Solidyne

TECH/DATA SHEET

M2—Universal Controller
Revision 4 12/2013

c UL us LISTED E76576

BACnet

Universal Stand Alone controller

Solidyne's M2 is the next generation Universal Programmable Controller including real time clock and 365 day calendar. Offering 100% compatibility with IZAC controllers, ICMS software and Tridium Niagara Framework™ via it's BACnet MS/TP interface.

With (8) universal inputs and (8) analog outputs built-in, the M2 can be expanded to include (4) or (8) digital outputs using plug-in modules. This modular construction provides customization of the M2 for any type of application.

Specifications

Power Requirements

Input Voltage: 23 to 28 VAC 50/60 Hz
Consumption: 1.7 VA (without optional plug-in modules)
10.3 VA (all optional plug-in modules used)
Input Voltage Fuse: Resetable fuse rated at 1.1A at 24VAC

Inputs/Outputs

Analog Inputs:
Eight (8) Analog Inputs.
Can be independently configured for thermistor*, digital, ?0-10vdc or 4-20mA.

* Thermistor Inputs are 3k, 10k, 100kohm thermistor, Type 3.

Analog Outputs:
Eight (8) 0-10vdc Analog Outputs*.

* Can drive down to 10Kohm loads at 10vdc

Digital Outputs:
Up to Eight (8) Digital Outputs*.

* Eight (8) digital outputs would require two (2) plug-in relay modules (M2-R4).

Specifications cont'd:

Operating Environment

Temperature: 40 to 140 F (4 to 60 C) *
Humidity: 10-90% Relative, noncondensing **

* Storage Temperature: -10 to 150 F (-23 to 66 C)
** Storage Humidity: 0-95% Relative, noncondensing

Network Communication

Method: RS-485
Cable: 3 conductor, 22 guage, shielded, up to 8000ft max.
Baud Rate (selectable): 57.6k, 38.4k, 19.2k, 9600, 2400, 1200

Memory Backup

Battery: 7 year lithium

Physical Dimensions

Height: 70 mm (2.75 in)
Width: 78 mm (3.0 in)
Length: 160 mm (6.3 in)
Mounting Holes: 148.5 mm (5.85 in) Center to Center
Weight: 1.2 lb

Agency Approvals

UL

Listed Device: UL Listed under E76576 24G9

BTL

Pending: BACnet Testing Laboratories (BTL)

BACnet Protocol Implementation Conformance Statement

Date: 12/01/2013

Vendor Name: Solidyne Corp.

Product Name: M2

Product Model Number: M2-xxx

Applications Software Version: V05.10 Firmware Revision: 2013/12/01 BACnet Protocol Revision: 1

Product Description:

The M2 is a general purpose building automation controller with 8 universal inputs, 8 analog outputs and 8 relay outputs.

BACnet Standardized Device Profile (Annex L):

___ BACnet Operator Workstation (B-OWS)
___ BACnet Building Controller (B-BC)
___ BACnet Advanced Application Controller (B-AAC)
_X_ BACnet Application Specific Controller (B-ASC)
___ BACnet Smart Sensor (B-SS)
___ BACnet Smart Actuator (B-SA)

List all BACnet Interoperability Building Blocks Supported (Annex K):

K.1.2 BIBB - Data Sharing-ReadProperty-B (DS-RP-B)
K.1.8 BIBB - Data Sharing-WriteProperty-B (DS-WP-B)
K.1.15 BIBB - Data Sharing-COV-Unsolicited-A (DS-COVU-A)
K.1.16 BIBB - Data Sharing-COV-Unsolicited-B (DS-COVU-B)
K.5.2 BIBB - Device Management-Dynamic Device Binding-B (DM-DDB-B)

Segmentation Capability:

Not Able to transmit segmented messages Window Size _____
Not Able to receive segmented messages Window Size _____

Standard Object Types Supported:

An object type is supported if it may be present in the device. For each standard Object Type supported provide the following data:

1) Whether objects of this type are dynamically creatable using the CreateObject service
2) Whether objects of this type are dynamically deletable using the DeleteObject service
3) List of the optional properties supported
4) List of all properties that are writable where not otherwise required by this standard
5) List of proprietary properties and for each its property identifier, datatype, and meaning
6) List of any property range restrictions

Note: For all the Object Types listed here, none are dynamically creatable, none are dynamically deletable and no optional properties are supported.

Analog Input Objects, quantity 16.
Analog Output Objects, quantity 8.
Analog Value Objects, quantity 16.
Binary Output Objects, quantity 8.
Device Object, quantity 1.

Data Link Layer Options:

___ BACnet IP, (Annex J)
___ BACnet IP, (Annex J), Foreign Device
___ ISO 8802-3, Ethernet (Clause 7)
___ ANSI/ATA 878.1, 2.5 Mb. ARCNET (Clause 8)
___ ANSI/ATA 878.1, EIA-485 ARCNET (Clause 8), baud rate(s) _____
X MS/TP master (Clause 9), baud rate(s): **9600, 19200, 38400, 57600, 76800**
___ MS/TP slave (Clause 9), baud rate(s):
___ Point-To-Point, EIA 232 (Clause 10), baud rate(s):
___ Point-To-Point, modem, (Clause 10), baud rate(s):
___ LonTalk, (Clause 11), medium: _____
___ Other:

Device Address Binding:

Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.) **NO**

Networking Options:

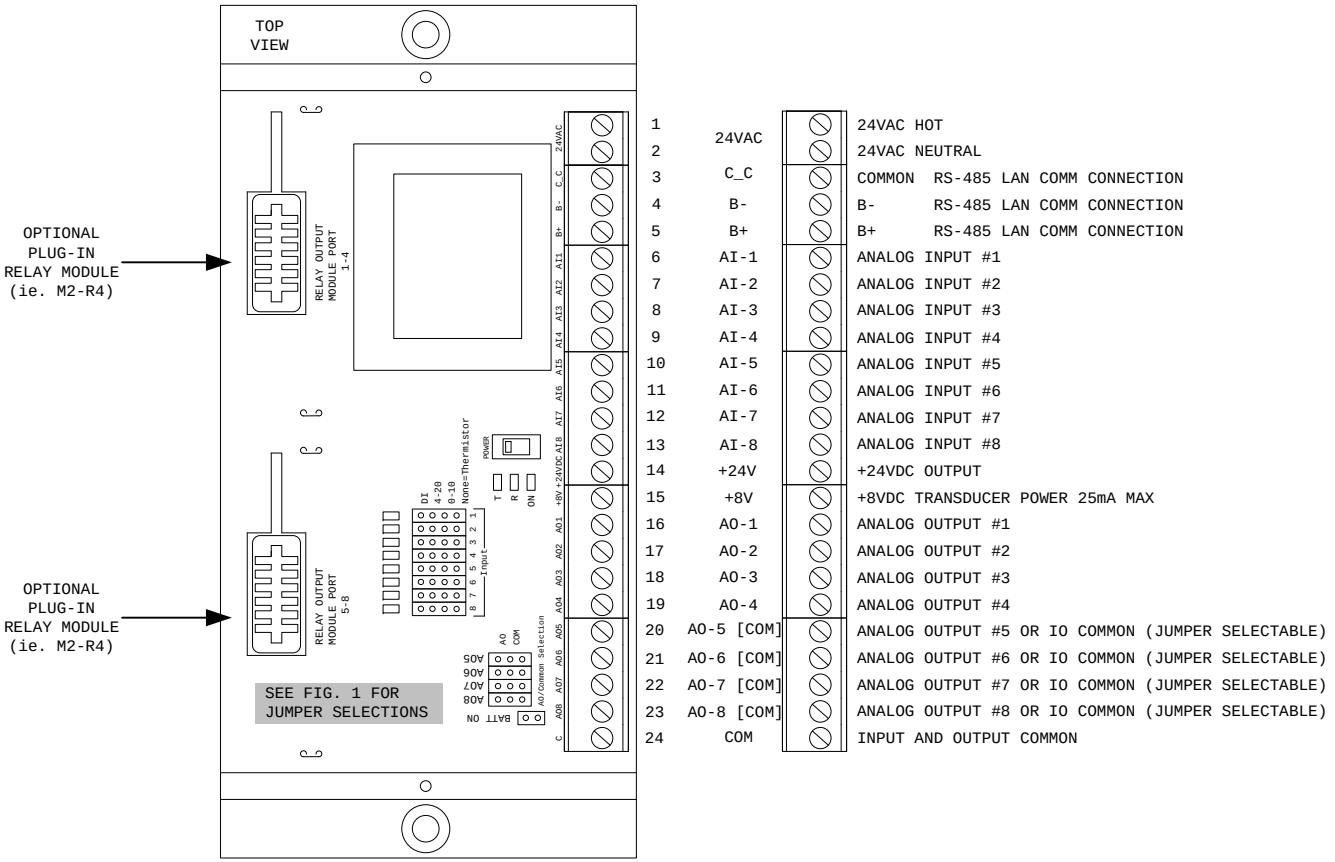
___ Router, Clause 6 - List all routing configurations, e.g., ARCNET-Ethernet, Ethernet-MS/TP, etc.
___ Annex H, BACnet Tunneling Router over IP
___ BACnet/IP Broadcast Management Device (BBMD)
Does the BBMD support registrations by Foreign Devices? ___ Yes ___ No

Character Sets Supported:

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

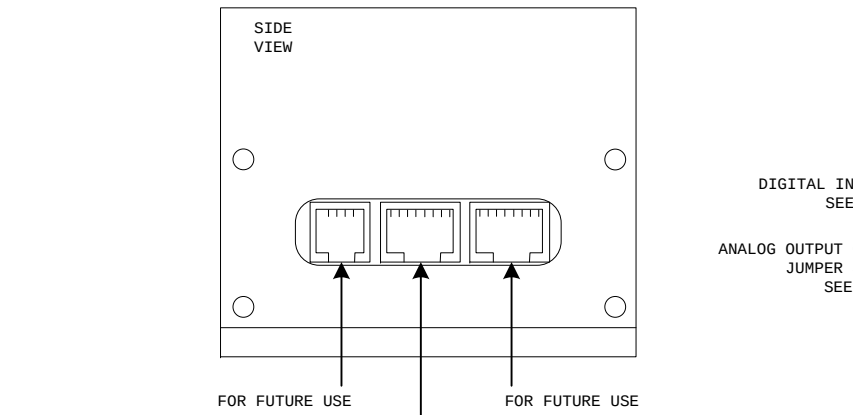
X ANSI X3.4	___ IBM™/Microsoft™ DBCS	___ ISO 8859-1
___ ISO 10646 (UCS-2)	___ ISO 10646 (UCS-4)	___ JIS C 6226

If this product is a communication gateway, describe the types of non-BACnet equipment/networks(s) that the gateway supports: **This product is not a communication gateway.**



M2 Installation Notes:

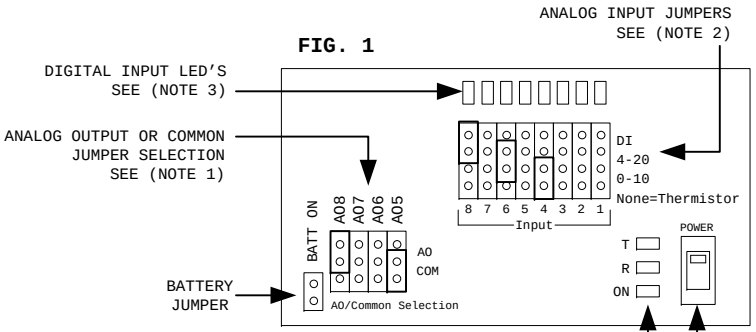
- Make sure that BATT JUMPER is in place before powering unit ON with on board POWER switch.
- When unit is powered, ON LED will flash 1 second on, 1 second off continuously when controller is operating properly. This flashing serves as a heartbeat indicator and that the unit is on. It will not flash or illuminate when unit is powered off.
- When inserting or removing plug-in modules or display units such as DU-1, M2 must be powered OFF or damage will occur.
- M2 is internally protected from over current by a 1.1 amp self resetting fuse. This will protect the 24VAC transformer powering the M2 from being damaged due to the unit failing internally.
- The +8v output is used for future low power Solidyne transducers.



DU-1 MUST HAVE 8 PIN RJ-45 CONNECTOR TO PROPERLY CONNECT TO M2 SIDE TERMINAL. DU-1 MUST ALSO HAVE BEEN PURCHASED AFTER NOV. 2004.

DU-1 HAS INTERNAL TEMPERATURE SENSOR THAT WILL USE INPUT #1 ONLY IF THERE IS NO DEVICE ATTACHED TO INPUT #1 TERMINAL. IF INPUT #1 IS BEING USED FOR ANOTHER DEVICE, DU-1 WILL OPERATE PROPERLY AND ITS INTERNAL TEMPERATURE SENSOR WILL BE DISABLED.

FIG. 1



NOTE 1: JUMPERS DEFINE THAT TERMINALS 20-23 ARE USED AS ANALOG OUTPUT OR ADDITIONAL INPUT OR OUTPUT COMMON (EX. AO8 JUMPER SET TO AO, AO5 JUMPER SET TO COMMON).

NOTE 2: JUMPERS DEFINE THAT INPUT IS DIGITAL, 4-20MA, 0-10V OR THERMISTOR. (EX. INPUT 4 JUMPER SET TO 0-10VDC, INPUT 6 JUMPER SET TO 4-20MA, INPUT 8 JUMPER SET TO DIGITAL). NO JUMPER NEEDED TO DEFINE INPUT AS THERMISTOR.

NOTE 3: DIGITAL INPUT LED'S WILL ONLY ILLUMINATE WHEN INPUT IS SHORTED TO COM.