

16-INPUT/OUTPUT ALARM BOX

Description

The Alarm Box provides individual alarm outputs from a Multiplexer and inputs from an external source. One can set addresses on the Alarm Box for 256 addresses (0-255) on the Multiplexer. The Alarm Box has a master alarm output that is active when any of the other channels are active and has three 12-VDC channels, one 5-VDC channel, and an LED status. The Alarm Box Side Output uses Relay, and the Side Input uses Opto.

Connections

The Alarm Box connects to Multiplexer via a DB9 Female connector. Alarm output connections are achieved via a 51-pin, socketed screw terminal strip. Alarm input connections are achieved via a 48-pin socketed screw terminal strip. The 12-VDC and 5-VDC connections are achieved via an 8-pin socketed screw terminal strip.

Protocol

Alarm Box Output to Multiplexer

With this command the Alarm Box will ask for a status from the Multiplexer every 500 ms via serial port.

"<3DH>,<S100>,<S10>,<S1>,<30H>,<42H>,<30H>,<30H>,<0DH>"

<3DH>	Start message (ASCII "=")
<S100>	Normally 100's digit of address - select number (0-2)
<S10>	Normally 10's digit of address - select number (0-5)
<S1>	Normally 1's digit of address - select number (0-5)
<30H>,<42H>	Major Command (ASCII "0B"). This command is the Alarm Status
<30H>,<30H>	Minor Command (ASCII "00"). The Alarm Box does not yet have the Minor command. Send zero and zero (00) to reserve this feature.
<0DH>	End message (ASCII "Carriage Return")

Multiplexer to Alarm Box

With this command the Multiplexer will return the serial command for the response and show the status.

"<3DH>,<S100>,<S10>,<S1>,<43H>,<42H>,<30H>,<32H>,A,A,B,B,<0DH>"

<3DH>	Start message (ASCII "=")
<S100>	Normally 100's digit of address - select number (0-2)
<S10>	Normally 10's digit of address - select number (0-5)
<S1>	Normally 1's digit of address -select number (0-5)
<43H>,<42H>	Command for Receive Alarm Output from the Multiplexer (ASCII "CB")

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<30H>,<32H> Represents two data bytes to follow (ASCII "02")
A,A Status Alarm Active in HI channels Byte HI (channel 8 – 15)

	D7	D6	D5	D4	D3	D2	D1	D0	
Channel 8:	0	0	0	0	0	0	0	1	01H
Channel 9:	0	0	0	0	0	0	1	0	02H
Channel 10:	0	0	0	0	0	1	0	0	04H
Channel 11:	0	0	0	0	1	0	0	0	08H
Channel 12:	0	0	0	1	0	0	0	0	10H
Channel 13:	0	0	1	0	0	0	0	0	20H
Channel 14:	0	1	0	0	0	0	0	0	40H
Channel 15:	1	0	0	0	0	0	0	0	80H

Ex: Channel 8 alarm

A,A = <30H>,<31H>

ASCII "01 "

B,B = <30H>,<30H>

ASCII "00"

Ex: Channel 15 alarm

A,A = <38H>,<30H>

ASCII "80"

B,B = <30H>,<30H>

ASCII "00"

B,B Status alarm active in LOW channels Byte LOW (channel 0 – 7)

	D7	D6	D5	D4	D3	D2	D1	D0	
Channel 0 :	0	0	0	0	0	0	0	1	01H
Channel 1 :	0	0	0	0	0	0	1	0	02H
Channel 2 :	0	0	0	0	0	1	0	0	04H
Channel 3 :	0	0	0	0	1	0	0	0	08H
Channel 4 :	0	0	0	1	0	0	0	0	10H
Channel 5 :	0	0	1	0	0	0	0	0	20H
Channel 6:	0	1	0	0	0	0	0	0	40H
Channel 7 :	1	0	0	0	0	0	0	0	80H

Ex: Channel 0 alarm

A,A = <30H>,<30H>

ASCII "00"

B,B = <30H>,<31H>

ASCII "01"

Ex: Channel 7 alarm

A,A = <30H>,<30H>

ASCII "00"

B,B = <38H>,<31H>

ASCII "80"

<0DH> End message (ASCII "Carriage Return" or CR)

Ex: Channel 5 Alarm Address 000

Alarm Box Request:

HEX Format

<3DH>,<30H>,<30H >,<30H >,<30H>,<42H>,<30H>,<30H>,<0DH>

ASCII Format

"=","0","0","0","0","B","0","0",CR

Multiplexer Response:

HEX Format

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<3DH>,<30H>,<30H >,<30H >,<43H>,<42H>,<30H>,<32H>,<30H>,<30H
>,<32H>,<30H>,<0DH>

ASCII Format

"=", "0", "0", "0", "C", "B", "0", "2", "0", "0", "0", "2", CR

Ex: No Alarm Output Address 255

HEX Format

<3DH>,<32H>,<35H >,<35H >,<43H>,<42H>,<30H>,<32H>,<30H>,<30H
>,<30H>,<30H>,<0DH>

ASCII Format

"=", "2", "5", "5", "C", "B", "0", "2", "0", "0", "0", "0", CR

PC to Alarm Box

With this command the PC will ask for a status from the Alarm Box via the serial port.

"<3DH>,<S100>,<S10>,<S1>,<41H>,<41H>,<30H>,<30H>,<0DH>"

<3DH> Start message (ASCII "=")
<S100> Normally 100's digit of address –s elect number (0-2)
<S10> Normally 10's digit of address - select number (0-5)
<S1> Normally 1's digit of address - select number (0-5)
<41H>,<41H> Major Command (ASCII "AA"). This command is the Alarm Status
<30H>,<30H> Minor Command (ASCII "00 "). The Alarm Box does not yet have the Minor command. Send zero and zero (00) to reserve this feature.
<0DH> End message (ASCII "Carriage Return")

Alarm Box Input to PC

With this command the Alarm Box will return the serial command for the response and show the status.

"<3DH>,<S100>,<S10>,<S1>,<41H>,<42H>,<30H>,<32H>,C,C,D,D,<0DH>"

<3DH> Start message (ASCII "=")
<S100> Normally 100's digit of address - select number (0-2)
<S10> Normally 10's digit of address - select number (0-5)
<S1> Normally 1's digit of address - select number (0-5)
<41H>,<42H> Command for PC from Alarm Input (ASCII "AB")
<30H>,<32H> Represents two data bytes to follow (ASCII "02")
C,C Status Alarm Active in HI channels Byte HI (channel 8–15)

	D7	D6	D5	D4	D3	D2	D1	D0	
Channel 8:	0	0	0	0	0	0	0	1	01H
Channel 9:	0	0	0	0	0	0	1	0	02H
Channel 10:	0	0	0	0	0	1	0	0	04H

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Channel 11: 0 0 0 0 1 0 0 0 08H
 Channel 12: 0 0 0 1 0 0 0 0 10H
 Channel 13: 0 0 1 0 0 0 0 0 20H
 Channel 14: 0 1 0 0 0 0 0 0 40H
 Channel 15: 1 0 0 0 0 0 0 0 80H

Ex: Channel 8 alarm input

C,C = <30H>,<31H> ASCII "01"

D,D = <30H>,<30H> ASCII "00"

Ex: Channel 15 alarm input

C,C = <38H>,<30H> ASCII "80"

D,D = <30H>,<30H> ASCII "00"

D,D Status Alarm Active in LOW channels Byte LOW (channel 0 – 7)

D7 D6 D5 D4 D3 D2 D1 D0

Channel 0: 0 0 0 0 0 0 0 1 01H
 Channel 1: 0 0 0 0 0 0 1 0 02H
 Channel 2: 0 0 0 0 0 1 0 0 04H
 Channel 3: 0 0 0 0 1 0 0 0 08H
 Channel 4: 0 0 0 1 0 0 0 0 10H
 Channel 5: 0 0 1 0 0 0 0 0 20H
 Channel 6: 0 1 0 0 0 0 0 0 40H
 Channel 7: 1 0 0 0 0 0 0 0 80H

Ex: Channel 0 alarm input

C,C = <30H>,<30H> ASCII "00"

D,D = <30H>,<31H> ASCII "01"

Ex: channel 7 alarm input

C,C = <30H>,<30H> ASCII "00"

D,D = <38H>,<31H> ASCII "80"

<ODH> End message (ASCII "Carriage Return" or CR)

Ex: Channel 5 Alarm Address 000 (Alarm Output)

Alarm Box Request:

HEX Format

<3DH>,<30H>,<30H >,<30H >,<30H>,<42H>,<30H>,<30H>,<0DH>

ASCII Format

"=", "0", "0", "0", "0", "B", "0", "0", CR

Multiplexer Response:

HEX Format

<3DH>,<30H>,<30H >,<30H >,<43H>,<42H>,<30H>,<32H>,<30H>,<30H >,<32H>,<30H>,<0DH>

ASCII Format

"=", "0", "0", "0", "C", "B", "0", "2", "0", "0", "2", "0", CR

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Ex: No Alarm Output Address 255

Alarm Box Request:

HEX Format

<3DH>,<32H>,<35H >,<35H >,<43H>,<42H>,<30H>,<32H>,<30H>,<30H
>,<30H>,<30H>,<0DH>

ASCII Format

"=","2","5","5","C","B","0","2","0","0","0","0",CR

Multiplexer Response:

HEX Format

<3DH>,<30H>,<30H >,<30H >,<43H>,<42H>,<30H>,<32H>,<30H>,<30H
>,<30H>,<30H>,<0DH>

ASCII Format

"=","0","0","0","C","B","0","2","0","0","0","0",CR

Ex: Alarm Input Channel 7 Address 000

PC Request:

HEX Format

<3DH>,<30H>,<30H >,<30H >,<41H>,<41H>,<30H>,<30H>,<0DH>

ASCII Format

"=","0","0","0","A","A","0","0",CR

Alarm Box Response:

HEX Format

<3DH>,<30H>,<30H >,<30H >,<41H>,<42H>,<30H>,<32H>,<30H>,<30H
>,<38H>,<30H>,<0DH>

ASCII Format

"=","0","0","0","C","B","0","2","0","0","8","0",CR

NOTE: When an alarm input is received, the Alarm Box will send a status to the PC.