Output Modules

- 16 Outputs
- 16 Inputs
- Inputs configured for either positive or negative logic.
- Inputs and outputs are divided into four groups of four. Each group of inputs may be configured for either PNP or NPN.
- Washdown models available - designed to meet NEMA 4 and IP65 ratings.
- Individual modules required for either inputs or outputs.
• Easy hookup.

• Remote stacks are compatible with Sub-D and ribbon style connectors, SM32 and SM16 serial modules.

• Primary and remote stacks can operate 20 solenoids in any configuration with Sub-D connectors.

• Primary and remote stacks can operate 16 solenoids in any configuration with SM32 or SM16 serial modules.
Specifications
82 Series Valve

**Fluids:**
Compressed Air or Inert Gases

**Lubrication:**
Not required. If used, select a medium aniline point lubricant (between 180°F and 210°F)

**Safe Operating Temperature Range:**
0°F to 120°F (-18°C to 50°C)

**Pressure Range:**
- 25 to 150 PSI (Internal Pilot, Sgl. Solenoid)
- 10 to 150 PSI (Internal Pilot, Dbl. Solenoid)
- Vacuum to 150 PSI (External Pilot)
- 25 to 150 PSI (3 Position, Internal/External Pilot)

**Electrical:**
- DC 12/24 Volt 1.8w to 5.4w
- AC 120/60 Inrush current 10.9 Volt-amps (.09 amps)
- Holding Current 7.7 Volt-amps (.06 amps)
- Maximum Coil Amperage - 250mA
- Maximum Voltage - 240VAC
- Dielectric Strength in Excess of 2000 Volts.

**Recommended Mating Sub-D Cable Specifications**
- 3 Amp Current Rating per Conductor
- 300 Volt RMS, 105°C Insulation

**Amp CPC Connector Specifications**

**Receptacle:** (Mounted in MAConnect™ adapter block)
- Series 1 Amp CPC Connector
- Shell size 23
- 24 Male pins (1.57mm diameter)
- Five key configuration

**Recommended Plug:**
- Amp part number 206837-1
- 5 key configuration
- Recommended receptacle contacts are size 16 type III+ (Accepts pin dia. 1.57mm)

Additional information can be obtained from Amp Catalog 82021
Specifications
SM16 Manifold

Outputs:
Number: 16 Channels / Solenoids on manifold
Voltage Current: 24 VDC at 0.225 per channel (6.0 Watts max.)

Inputs:
Not available at this time

Protocols:
DeviceNet

Current Consumption:
Outputs - 4 A Max.
Electronics - 200mA

Voltage Ranges:
Operating with single supply: 24VDC
Operating separate supply for valves: 24VDC

Safe Operating Temperature Range:
0-50° C (32-120°F)
10-90% RH (Non-condensing)

Operating Atmosphere:
No corrosive gases

Enclosure:
Designed to meet NEMA 4 and IP65
Specifications
SM32 Manifold

Outputs:
Number: 16 Channels / Solenoids on manifold
Voltage Current: 24 VDC at .225 per channel (6.0 Watts max.)

Inputs:
Number: 4
Type: 24 VDC NPN or PNP Logic

Protocols:
DeviceNet
Allen Bradley Remote I/O*
Profibus
Interbus-S

Current Consumption:
Outputs - 4 A Max.
Electronics and Inputs - 75mA

Voltage Ranges:
Operating with single supply: 24VDC
Operating separate supply for valves : 24VDC

Safe Operating Temperature Range:
0-50° C (32-120°F)
10-90% RH (Non-condensing)

Enclosure:
Designed to meet NEMA 4 and IP65

* This product incorporates technology which is licensed by Allen-Bradley Company, Inc. Allen-Bradley has not technically approved, nor does it warrant or support this product. All warranty and support for this product and its application is provided solely by MAC Valves, Inc.
## How to Order

### 82 Series MAConnect™

#### Valve Function
- **0** Base Only
- **A** Sgl. Sol. Sgl. Press.
- **C** Sgl. Sol. Dual Press.
- **D** Dbl. Sol. Dual Press.
- **E** 3 Pos. Closed Center
- **F** 3 Pos. Open Center
- **G** 3 Pos. Sgl. Press. Press. Center
- **H** 3 Pos. Dual Press. Press. Center
- **J** Sgl. Sol. Sgl. Press. Sol. on B End
- **K** Sgl. Sol. Dual Press. Sol. on B End
- **L** 3 Pos. Dual Press. Open Center
- **M** 3 Pos. Dual Press. Closed Center

#### Exhaust and Electrical Options
- **0** Base Only
- **A** Plug-In
- **C** Plug-In w/ Light in Body
- **D** Plug-In w/ Pilot Exh. Out Main Exhaust
- **F** Plug-in w/ Light in Body and Pilot Exh. out Main Exh.

- **Body Options D and F (pilot exhaust out main exhaust) must use TU (universal pilot). Main valve exhaust cannot be restricted. Available on single pressure valve only.**

#### Port Size and Thread
- **Type In. and Cyl.**
- **0** Valve Only
- **B** 1/4 NPTF
- **C** 3/8 NPTF
- **E** 1/4 BSPPL
- **F** 3/8 BSPPL

#### Manifold Base Configurations
- **0** Valve Only
- **K** Standard Ports
- **L** Bottom Cylinder Ports
- **M** Bottom Inlet Port
- **N** Bottom Inlet Port and Cylinder Ports
- **P** Bottom and End Cylinder Ports
- **R** Bottom Cylinder and End Cylinder Ports w/ Bottom Inlet Port
- **S** Selector Base - Std. Side Ports
- **** Bottom inlet available 1/4" only. For bottom o-ring ports, consult factory. For lights in base, consult factory.

#### PIlot Valve Options (see below)

#### Pilot Style
- **TM** Muffled Exhaust
- **TP** Piped Exhaust
- **TU** Universal Pilot
- **** Pilot Exhaust out Main Exhaust

#### Voltage
- **AA** 120/60, 110/50
- **AB** 240/60, 220/50
- **AG** 100/50/60, 110/60
- **AK** 220/60, 220/50
- **AE** 200/60, 200/50
- **DA** 24 VDC (5.4w)
- **FA** 12 VDC (1.8w)
- **FB** 24 VDC (1.8w)
- **FE** 12 VDC (2.4w)
- **FF** 24 VDC (2.4w)

#### Manual Operator
- **0** No operator
- **1** Recessed Non-Locking Oper.
- **2** Recessed Locking Oper.
- **3** Extended Non-Locking Oper.
- **4** Extended Locking Oper.

#### Electrical Connection
- **DA** Plug-In (Standard)
- **DK** Plug-In w/ Diode
- **DL** Plug-In w/ M.O.V.

**Note:** For negative commons, use mod number 1705 after model number.
How to Order
Adapters / End Plate Kit
MAConnect™ Adapter Assembly
M-82010 - XX - X X

09 9 Pin Sub-D 1 Internal Pilot Left End Leave Blank for NPTF Threads
10 10 Pin 2 External Pilot Left End P  BSPPL Threads
15 15 Pin Sub-D 3 Internal Pilot Right End T  BSPTR Threads
16 16 Pin 4 External Pilot Right End
20 20 Pin
24 24 Pin Amp CPC
25 25 Pin Sub-D
26 26 Pin

Note: For washdown Sub-D connector use MOD 532M after model number.
Note: For Negative Commons (PNP) Use MOD 1705 After Model Number

MAConnect™ Adapter Assembly
(Required For Connecting To A Remote Stack)
M-82011 - XX - X X

09 9 Pin Sub-D 1 Internal Pilot Left End Leave Blank for NPTF Threads
10 10 Pin 2 External Pilot Left End P  BSPPL Threads
15 15 Pin Sub-D 3 Internal Pilot Right End T  BSPTR Threads
16 16 Pin 4 External Pilot Right End
20 20 Pin
24 24 Pin Amp CPC
25 25 Pin Sub-D
26 26 Pin

Note: For washdown Sub-D connector use MOD 532M after model number.

MAConnect™ Fastening End Plate Kit
M-82012 - XX - 01 X

01 Internal Pilot Left End Leave Blank For NPTF Threads
02 External Pilot Left End P  BSPPL Threads
03 Internal Pilot Right End T  BSPTR Threads
04 External Pilot Right End

Note: “01” should be used only when the Fastening End Plate Kit is ordered separately. When the kit is ordered with an assembly this number will change to indicate the number of valves in the stack. Refer to “Examples for Ordering” page.
How to Order
Input and Output Modules

Remote Tethered Input Module
(For use with SM32 only)
N-SM005 - X X X X - XX

- Inputs 1-4
  - B NPN
  - C PNP
  - 0 No Inputs

- Inputs 5-8
  - B NPN
  - C PNP

- Inputs 9-12
  - B NPN
  - C PNP

- Inputs 13-16
  - B NPN
  - C PNP

- 01 Positive Logic
- 02 Negative Logic

Remote Tethered Output Module
(For use with The SM16 and SM32)
N-SM006 - X X X X

- A Outputs 1-4
- A Outputs 5-8
- A Outputs 9-12
- A Outputs 13-16
- 0 No Outputs
How to Order SM16 for MAConnect™ Serial Manifold

SM16 - XX A - X X X - XX M - X X XX

Protocol
DN DeviceNet
AB Allen Bradley
Remote IO

Output Indicator Lights
0 St’d (No Lights)

Power Connector
DeviceNet
A 3 Pin Micro

Bus Connector
DeviceNet
A 5 Pin Micro

Inputs
00 No Inputs

Location of MACon-nect Adapter
0 No Adapter
1 Left End
2 Right End

Adapter has common inlet and exhaust ports

Thread Type
0 No adapter
A Int. NPTF
B Ext. NPTF
C Int. BSPPL
D Ext. BSPPL
E Int. BSPTTR
F Ext. BSTPR

Valve Series Adapter
00 No Adapter
82 82 Series

How to Order SM32 for MAConnect™ Serial Manifold

SM32 - XX A - X X X - X X M - X X XX

Protocol
DN DeviceNet
AB Allen Bradley
Remote IO

Output Indicator Lights
Monitoring Valve
A St’d (16)
Logic Signal
B St’d (16)

Monitoring Bus
Logic Signal

Power Connector
DeviceNet
A 3 Pin Mini
B 4 Pin Mini
C 3 Pin Micro
AB Remote IO
G 5 Pole Term.
B 4 Pin Mini

Bus Connector
DeviceNet
A 5 Pin Mini
AB Remote IO
F 3 Pole Term.
G 4 Pin Micro
(2 4-Pin Connectors)

Inputs
A No Inputs
B 1 Input
C 2 Inputs
D 3 Inputs
E 4 Inputs
F Tethered Input Connector

Location of MACon-nect Adapter
0 No Adapter
1 Left End
2 Right End

Left or right is determined by facing the “A” Solenoid

Input Types
A No Inputs
B NPN
C PNP

Input Module Ordered Separately (See how to order)

Pilot and Thread Type
0 No adapter
N No Pilot Port

Valve Series Adapter
00 No Adapter
82 82 Series
## Examples for Ordering MAConnect™

### Primary Stack

<table>
<thead>
<tr>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M-82010-25-1</td>
</tr>
<tr>
<td>3</td>
<td>82A-BC-CK2-TM-DDAP-1DA</td>
</tr>
<tr>
<td>2</td>
<td>82A-AC-CK1-TM-DDAP-1DA</td>
</tr>
<tr>
<td>1</td>
<td>M-82012-03-05</td>
</tr>
</tbody>
</table>

### Remote Stack

<table>
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<tr>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M-82012-01-05</td>
</tr>
<tr>
<td>2</td>
<td>82A-AC-CK3-TM-DDAP-1DA</td>
</tr>
<tr>
<td>3</td>
<td>82A-BC-CK4-TM-DDAP-1DA</td>
</tr>
<tr>
<td>1</td>
<td>SM16-DNA-0AA-00M-2A82</td>
</tr>
</tbody>
</table>

### Input Module

<table>
<thead>
<tr>
<th>Qty</th>
<th>Description</th>
<th>Inputs</th>
<th>Logic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M-82012-01-05</td>
<td>1-8</td>
<td>NPN</td>
</tr>
<tr>
<td>2</td>
<td>82A-AC-CK3-TM-DDAP-1DA</td>
<td>9-16</td>
<td>PNP</td>
</tr>
<tr>
<td>3</td>
<td>82A-BC-CK4-TM-DDAP-1DA</td>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>1</td>
<td>SM32-DNA-BAB-FAM-2N82</td>
<td></td>
<td>Logic</td>
</tr>
</tbody>
</table>

### Primary Stack

<table>
<thead>
<tr>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M-82011-25-1</td>
</tr>
<tr>
<td>2</td>
<td>82A-BC-CK4-TM-DDAP-1DA</td>
</tr>
<tr>
<td>1</td>
<td>SM32-DNA-BAA-CBM-1N82</td>
</tr>
</tbody>
</table>
TETHERED INPUT MODULE

SPECIFICATIONS

NUMBER OF INPUTS: 4, 8, 12, 16

CONFIGURATION: EACH BANK OF FOUR INPUTS CONFIGURABLE FOR NPN OR PNP INPUT TYPES. COMPLETE UNIT CONFIGURABLE FOR POSITIVE OR NEGATIVE LOGIC

ELECTRICAL: 24 VDC TYPE INPUTS ACCEPTED

PRODUCTION: DESIGNED TO MEET NEMA 4 AND IP65

WEIGHT: APPROXIMATELY 500 GRAMS

ENVIRONMENT: 0 - 50° C
10 - 90% RH (NON-CONDENSING)

CONNECTOR: 25 PIN SUB-D TETHERED BETWEEN SM8 ADAPTER BLOCK AND INPUT MODULE. 4 PIN SINGLE KEY MICRO STYLE FOR INPUTS, ONE CHANNEL PER CONNECTOR
TETHERED OUTPUT MODULE

SPECIFICATIONS

NUMBER OF OUTPUTS: 4, 8, 12, 16

ELECTRICAL: 24 VDC TYPE OUTPUTS ACCEPTED

PRODUCTION: DESIGNED TO MEET NEMA 4 AND IP65

WEIGHT: APPROXIMATELY 500 GRAMS

ENVIRONMENT: 0 - 50° C
10 - 90% RH (NON-CONDENSING)

CONNECTOR: 25 PIN SUB-D TETHERED BETWEEN SMB ADAPTER BLOCK AND OUTPUT MODULE. 4 PIN SINGLE KEY MICRO STYLE FOR OUTPUTS, ONE CHANNEL PER CONNECTOR
82 SERIES MACONNECT TETHERED TO A 82 SERIES MACONNECT STACK
82 SERIES MACONNECT WITH AMP CPC CONNECTOR ON RIGHT END

CYLINDER PORTS THIS END

5.3 DIA. TYP.

NOTE:
ALL DIMENSIONS SHOWN ARE IN MILLIMETERS
82 SERIES MACONNECT
WITH SM32 ON RIGHT END
(SHOWN WITH ALLEN BRADLEY REMOTE I/O)

NOTE:
ALL DIMENSIONS SHOWN
ARE IN MILLIMETERS
82 SERIES MACCONNECT
WITH SM32 ON RIGHT END

NOTE:
ALL DIMENSIONS SHOWN ARE IN MILLIMETERS
82 SERIES MACONNECT WITH MULTI-PIN CONNECTOR ON RIGHT END

NOTE: ALL DIMENSIONS SHOWN ARE IN MILLIMETERS
Installation and Service Precautions:
A. Do not install or service MAC valves without first making sure both air and electrical power to the machine are off and that all air has been completely bled from the system.

B. MAC valves should only be installed and/or serviced by qualified knowledgable personnel who understand how the specific valve is to be pneumatically piped and electrically connected (where applicable). Flow paths through the valve are shown in the catalog and on the valve by use of ANSI or ISO type standard and graphic symbols. Do not install unless these symbols and the valve functions and operations are thoroughly understood.

C. Before service, maintenance, repair or cleaning, consult local distributor or factory for Parts and Operation Sheet and information on proper cleaning and lubrication agents. Do not subject MAC valves’ parts to any foreign substance including lubricants and cleaning agents not specifically recommended by MAC Valves, Inc.

D. MAC valves are never to be stepped on while working on a machine. Damage to the valve, or lines to the valve (either air or electrical lines) or accidental activating of a manual operator on the valve could result in a dangerous condition.

Warning:
Under no circumstances are MAC valves to be used in any application where failure of the valve to operate as intended could jeopardize the safety of the operator or any other person.
- Do not operate outside of the pressure range listed on valve label or outside of designated temperature range.
- Air supply must be clean. Contamination of valve can affect proper operation.
- Before attempting to repair, adjust or clean valve, consult catalog, parts and operation sheet, or factory for proper maintenance procedures, lubrication, and cleaning agents. Never attempt to repair or perform other maintenance with air pressure to valve.
- If airline lubrication is used, consult catalog, parts and operation sheet, or factory for recommended lubricants.