Upgrading from Omni16a or Omni16b to Omni16c Alarm Annunciator

Technical Note

TN1040

AUTOMATION PRODUCTS

DATE	REVISION	COMMENTS
12/03/08	1	Initial Publication.
20/10/08	2	C1407/C1480B-EXN added to the list of subject annunciators

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DOCUMENT SCOPE

The Omni16c alarm annunciator has replaced that Omni16a and Omni16b alarm annunciators that have been in service since 1981.

This technical note will assist the user in identifying the differences between these units to allow Omni16a and Omni16b installations to be safely upgraded to Omni16c

1. Differences between the Omni16a, b and C

1.1 History

The Omni16 Alarm Annunciator was introduced in 1981 and was the world's first alarm annunciator to use solid-state LED technology for the display. This highly successful product line has continued to lead innovation in this product sector over the years.

A number of major product upgrades have been released over the years, with each upgrade superseding the previous version. Each new version is designed to be largely backward compatible with previous versions, but due to continuous improvement of the product, there are feature differences that need to be taken into account when upgrading an installation.

The current version is the Omni16c, and replaces the Omni16, Omni16a, and Omni16b.

1.2 Products affected, listed by Model Number

Old Model	Description	Replacement Models NOTE 1
C1401	Omni16 and Omni16a 16 point Alarm Annunciator with incandescent lamp display	C1480B, C1482B
C1402	Omni16 and Omni16a 16 point Alarm Annunciator with "side-bar" LED displays	C1480B, C1481B
C1403	Omni16a Remote Logic Unit	C1479B
C1404	Omni8a 8 point Side-bar LED Alarm Annunciator with integral pushbuttons and audible.	C1427A
C1407	Omni16a 16 point Side-bar LED Non-Sparking Alarm Annunciator	C1480B-EXN
C1442B	Omni16b 16 point "Side-Bar" LED Alarm Annunciator with ISO input terminal board	C1480B, C1481B
C1443A	Omni16b Remote Logic Unit	C1479B
C1444B	Omni8b 8 point Side-bar LED Alarm Annunciator with integral pushbuttons and audible.	C1427A

NOTES:

1. The model listed first is the most direct replacement. Due to newer display technology now available this may not be your best choice. Please consider the other models listed for a superior outcome.

2. Differences between the Models

Most of the differences between these products relate to the electrical connections on the real of the unit. The layout of terminations on rear of the Omni16c is slightly different to the Omni16a and Omni16b, and so it is advisable to ensure that there is enough slack in existing wiring to cope with these variations in terminal positions.

See the Appendix for comparative terminal layouts of the products. References in these tables to the individual terminal strips can be identified on the relevant drawing in this Appendix. (Note for the Omni16c, TSA refers to terminal strip A as marked, etc.)

2.1 Mechanical Mounting

The Omni16a, Omni16b and Omni16c products all share a common mechanical size and mounting and are completely interchangeable in the panel.

The C1407 annunciator non-sparking housing is unchanged in the C1480B-EXN replacement version.

2.2 Power Supply Wiring

The Omni16a and Omni16b offered 24Vac power input as an option. When converting an installations to an Omni16c, 24Vac power must be changed to 24Vdc or 85-264Vac power.

Power Terminal Wiring Compatibility		
Omni16a/b	**Omni16c**	**Description**
TS1-1 (ac or dc+)	TSC-1 (+24Vdc)	+24Vdc power input Only compatible for 24Vdc power supply. If 24Vac supply is used on Omni16a/b, then this power source must be changed to 24Vdc externally.
TS1-2 (ac)	-	24Vac power not available on the Omni16c
TS1-3 (dc-)	TSC-2 (0Vdc)	0Vdc power input
TS1-4 (earth)	-	No connection required on the Omni16c. Grounding of the 24Vdc supply negative is recommended.

Table 2-1 Power Wiring

2.3 Alarm Input Wiring

2.3.1 Omni16a Input Wiring

The Omni16a was supplied as standard with non-isolated inputs with contact wetting supplied by the annunciator. See Table 2-1 for Compatibility between Omni16a and Omni16c input wiring.

2.3.2 Omni16b Input Wiring

The Omni16b was supplied with isolated inputs with a common return that could be powered internally by the alarm annunciator or by an external supply. This option was selected by the appropriate use of terminal strip TS6.

For Omni16b installations with internal wetting voltage (+24Vdc connected to TS6) see Table 2-1.

For Omni16b installations with external isolated wetting voltage (TS6 linked) see Table 2-3.

2.3.3 Omni16c Input Wiring Compatibility

The Omni16c can be supplied from the factory with isolated or non-isolated input boards depending upon your application.

The standard configuration on the Omni16c is non-isolated inputs with +24V wetting voltage for the contact inputs. (Non-isolated input boards can be ordered with +24V or 0V return voltage.)

The Model C1480B-EXN is only available with non-isolated inputs.

The correct option must be specified when ordering. If no input option is specified then the standard non-isolated configuration with +24V wetting voltage will be supplied.

See the tables below for differences in connection terminations.

Non-Isolated Input Terminal Wiring Compatibility			
Omni16a	**Omni16b**	**Omni16c**	**Description**
-	TS6 (+24V)	-	Must be connected to +24Vdc in this configuration. There is no equivalent connection in the Omni16a or c
-	TS6 (0V)	-	Must be connected to 0Vdc in this configuration. There is no equivalent connection in the Omni16a or c
TS4 – 1	TS4 – 1	TSA-2 (IP1A)	Input 1 Alarm Circuit Input
TS4 - C	TS4 – C	TSA-1 (IP1B)	Input 1 Common <u>NOTES:</u> In the Omni16a the ‘C’ terminals are connected to 0V. In the Omni16b the ‘C’ terminals are connected to the TS6-0V common terminal, and therefore to 0V in this configuration. In the Omni16c, the ‘B’ terminals are connected to 24Vdc as standard. If your inputs are derived from Open Collector transistor outputs (sink) from a PLC for example, then you will need to specify the 0V common option on the inputs when ordering the Omni16c. If you intend to use a single common return wire for all 16 alarms, then consult the Omni16c manual for a detailed explanation of the connection options.
			Inputs 2 to 16 are identical to Input 1

Table 2-2 Non-Isolated Input Wiring

Isolated Input Terminal Wiring Compatibility			
Omni16a	**Omni16b**	**Omni16c**	**Description**
-	TS6 (+24V)	-	Must be linked to TS6 – 0V in this configuration and the inputs will be powered from an external source. In this configuration the individually isolated input board option must be specified in the Omni16c.
-	TS6 (0V)	-	Must be linked to TS6 - +24V in this configuration and the inputs will be powered from an external source. In this configuration the individually isolated input board option must be specified in the Omni16c.
	TS4 – 1	TSA-2 (IP1A)	Input 1 Alarm Circuit Input
	TS4 – C	TSA-1 (IP1B)	Input 1 Return NOTE: There is no isolated input option on the Omni16a. In the Omni16b, the 'C' terminals are all connected together. In the Omni16c with isolated inputs, the 'B' input terminals are individually isolated on each input. If you wish to use a common return, then all the 'B terminals should be linked together externally to form a single common. In both the Omni16b and the Omni16c the return terminal can be connected to either 24Vdc or 0Vdc.

Table 2-3 Isolated Input Wiring

2.4 Common Service Wiring

2.4.1 Pushbuttons

Pushbutton Wiring Compatibility		
Omni16a/b	**Omni16c**	**Description**
TS5-C	TSD-11 (COM)	Pushbutton Common Return
TS5-LT	TSD-15 (TST)	Test Pushbutton Input NOTE: On the Omni16a and Omni16b, the user chose whether to wire the test button to Lamp Test or Circuit Test. In the Omni16c there is only a single Test pushbutton input which combines both functions.
TS5-CCT	TSD-15 (TST)	Test Pushbutton Input
TS5-ACK	TSD-13 (ACK)	Acknowledge Pushbutton Input
TS5-RESET	TSD-12 (RES)	Reset Pushbutton Input
TS5-SIL	TSD-14 (SIL)	Silence Pushbutton Input

Table 2-4 Pushbutton Connections

2.4.2 First Out Group Expansion

First-Out Group Wiring Compatibility		
Omni16a/b	**Omni16c**	**Description**
TS5-F.O.1 to TS5-F.O.4	TSD-18(FO)	First-Out Group Expansion The Omni16a and b have four fixed first out groups. The Omni16c has two internally configurable first out groups. In both cases the First-Out groups can be expanded across multiple alarm annunciators by connecting the FO terminals together.

Table 2-5 First-Out Connections

2.4.3 Flash Synchronisation

First-Out Group Wiring Compatibility		
Omni16a/b	**Omni16c**	**Description**
TS5-¼ F.SYNC	TSD-17(FS)	Flash Synchronisation Omni16a's, Omni16b's and Omni16c's are all flash sync compatible. Connect all FS terminals together to synchronise flashing between units.

Table 2-6 Flash Sync Connections

2.4.4 Watch Dog Output

First-Out Group Wiring Compatibility		
Omni16a/b	**Omni16c**	**Description**
TS5-W.D.	TSD-2(RL1-NO)	Watch-dog output The Omni16a and Omni16b have an open collector transistor output for the watch-dog. The Omni16c has a relay contact output for the watch dog. Connect RL1-NO as the watch-dog output and RL1-C to 0V to simulate the Omni16a and Omni16b operation.
TS5-C	TSD-1 (RL1-C)	Connect to 0V for compatible operation of the watch dog

Table 2-7 Watch-dog Connections

2.4.5 Horn Output

First-Out Group Wiring Compatibility		
Omni16a/b	**Omni16c**	**Description**
TS2-+24V	-	Horn output The Omni16a and Omni16b have an open collector transistor output for the horn output. The Omni16c has a relay contact output for the horn. Connect RL2-NO to the Horn and connect RL2-C to +0V to simulate the Omni16a and Omni16b operation. The +24Vdc available on this terminal must be connected to another +24Vdc pointing the system.
TS2-O.C.	TSD-4 (RL2-NO)	Horn Output
TS2-0V	TSD-3 (RL2-C)	Connect to 0V for compatible operation of the horn

Table 2-8 Horn Connections

2.4.6 Group Alarm Output

First-Out Group Wiring Compatibility		
Omni16a/b	**Omni16c**	**Description**
TS2-NC	TSD-6 (RL3-NC)	Group Alarm Relay Output Normally Closed relay contact
TS2-NO	TSD-7 (RL3-NO)	Group Alarm Relay Output Normally Open relay contact
TS2-C	TSD-5 (RL3-C)	Group Alarm Relay Output Contact Common

Table 2-9 Group Alarm Connections

2.5 Alarm Sequence Settings

The Omni16c has some additional functionality built into the DIP switch configuration settings. In most cases the DIP switch settings between the Omni16a, Omni16b and Omni16c are identical, but you should consult the Omni16c manual for any differences that may exist in your particular application.

2.6 Normally Open/Normally Closed Input Contact Selection

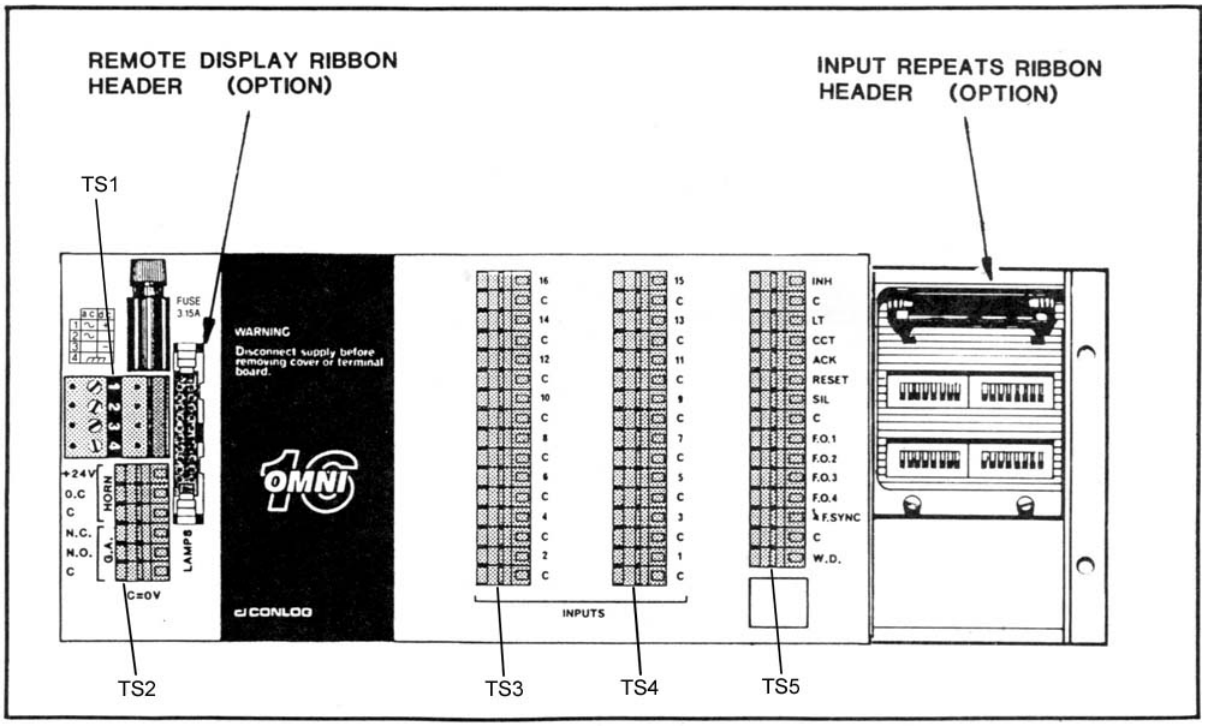
The Omni16c has DIP switch setting of Normally Open/normally Closed Alarm input configuration. These switches are moved on the Omni16c to be located with each group of 8 inputs.

2.7 Input and Lamp Repeat Ribbon Headers

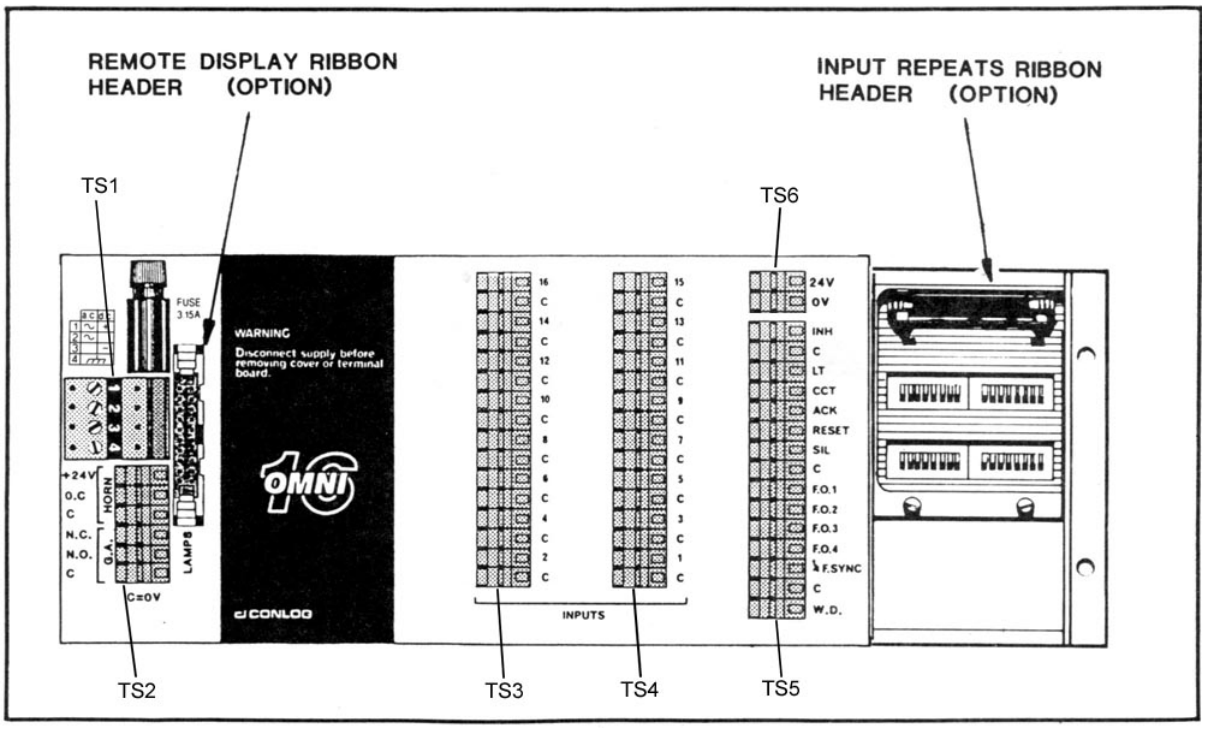
The Omni16c does not have Input and Lamp Repeat Header outputs as standard. In order to simulate these two functions on the Omni16c please specify the optional Model C1426 combined Input and Lamp Repeat Ribbon Header Module.

3. APPENDIX – Terminal Layouts

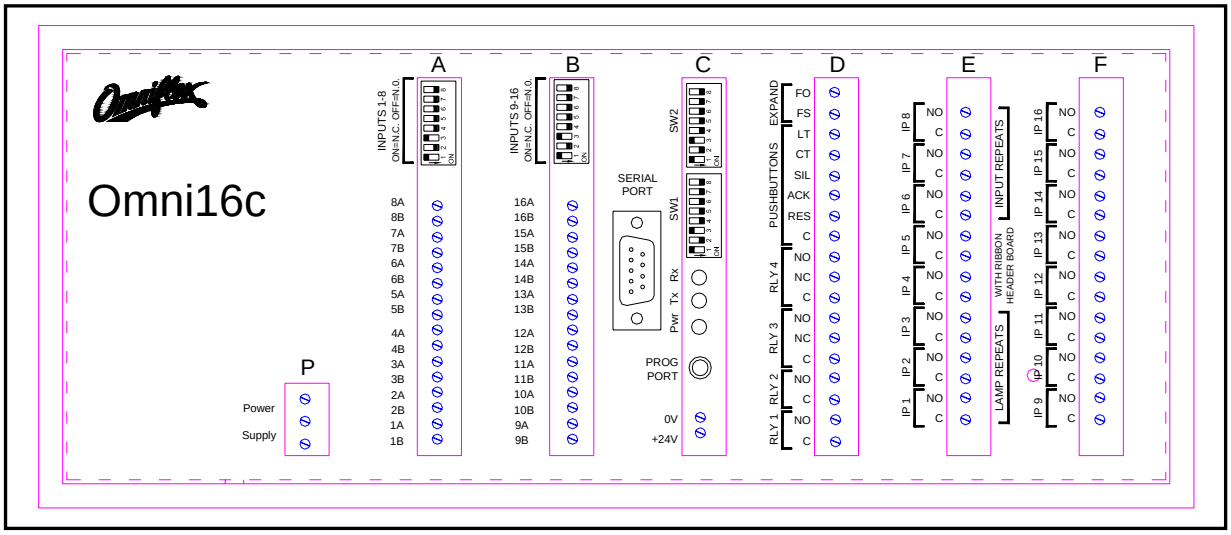
3.1 Omni16a



3.2 Omni16b



3.3 Omni16c


Omni16c
A
B
C
D
E
F
INPUTS 1-8
ON=N.C. OFF=N.O.
INPUTS 9-16
ON=N.C. OFF=N.O.
SW2
SW1
SERIAL PORT
PROG PORT
Pwr
Tx
Rx
0V
+24V
EXPAND
PUSHBUTTONS
FO
FS
LT
CT
SIL
ACK
RES
C
RLY 4
RLY 3
RLY 2
RLY 1
NO
NC
C
IP 8
IP 7
IP 6
IP 5
IP 4
IP 3
IP 2
IP 1
INPUT REPEATS
LAMP REPEATS
WITH RIBBON HEADER BOARD
IP 16
IP 15
IP 14
IP 13
IP 12
IP 11
IP 10
IP 9
8A
8B
7A
7B
6A
6B
5A
5B
4A
4B
3A
3B
2A
2B
1A
1B
16A
16B
15A
15B
14A
14B
13A
13B
12A
12B
11A
11B
10A
10B
9A
9B
P
Power
Supply