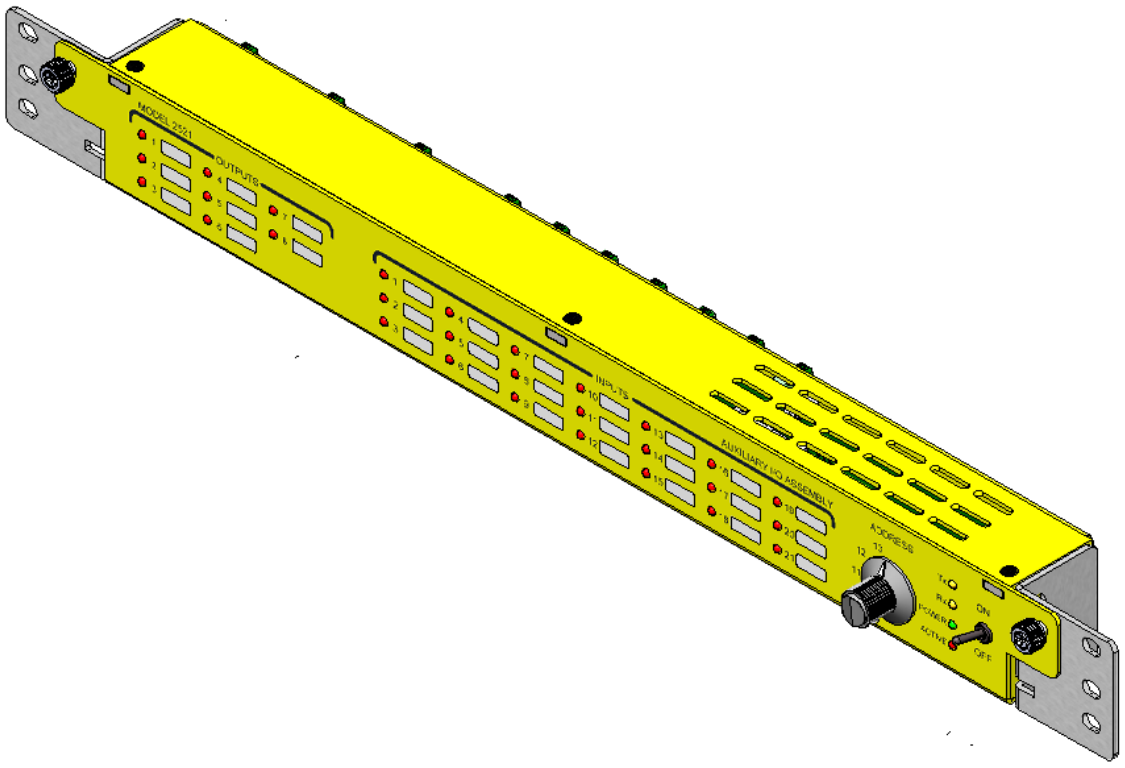
ATCC AUXILIARY I/O ASSEMBLY

MODEL 2521



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1 GENERAL

The *Auxiliary I/O Assembly* is an ATC Cabinet (ATCC) module whose purpose is to provide additional inputs and outputs to the Controller without having to add another Input Assembly. The module provides for twenty-one inputs and eight outputs. The Auxiliary I/O Assembly acts as both an Input Serial Interface Unit (SIU) and Output SIU in one module.

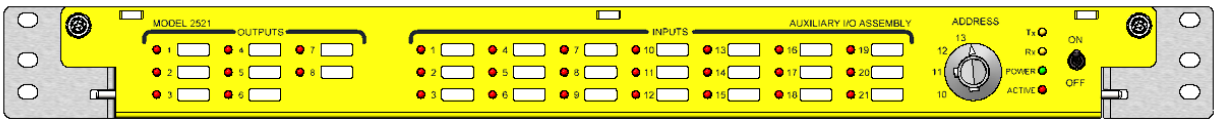


Figure 1: Front View

The rear panel has seven 6-position terminal blocks used to terminate inputs to the module and three 6-position terminal blocks for outputs. The DB25F connector labeled as SB#1 interfaces the module to the Controller via Serial Bus #1 (SB#1). The *Auxiliary I/O Assembly* provides a subset of the standard Input Assembly SIU input and Output Assembly SB#1 frames.

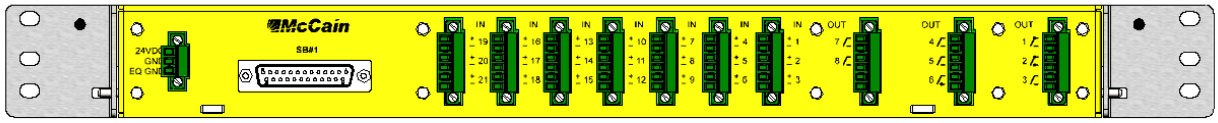


Figure 2: Rear View

1.1 SB#1 Address Configuration

The SIU address can be configured using the front panel rotary switch. The module will respond to SB#1 address 10, 11, 12 or 13.

1.2 Ports

The SB#1 is used to communicate directly with the control device. The SB#1 connector also provides a reset signal (NRESET) that allows the control device to reset the Auxiliary I/O Assembly.

2 THE AUXILIARY I/O ASSEMBLY FUNCTIONS

2.1 Power Requirements

The *Auxiliary I/O Assembly* requires +24VDC. After power up, the steady state current is approximately 200mA. The *Auxiliary I/O Assembly* will operate correctly between 18 VDC and 28 VDC. Voltages below 18 VDC will be considered as a power failure and the module will remain in a reset state.

2.2 Inputs and Outputs

Inputs to the *Auxiliary I/O Assembly* are distributed along seven terminal blocks with three inputs per terminal. An input voltage of 0 Vdc to 8 Vdc is sensed as True or logic “1”. If input voltage is between 16v and 28v, the input is considered not active or logical “0”. Electrical specifications are shown in section 4.2.

The corresponding front panel LED indicator will turn ON when the input is True. There is no limit on how many inputs can be active at the same time.

The eight outputs are in three terminal blocks at the rear side of the device, two terminal blocks contain three outputs, and one has only two outputs. The outputs are dry contact relay style. The relay Normally Open (NO) contacts are connected to the terminal blocks. To activate an output, a command is given by the controller to energize a relay and close its contacts. When the output is not active, the relay contacts will be in the normally open state. Electrical specifications are shown in Section 4.2

I/O NUMBER	DIRECTION	BYTE #
0	I0	1
1	I1	
2	I2	
3	I3	
4	I4	
5	I5	
6	I6	
7	I7	
8	I8	2
9	I9	
10	I10	
11	I11	
12	I12	
13	I13	
14	I14	
15	I15	
16	I16	3
17	I17	
18	I18	
19	I19	
20	I20	
21	N/A	
22	N/A	
23	N/A	
24	O0	4
25	O1	
26	O2	
27	O3	
28	O4	
29	O5	
30	O6	
31	O7	

I/O NUMBER	DIRECTION	BYTE #
32	N/A	5
33	N/A	
34	N/A	
35	N/A	
36	N/A	
37	N/A	
38	N/A	
39	N/A	
40	N/A	6
41	N/A	
42	N/A	
43	N/A	
44	N/A	
45	N/A	
46	N/A	
47	N/A	
48	N/A	7
49	N/A	
50	N/A	
51	N/A	
52	N/A	
53	N/A	
54	ACTIVE	
55	N/A	
56	N/A	8
57	N/A	
58	N/A	
59	N/A	
60	N/A	
61	N/A	
62	N/A	
63	N/A	

Figure 3: Inputs / Outputs Mapping

2.3 Communication Process

2.3.1 Serial Port

The *Auxiliary I/O Assembly* has one serial port, identified as SB#1. The task of the serial port is to process the command messages sent by the controller and transmit the response messages from the module.

SB#1 connects the Auxiliary I/O Assembly microprocessor to a controller in the same way that an SIU connects an input file to the controller. The Communication circuitry can pass data at 614.4 Kilobits per second.

The communication passes through the DB25F connector. The connector contains lines for the transmission and reception of data. See

Figure 4 for connector Assignments.

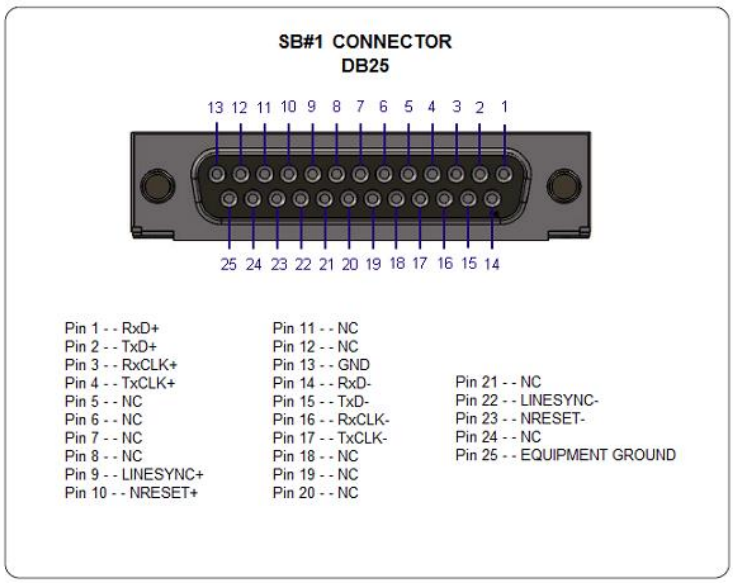


Figure 4: SB#1 Connector pinout.

The Model 2521 communication circuitry and protocol conform to the ATC5301 standard SB#1 requirements for the SIU device. The Auxiliary I/O Assembly functions as the "LOCAL" command node for this network, responding with appropriate action. The SB#1 frame address assignments (Command / Responses) are as follows:

Address	Unit	ADDRESS							
		A7	A6	A5	A4	A3	A2	A1	A0
10	Auxiliary I/O Assembly – Model 2521	0	0	0	0	1	0	1	0
11		0	0	0	0	1	0	1	1
12		0	0	0	0	1	1	0	0
13		0	0	0	0	1	1	0	1

Figure 5: SB#1 addresses

2.3.2 Frame Type

The frame type is determined by the value of the first byte of the message. The command frames are values of 49 – 60, and values of 112 - 127 are allocated to manufacturer diagnostics. All other frame types not called out are reserved. The command-response values are as follows:

Module Command	Module Response	Description
49	177	Request Module Status
50	178	Millisecond Counter Management
51	179	Configure Inputs
52	180	Poll Raw Input Data
53	181	Poll Filtered Input Data
54	182	Poll Input Transition Buffer
55	183	Command Outputs
56	184	Configure Input Tracking Functions
60	188	Module Identification

Figure 6: Frame Type Values

2.3.3 Request Module Status

The command is used to request the Auxiliary I/O Assembly status information response. Command/response frames are as follows:

Request Module Status Command

Description	*msb*							*lsb*	*Byte Number*
(Type Number = 49)	0	0	1	1	0	0	0	1	Byte 1
Reset Status Bits	P	E	K	R	T	M	L	W	Byte 2

Figure 7: Request Module Status Command

Request Module Status Response

Description	*msb*							*lsb*	*Byte Number*
(Type Number = 177)	1	0	1	1	0	0	0	1	Byte 1
System Status	P	E	K	R	T	M	L	W	Byte 2
SCC Receive Error Count	Receive Error Count								Byte 3
SCC Transmit Error Count	Transmit Error Count								Byte 4
MC Timestamp MSB	MC Timestamp MSB								Byte 5
MC Timestamp NMSB	MC Timestamp NMSB								Byte 6
MC Timestamp NLSB	MC Timestamp NLSB								Byte 7
MC Timestamp LSB	MC Timestamp LSB								Byte 8

Figure 8: Request Module Status Response

The response status bits are defined as follows:

P - Indicates model 2218 hardware reset
E - Indicates a communications loss of greater than two seconds
M - Indicates an error with the Millisecond Counter interrupt
L - Indicates an error in the LINESYNC
W - Indicates that the model 2218 has been reset by the Watchdog
R - Indicates that the EIA-485 receive error count byte has rolled over
T - Indicates that the EIA-485 transmit error count byte has rolled over
K - Not Used

Each of these bits shall be individually reset by a '1' in the corresponding bit of any subsequent Request Module Status frame, and the response frame shall report the current status bits. The SCC error count bytes shall not be reset. When a count rolls over (255 - 0), its corresponding roll-over flag shall be set.

2.3.4 Millisecond Counter Management

The millisecond counter management frame is used to set the value of the millisecond counter. The 'S' bit return status '0' on completion or '1' on error. The 32-bit value is loaded into the millisecond counter at the next 0-1 transition of the LINESYNC signal. The frames are as follows:

Millisecond Counter Management Command

Description	*msb*							*lsb*	*Byte Number*
(Type Number = 50)	0	0	1	1	0	0	1	0	Byte 1
New MC Timestamp MSB	x	x	x	x	x	x	x	x	Byte 2
New MC Timestamp NMSB	x	x	x	x	x	x	x	x	Byte 3
New MC Timestamp NLSB	x	x	x	x	x	x	x	x	Byte 4
New MC Timestamp LSB	x	x	x	x	x	x	x	x	Byte 5

Figure 9: Millisecond Counter Management Command

Millisecond Counter Management Response

Description	*msb*							*lsb*	*Byte Number*
(Type Number = 178)	1	0	1	1	0	0	1	0	Byte 1
Status	0	0	0	0	0	0	0	S	Byte 2

Figure 10: Millisecond Counter Management Response

2.3.5 Poll Raw Input Data

The poll raw input data frame is used to poll the Auxiliary I/O Assembly for the status of all inputs. The response frame contains 8 bytes (Inputs 0-63) of information indicating the current input status. The frames are as follows:

Poll Raw Input Data Command

Description	*msb*							*lsb*	*Byte Number*
(Type Number = 52)	0	0	1	1	0	1	0	0	Byte 1

Figure 11: Poll Raw Input Data Command

Poll Raw Input Data Response

Description	*msb*							*lsb*	*Byte Number*
Type 180	1	1	0	1	0	1	0	1	Byte 1
I7 to I0	In 7	In 6	In 5	In 4	In 3	In 2	In 1	In 0	Byte 2
I15 to I8	In 15	In 14	In 13	In 12	In 11	In 10	In 9	In 8	Byte 3
I23 to I16	R	R	R	In 20	In 19	In 18	In 17	In 16	Byte 4
O31 to O24 Status	Out 8	Out 7	Out 6	Out 5	Out 4	Out 3	Out 2	Out 1	Byte 5
I39 to I32	R	R	R	R	R	R	R	R	Byte 6
I47 to I40	R	R	R	R	R	R	R	R	Byte 7
I55 to I48	R	ACTIVE	R	R	R	R	R	R	Byte 8
Addr, I59 to I56	A3	A2	A1	A0	R	R	R	R	Byte 9
MC Timestamp MSB	x	x	x	x	x	x	x	x	Byte 10
MC Timestamp NMSB	x	x	x	x	x	x	x	x	Byte 11
MC Timestamp NLSB	x	x	x	x	x	x	x	x	Byte 12
MC Timestamp LSB	x	x	x	x	x	x	x	x	Byte 13

**Bits marked as “R” are reserved and will be reported as Logic 0.

Figure 12: Poll Raw Input Data Response

2.3.6 Set Outputs

The set outputs frame is used to command the Auxiliary I/O Assembly to set the outputs according to the data in the frame. If there is any error configuring the outputs, the 'E' flag in the response frame is set to '1'. If the LINESYNC reference has been lost, the 'L' bit in the response frame is set. Loss of LINESYNC reference also is indicated in system status information. These command and response frames are as follows:

Set Outputs Command

Description	***msb lsb***								***Byte Number***
Type 55	0	0	1	1	0	1	1	1	Byte 1
O7 to O0	R	R	R	R	R	R	R	R	Byte 2
O15 to O8	R	R	R	R	R	R	R	R	Byte 3
O23 to O16	R	R	R	R	R	R	R	R	Byte 4
O31 to O24	Out 8	Out 7	Out 6	Out 5	Out 4	Out 3	Out 2	Out 1	Byte 5
O39 to O32	R	R	R	R	R	R	R	R	Byte 6
O47 to O40	R	R	R	R	R	R	R	R	Byte 7
O55 to O48	R	ACTIVE	R	R	R	R	R	R	Byte 8
O63 to O56	R	R	R	R	R	R	R	R	Byte 9
Control O7 to O0	0	0	0	0	0	0	0	0	Byte 10
Control O15 to O8	0	0	0	0	0	0	0	0	Byte 11
Control O23 to O16	0	0	0	0	0	0	0	0	Byte 12
Control O31 to O24	0	0	0	0	0	0	0	0	Byte 13
Control O39 to O32	0	0	0	0	0	0	0	0	Byte 14
Control O47 to O40	0	0	0	0	0	0	0	0	Byte 15
Control O55 to O48	0	0	0	0	0	0	0	0	Byte 16
Control O63 to O56	0	0	0	0	0	0	0	0	Byte 17

**Bits marked as “R” are reserved and should be set to Logic 0.

Figure 13: Set Outputs Command

Set Outputs Response

Description	***msb***							***lsb***	***Byte Number***
(Type Number = 183)	1	0	1	1	0	1	1	1	Byte 1
Status	0	0	0	0	0	0	L	E	Byte 2

Figure 14: Set Outputs Response

2.3.7 Module Identification

The Auxiliary I/O Assembly identification command frame is used to request the Auxiliary I/O Assembly identification value for the Control device. Reply message use the following addresses: Control device SIUs respond with their own address #10, #11, #12 and #13.

The command and response frames are shown as follows:

Module Identification Command

Description	***ms b***							***lsb***	***Byte Number***
(Type Number= 60)	0	0	1	1	1	1	0	0	Byte 1

Figure 15: Module Identification Command

Module Identification Response

Description	***ms b***							***lsb***	***Byte Number***
(Type Number= 188)	1	0	1	1	1	1	0	0	Byte 1
model 2218 ID byte	x	x	x	x	x	x	x	x	Byte 2

Figure 16: Module Identification Response

2.3.8 Input Tracking Functions Command

The Configure Input Tracking Functions frame shall be used to configure outputs to respond to transitions on a specified input. Each Output Number identified by Item Number shall respond as configured to the corresponding Input Number identified by the same Item Number. Input to Output mapping shall be one to one. If a command results in more than 8 input tracking outputs being configured, the response V bit shall be set to '1' and the command shall not be implemented. The command and response frames are as follows:

Configure Input Tracking Function Command

Description	***ms b***							***lsb***	***Byte Number***
(Type Number = 56)	0	0	1	1	1	0	0	0	Byte 1
Number of Items	Number of Items								Byte 2
Item # - Byte 1	E	Output Number (O0 – O54)							Byte 2(I-1)+3
Item # - Byte 2	I	Input Number (I0 – I59)							Byte 2(I-1)+4

Figure 17 Configure Input Tracking Functions Command

Number of Items: 0-16 Tracking Definitions are contained in this message.

Field Definitions:

E	'1'	-	Enable Input Tracking function for this Output
	'0'	-	Remove Input Tracking function for this Output
I	'1'	-	Output is OFF when Input is ON, ON when Input OFF
	'0'	-	Output is ON when Input is ON, OFF when Input is OFF

Output Number: 0 - Maximum Output Number for the SIU device type.

Input Number: 0 - Maximum Input Number for the SIU device type.

Configure Input Tracking Function Response

Description	*msb*							*lsb*	*Byte Number*
(Type Number = 184)	1	0	1	1	1	0	0	0	Byte 1
Status	0	0	0	0	0	0	0	V	Byte 2
MC Timestamp MSB	x	x	x	x	x	x	x	x	Byte 3
MC Timestamp NMSB	x	x	x	x	x	x	x	x	Byte 4
MC Timestamp NLSB	x	x	x	x	x	x	x	x	Byte 5
MC Timestamp LSB	x	x	x	x	x	x	x	x	Byte 6

Figure 18 Configure Input Tracking Functions Response

Field Definitions:

V '1' - Maximum number of configurable outputs will be exceeded.

'0' - No error

2.3.9 Poll Filtered Input Data

The Poll Filtered Input Data frame shall be used to poll the SIU for the current filtered status of all inputs. The response frame shall contain 8 bytes or 15 bytes of information indicating the current filtered status of the inputs. Raw input data shall be provided in the response for inputs that are not configured for filtering. The frames are as follows:

Poll Filtered Data Command

Description	*msb*							*lsb*	*Byte Number*
(Type Number = 53)	0	0	1	1	0	1	0	1	Byte 1

Figure 19 Poll Filter Input Data Command

Poll Filtered Data Response

Description	*msb*							*lsb*	*Byte Number*
Type 181	1	1	0	1	0	1	1	0	Byte 1
I7 to I0	In 7	In 6	In 5	In 4	In 3	In 2	In 1	In 0	Byte 2
I15 to I8	In 15	In 14	In 13	In 12	In 11	In 10	In 9	In 8	Byte 3
I23 to I16	R	R	R	In 20	In 19	In 18	In 17	In 16	Byte 4
O31 to O24 Status	Out 8	Out 7	Out 6	Out 5	Out 4	Out 3	Out 2	Out 1	Byte 5
I39 to I32	R	R	R	R	R	R	R	R	Byte 6
I47 to I40	R	R	R	R	R	R	R	R	Byte 7
I55 to I48	R	ACTIVE	R	R	R	R	R	R	Byte 8
Addr, I59 to I56	A3	A2	A1	A0	R	R	R	R	Byte 9
MC Timestamp MSB	x	x	x	x	x	x	x	x	Byte 10
MC Timestamp NMSB	x	x	x	x	x	x	x	x	Byte 11
MC Timestamp NLSB	x	X	x	x	x	x	x	x	Byte 12

MC Timestamp LSB	x	x	x	x	x	x	x	x	Byte 13

**Bits marked as “R” are reserved and will be reported as Logic 0.

Figure 20 Poll Filter Input Data Response

2.3.10 Poll Input Transition Buffer

The Poll Input Transition Buffer frame shall poll the SIU for the contents of the input transition buffer. The response frame shall include a three-byte information field for each of the input changes that have occurred since the last interrogation. The frames are as follows:

Poll Input Transition Buffer Command

Description	***msb***							***lsb***	***Byte Number***
(Type Number = 54)	0	0	1	1	0	1	1	0	Byte 1
Block Number	x	x	x	x	x	x	x	x	Byte 2

Figure 21 Poll Input Transition Buffer Command

Poll Input Transition Buffer Response

Description	***msb***							***lsb***	***Byte Number***
(Type Number = 182)	1	0	1	1	0	1	1	0	Byte 1
Block Number	x	x	x	x	x	x	x	x	Byte 2
Number of Entries = N	x	x	x	x	x	x	x	x	Byte 3
Item #	S	Input Number (I0 – I59)							Byte 3(I-1)+4
Item # MC Timestamp NLSB	x	x	x	x	x	x	x	x	Byte 3(I-1)+5
Item # MC Timestamp LSB	x	x	x	x	x	x	x	x	Byte 3(I-1)+6
Status	0	0	0	0	C	F	E	G	Byte 3(I-1)+7
MC Timestamp MSB	x	x	x	x	x	x	x	x	Byte 3(N-1)+8
MC Timestamp NMSB	x	x	x	x	x	x	x	x	Byte 3(N-1)+9
MC Timestamp NLSB	x	x	x	x	x	x	x	x	Byte 3(N-1)+10
MC Timestamp LSB	x	x	x	x	x	x	x	x	Byte 3(N-1)+11

Figure 22 Poll Transition Buffer Response

Each detected state transition for each active input is placed in the queue as it occurs. Bit definitions are as follows:

S - Indicates the state of the input after the transition, bit is 1 if the Input is ON after the transition, bit is 0 if the Input is OFF after the transition

C - Indicates the 255-entry buffer limit has been exceeded

F - Indicates the 1024 buffer limit has been exceeded

G - Indicates the requested block number is out of monotonic increment sequence

E - Same block number requested, E is set in response

The entries provided within the transition buffer poll response shall be ordered from the start of the reply as the oldest to newest. The very first access provides the oldest entry. The SIU device shall initialize, upon Power Up or Reset, its last block number received value to 0xFF in order to facilitate suppression of the G

Bit response when the ATC program starts and uses 0x00 as the first block number. Subsequent responses are subject to the old-buffer purge mechanism stated below.

The ATC program monotonically increases the block number after each command issued to purge the old buffer. When the SIU module receives this command, it shall compare the associated block number with the block number of the previously received command. If it is the same, the previous buffer shall be re-sent to the ATC and the 'E' flag set in the status response frame. If it is not equal to the previous block number, the old buffer shall be purged, and the next block of data sent. If the block number is not incremented by one, the status G bit shall be set. The block number received becomes the current number (even if out of sequence). The block number byte sent in the response block shall be the same as that received in the command block. The block number counter rollover (0xFF becomes 0x00) shall be considered as a normal increment.

2.3.11 Configure Input Command

The Configure Inputs command frame shall be used to change input configurations.

The command-response frames are as follows:

Configure Inputs Command

Description	***msb***							***lsb***	***Byte Number***
(Type Number = 51)	0	0	1	1	0	0	1	1	Byte 1
Number of Items (n)	n	n	n	n	n	n	n	n	Byte 2
Item # - Byte 1	E	Input Number (I0 – I59)							Byte 3(I-1)+3
Item # - Byte 2	Leading edge filter (e)								Byte 3(I-1)+4
Item # - Byte 3	Trailing edge filter (r)								Byte 3(I-1)+5

Configure Inputs Response

Description	***msb***							***lsb***	***Byte Number***
(Type Number = 179)	1	0	1	1	0	0	1	1	Byte 1
Status	0	0	0	0	0	0	0	S	Byte 2

Figure 23 Configure Inputs Response

Block field definitions shall be as follows:

E - Ignore Input Flag. "1" = do not record transition entries for this input, "0" = record transition entries for this input

e - A one-byte leading edge filter specifying the number of consecutive input samples which must be "0" before the input is considered to have entered to "0" state from "1" state (range 1 to 255, 0 = filtering disabled)

r - A one-byte trailing edge filter specifying the number of consecutive input samples which must be "1" before the input is considered to have entered to "1" state from "0" state (range 1 to 255, 0 = filtering disabled)

S - return status S = '0' on completion or '1' on error

2.3.12 Control Signals

The *Auxiliary I/O Assembly* uses NRESET lines for *Auxiliary I/O Assembly* shut down and power-up. The Auxiliary I/O Assembly is fully initialized and provides specific operation upon the NRESET Line going HIGH (Power Up). The request module status response may report this restart as either a Power On or watchdog. The *Auxiliary I/O Assembly* module is reset by any of the following:

- NRESET Signal.
- +5 VDC out of regulation.
- Microprocessor/controller unit watchdog.

The Auxiliary I/O Assembly includes a 1 Kilohertz time reference to provide system response time stamps. The 1 Kilohertz time reference maintains a frequency accuracy of +/-0.01 percent (+/-0.1 counts per second).

A 32-bit millisecond counter is provided for "time stamping." Each 1 Kilohertz reference increments the millisecond counter.

2.3.13 Buffers

A transition buffer shall be provided capable of holding a minimum of 1024 recorded entries. The transition buffer shall default to empty. There shall be two entry types: transition and rollover. The inputs shall be monitored for state transition. At each transition (if the input has been configured to report transition), a transition entry shall be added to the transition buffer. If multiple inputs change state during one input sample, these transitions shall be entered into the input transition buffer by increasing input number. The millisecond counter shall be monitored for rollover. At each rollover transition ($xxxx FFFF - $xxxx 0000), a rollover entry shall be added to the transition buffer. For rollover entries, all bits of byte 1 are set to indicate that this is a rollover entry. A new entry shall be discarded when storage is not available for the new entry. Transition buffer blocks are sent to the ATC upon command. Upon confirmation of their reception, the blocks shall be removed from the transition buffer.

The entry types are as follows:

Input Transition Entry

Description	***msb***							***lsb***	***Byte Number***
Transition Entry Identifier	S	Input Number (I0 – I59)							Byte 1
Timestamp NLSB	X	X	X	X	X	X	X	X	Byte 2
Timestamp LSB	X	X	X	X	X	X	X	X	Byte 3

Figure 24: Input Transition Entry

Millisecond Counter Rollover Entry

Description	***msb***							***lsb***	***Byte Number***
Rollover Entry Identifier	1	1	1	1	1	1	1	1	Byte 1
Timestamp MSB	X	X	X	X	X	X	X	X	Byte 2
Timestamp NMSB	X	X	X	X	X	X	X	X	Byte 3

Figure 25: Millisecond Counter Rollover Entry

3 PHYSICAL DESCRIPTION

3.1 Indicator LEDS

The module has twenty-one inputs and eight outputs as well as indicators for communication and power. Access to the I/O is at the rear of the Auxiliary I/O Assembly. The terminal blocks can be accessed by releasing the two thumbscrews and turning the module downward.

Each input and output are provided with a red LED status indicator labelled as “STATUS ALARMS”. This allows the operator to see if the input or output is active. The module also has four indicator LEDs labeled as follow: Tx, Rx, PWR and ACTIVE. The Tx and Rx are clear yellow LEDs located on the right side of the module which flashes when the module has correctly transmitted or received a command. The PWR is a green LED used only to indicate that the module is supplied with voltage. The ACTIVE LED is red and is set by the Controller via the Type 55 command.

The front panel contains eight red LEDs to indicate whether the outputs are active or not. The silkscreen is labeled as “OUTPUTS” in Figure 26.

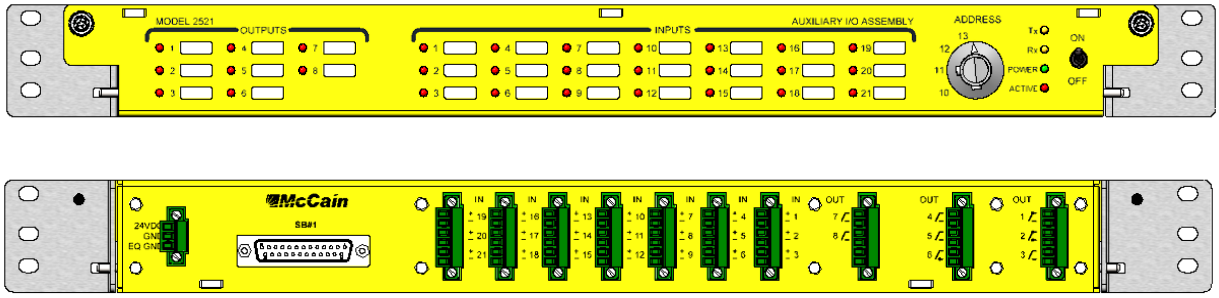


Figure 26: Auxiliary I/O Assembly Silkscreen (front and back).

The inputs of the Auxiliary I/O Assembly module are referenced to the +24VDC power bus.

3.2 Electrical I/O connection

Figure 27 shows the internal connections of inputs and outputs, the inputs act as a switch to know the logic state of the input and the outputs are a normally open relay.

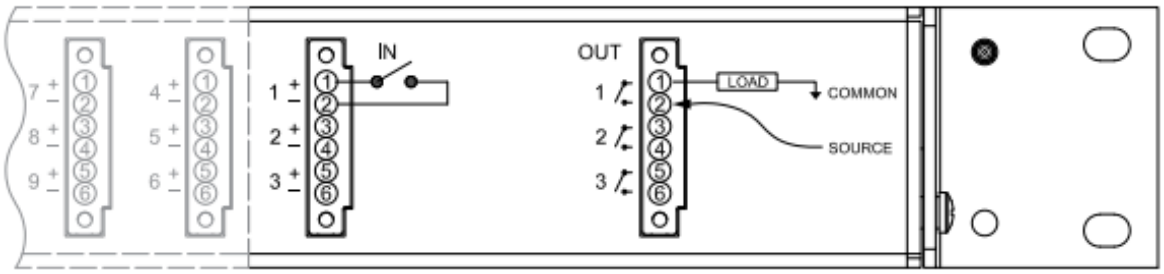
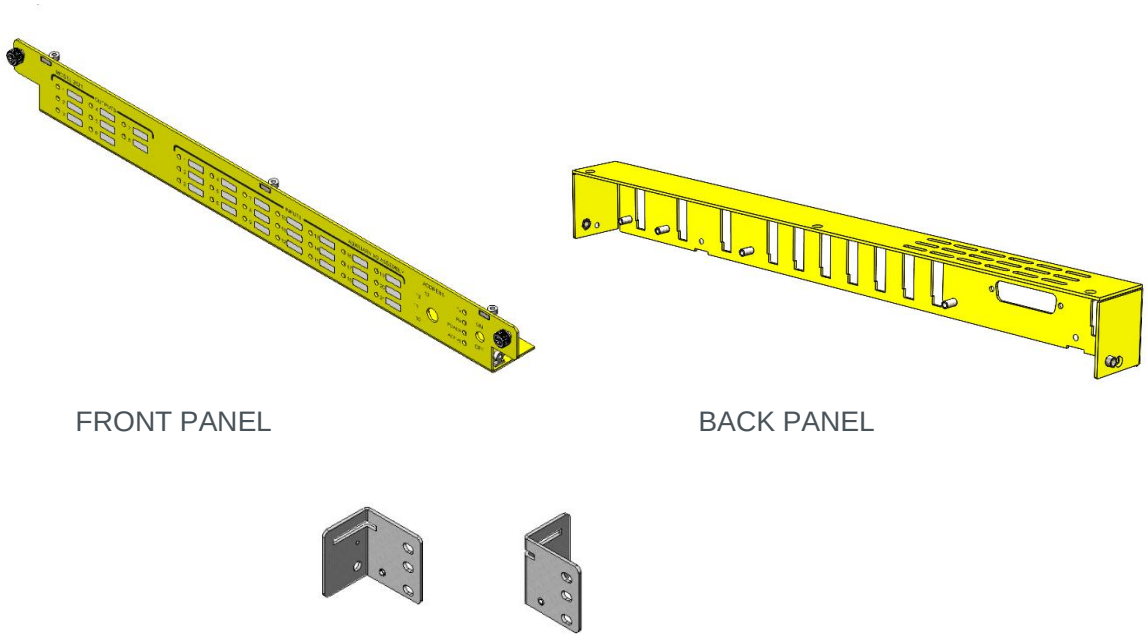


Figure 27: Electrical I/O Connection

4 SPECIFICATIONS

4.1 Description and Installation

The Auxiliary I/O Assembly enclosure consists of three panels (see figure 28): one front panel, one back panel and two mounting brackets fix it by two 6-32 screws and two #6 washers to the back panel.



FRONT PANEL

BACK PANEL

BRACKETS

Figure 28: Parts of Auxiliary I/O Assembly

The Auxiliary I/O Assembly module is designed to be installed on an EIA 19” rack. The front panel contains the holes for the status LED, a hole for the switch rotatory for address selection and two screw caps to access at the rear side of the module. There is 0.27-inch clearance, so the terminal blocks do not collide with any element that is at the top (see figure 29). The back panel has the holes for the 3pos and 6pos terminal blocks also for the DB25 connector (SB#1 port). The 3pos terminal block is used to apply voltage to the module and the 6pos terminal blocks are used for the 21 inputs and the 8 outputs.

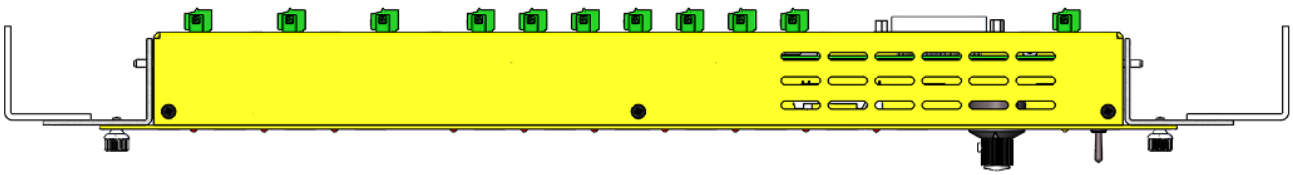


Figure 29: Rackmount (All dimensions are shown in Inches).

4.2 Electrical

Power:

Operating voltage .....18-28 VDC

Power consumption ..... 4.8 Watts Max

Logic Levels:

Not Active (False)..... 16-28 VDC

Active (True)..... 0-8 VDC

The inputs of the Auxiliary I/O Assembly module are referenced to the +24VDC power bus.

4.3 Mechanical

The mechanical part meets the following requirements.

- The Auxiliary I/O Assembly is designed to be mounted in a 19 "rack inch.
- The module is a yellow color.
- Silkscreen in rear panel is a black color.
- Silkscreen in front panel is black color for letters and white color for labels.
- The rear connectors are accessed from the front of the cabinet rack.
- Input, output, and power connectors are installed at the rear side of the module.
- The Serial Port (SB#1) is installed at the rear side of the module.

The Auxiliary I/O Assembly dimensions are described as follows and Figure 30 shows Auxiliary I/O Assembly module dimensions.

Height:..... 1.75”

Width (front panel): .....19”

Width (electronics): .....16”

Max Depth:.....2”

Weight:..... 1.2 LB

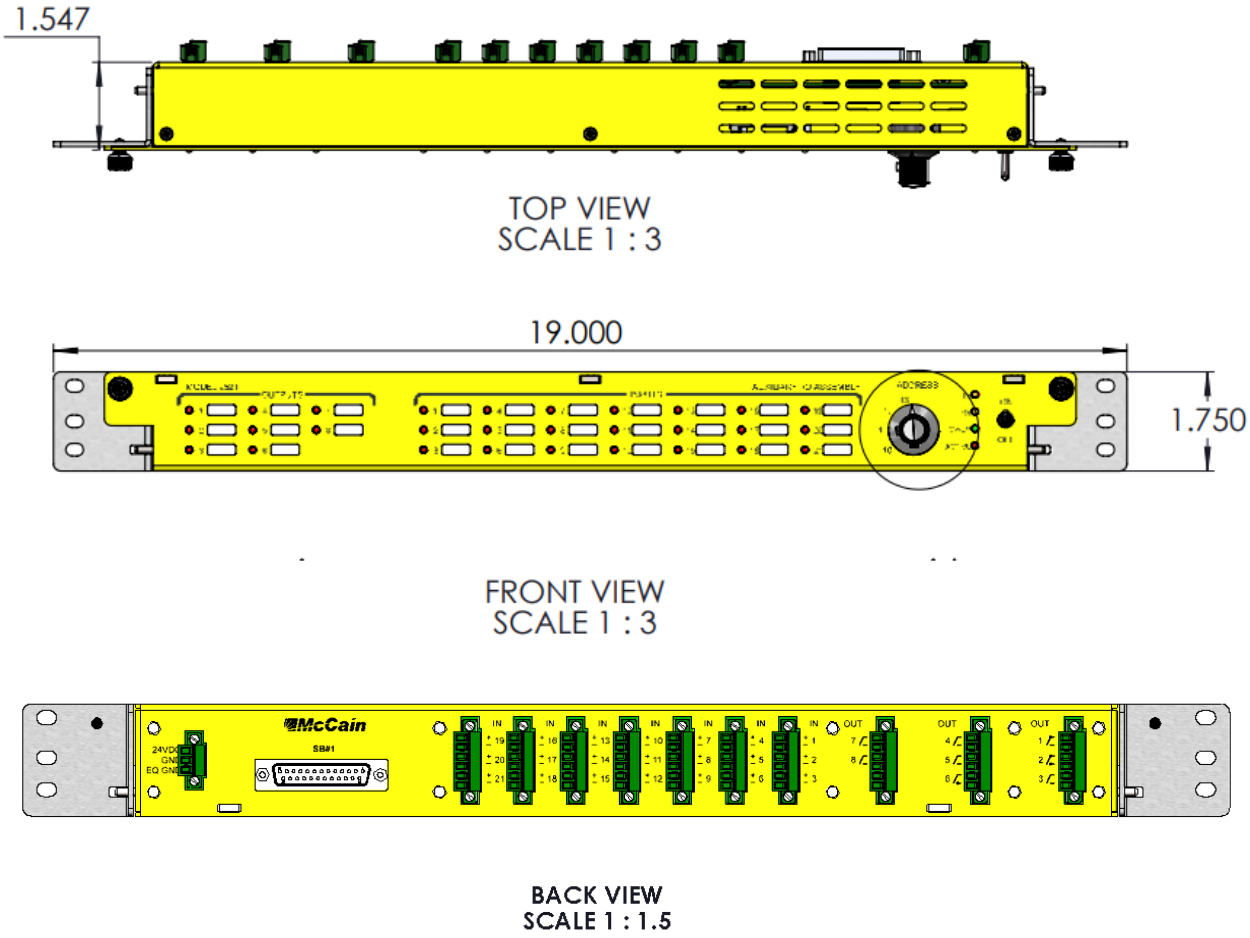


Figure 30: Dimensions Auxiliary I/O Assembly (All dimensions are shown in inches)

4.4 Environmental

Operating Temperature: ..... -34C to +74C

Storage Temperature:..... -40C to +85C

Humidity (non-condensing):..... 0 to 95%

4.5 Assembly

Figure 31 shows an explode view of the Auxiliary I/O Assembly with all his components and **Error! Reference source not found.**2 lists the part numbers and sub-assemblies that define the module.

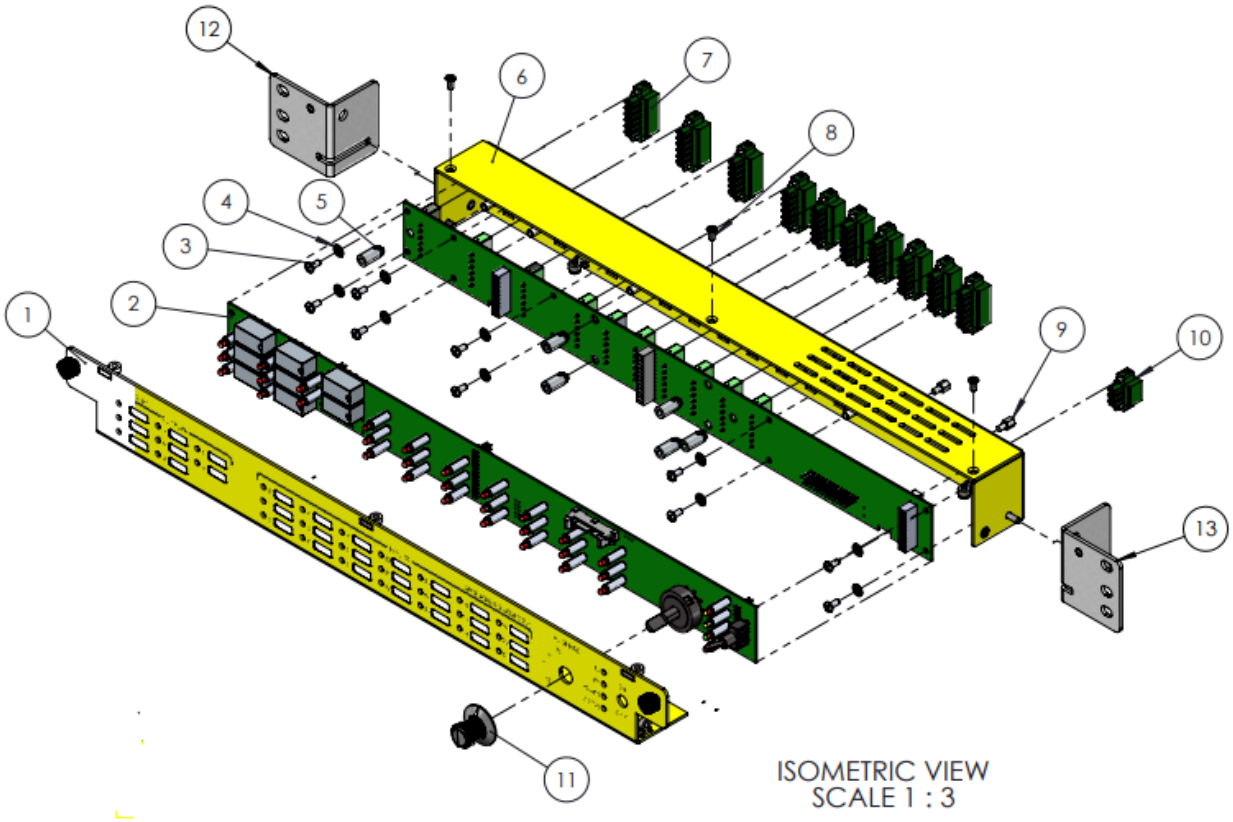


Figure 31: Auxiliary I/O Assembly Explode View.

ITEM NO.	PART NUMBER	QTY.	DESCRIPTION
1	M86869	1	Front Panel, Auxiliary I/O Assembly
2	M86867A	1	ASSY, PCB, AUXILIARY I/O ASSEMBLY
3	M11625	10	SCREW,4-40 X 1/4,PH,PN,SS
4	M11709	10	WASHER, #4, INT. TOOTH, SS
5	M93281	6	BOARD SUPPORT SPACER 11.1 MM (.437")
6	M86868	1	Back Panel, Auxiliary I/O Assembly
7	M58385	10	TERM BLK,6POS, 5.08, PLUG, #1827745
8	M58586	7	SCREW,4-40 X 1/4,PH,FH,SS, 100 DEG, BLACK
9	M11671	2	JACKSCREW, 4-40 X 1/4 M/F
10	M59680	1	TERM BLK,3POS, PLUG
11	M73768	1	KNOB PLASTIC 1/4 DIA BLACK
12	M93272	1	LEFT BRACKET, 1U MODULE
13	M93274	1	RIGHT BRACKET, 1U MODULE

Figure 32: Bill of Materials