Dry Contact and Dry Contact-B
For
LOOP-AM3440
USER'S MANUAL

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TABLE OF CONTENTS

1. PRODUCT DESCRIPTION 1
   1.1 Introduction 1
   1.2 Specification 1
   1.3 Application Illustration 2
2. INSTALLATION 4
   2.1 Pin Assignment 4
   2.2 Default Setting 4
   2.3 LED 4
3 SYSTEM SETUP 5
   3.1 Dry Contact Sub-Menu 5
   3.2 Dry Contact-B Sub-Menu 5
      3.3 Inputs & Outputs Configuration 6
   3.4 Inputs Alarm Message 9
   3.5 Inputs & Outputs Status 9
   3.6 Inputs & Outputs Setup 10
   3.7 Inputs Alarm Message Setup 11
   3.8 Unit Load Default Configuration 12

LIST OF FIGURES

Figure 3-1 Relay Control of DS0×2 7
Figure 3-2 Alarm Signal of DS0×2 7
Figure 3-3 Relay Control of DS0×16 8
Figure 3-4 Alarm Signal of DS0×16 8

LIST OF TABLES

Table 2-1 RJ45 Pin Assignment - N1 & N2 of Dry Contact I/O Plug-in card 4
Table 2-2 Screw Type connector Pin Assignment - Dry Contact I/O Plug-in card 4
Table 2-3 Dry Contact I/O Port Default Setting 4
Table 2-4 LED Indication 4

D Bitte führen Sie das Gerät am Ende seiner Lewbensdauer den zue Verfügung stehended Rückgabeund Sammelsystemen zu.

GB At the end of the product's useful life, please dispose of it at appropriate collection points provided in your country

F Une fois le produit en fin devie, veuillez le déposer dans un point de recyclage approprié.

ES Para preservar el medio ambiente, al final dela vida útil de su producto, depositelo en los laguares destinado aello de acuerdo con la legislación vigente.

P No final de vida útil do producto, por favor coloque no ponto de recolha apropriado.

I Onde tutelare l'ambiente, non buttate l'apparecchio trai i normali rifiuti al termine della sua vita utile, ma portatelo presso i punti do taccolta specifici per questi rifiuti previsti dalla normativa vigente.

NL Wij raden u aan het apparant aan het einde van zijn nuttige levensduur, niet bij hey gewone huisafval te deponeren, maar op de dearvoor bestemde adressen.

DK Når produktet er udtjent, bor det børtskaffes via de sæ rlige indsamlingssteder i landet.

N Ved slutten av produktets levetid bør det avhendes på en kommunal miljøstasjon eller leveres til en elektroforhandler.

S Lämna vänligen in produkten på lämplig återvinningsstation när den är förbrukad.

FIN Hävitä tuote käytöiän päättyessä viemällä se asianmukaiseen keräyspisteeseen.

PL Gdy produkt nie nadaje sie juz do dalszego uzytku, nalezy zostawic go w jednym ze specjalnych punktów zajmujacych sie zbiórka zuzytych producktów w wybranych miejscach na terenie kraju.

CZ Po skončení jeho životnosti odložte prosím výrobek na přislušném sběrném místé zřízeném dle předpisů ve vaší zemi.

SK Po skončení jeho životnosti odovzdajte prosím zariadenie na príslušnom zbernom mieste podía platných miestnych predpisov a noriem.

SLO Ko se izdelku izteče življenska doba, ga odnesite na ustrezno zbirno mesto oziroma ga odvrzite v skladu z veljavnimi predpisi.

GR Στο Τέλος της λειτουργικής Ζωής του προϊόντος παρακαλώ
Πετξτε το στα ειδικά σημεία που Παρέχονται οτη χωρα σας.

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1. PRODUCT DESCRIPTION

1.1 Introduction

Loop Telecom's Dry Contact and Dry Contact type B plug-in cards are designed for the Loop-AM3440 series. These Dry Contact cards, which can be assigned to 2 DS0 time slots or 16 DS0 time slots, are used for (1) collecting alarm inputs from non-SNMP devices and issuing alarm via SNMP trap, (2) sending commands to close remote contacts for relay devices, and (3) repeat a remote contact closure with a local contact closure. The difference between Dry Contact and Dry contact type B interface cards is the higher voltage for type B interface card. These cards are used to detect remote contact closures activated by alarms and to provide remote contact closures to control network operation where needed.

When 2 DS0 time slots are chosen to carry the dry contact signals, 8 bits of one time slot carry the input contact status, and 8 bits of the other carry the output contact commands. When 16 DS0 time slots are chosen to carry the dry contact signals, one bit of each of 8 DS0 time slot carry the input contact status, and one bit of each of other 8 DS0 carry the output commands.

1.2 Specification

Dry Contact Interface Card

Inputs -		**Outputs -**	
8-channel	2-port per card, 4-pair per port	8-channel	8-pair per card
Connector	RJ45	Connector	Screw type
Internal Resistance	1 K	Initial Insulation Resistance	Min. 100M ohm (at 500 Vdc)
Activation Current	3 ma	Max. Current	5A
Deactivation Current	1.5 ma	Max. Voltage	100 Vdc, 250 Vac
Allowable Current	4 ma	Short-circuit Current	5A

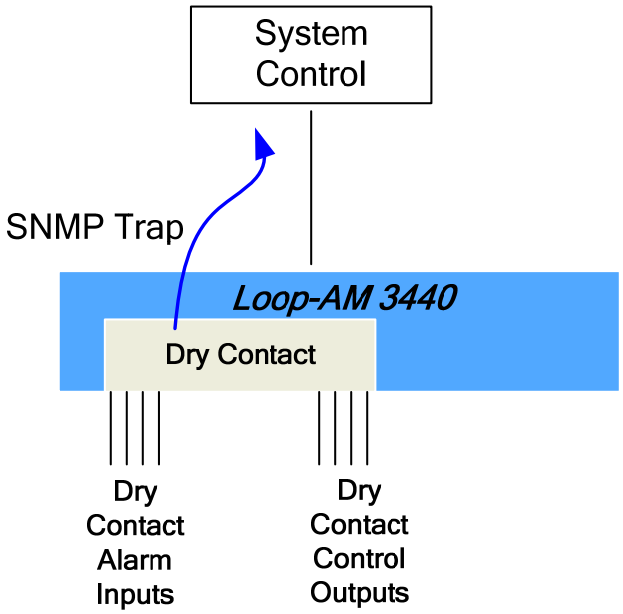
Dry Contact Type B Interface Card

Inputs		**Outputs**	
8-channel	2-port per card, 4-pair per port	8-channel	8-pair per card
Connector	RJ45	Connector	Screw type
Internal Resistance	100 K	Initial Insulation Resistance	Min. 1000M ohm (at 500 Vdc)
Activation Current	3 ma	Max. Current	2A
Deactivation Current	1.5 ma	Max. Voltage	220 Vdc, 250 Vac
Allowable Current	4 ma	Short-circuit Current	2A

1.3 Application Illustration

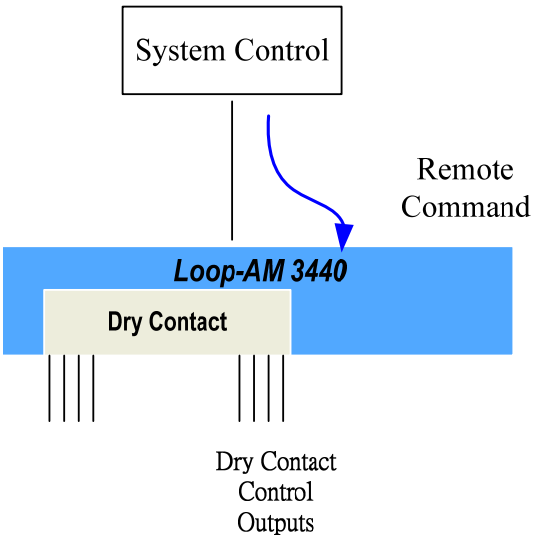
Dry Contact Input Application - SNMP Trap

When the alarm occurs, this is detected by the dry contact input. The dry contact card will send alarm trap to Control Center via SNMP port for management.



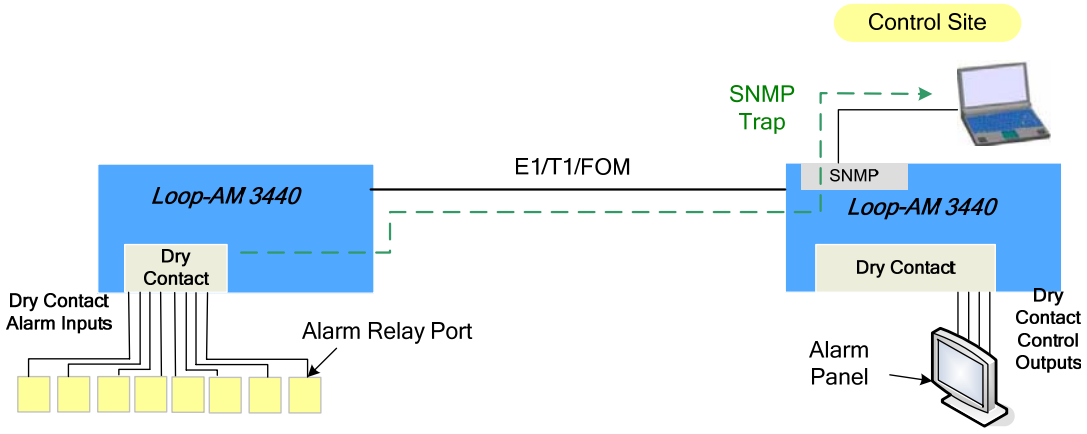
Dry Contact Output Application- Remote Contact Control

From the Control Center, any dry contact can be made to close by remote commands.



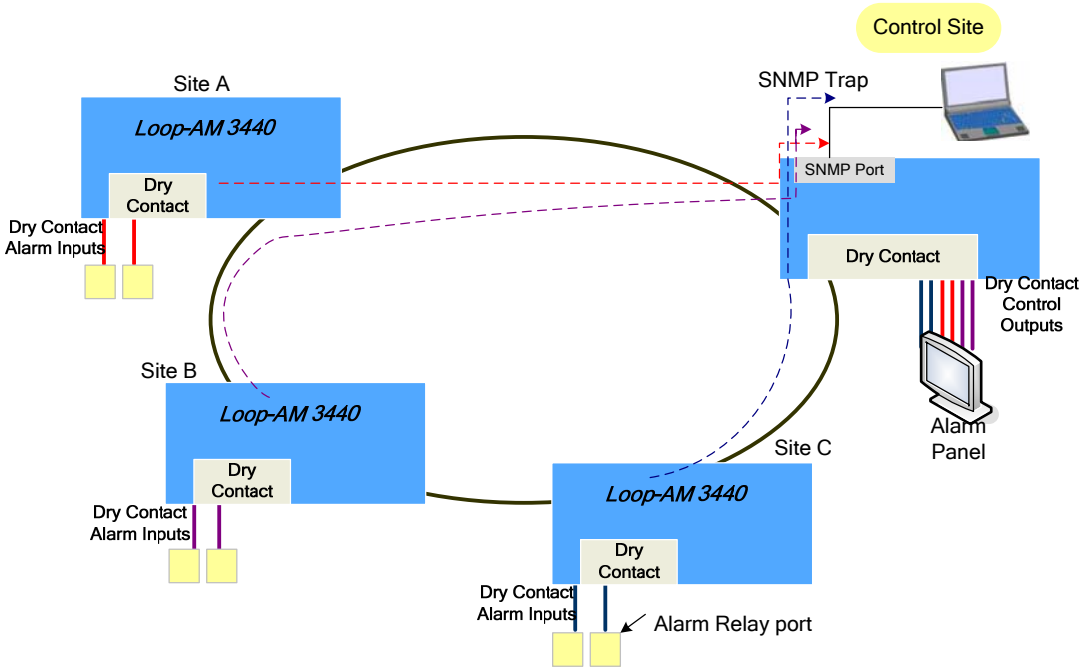
Point to Point Application — Using both input and output dry contacts

Using one DS0 for alarm input and one DS0 for alarm out put, and vice versa. When the alarm occurs, it will send alarm trap via SNMP port for management. Also, the dry contact inputs at local site can be detected and transmitted to the dry contact outputs at the control site.



Point to Multi-Point Application

Using the 16 DS0 to carry the alarm input and alarm output (8 DS0 for input, 8 DS0 for output), and vice versa. When the any of the assigned of the alarm occurs, it will send alarm trap via SNMP port for management. From the central management point, all dry contact outputs can be controlled.



2. INSTALLATION

2.1 Pin Assignment

Pin Number	Signal	Signal Description
1	Pair 1-A	
2	Pair 1-B	
3	Pair 2-A	
4	Pair 2-B	
5	Pair 3-A	
6	Pair 3-B	
7	Pair 4-A	
8	Pair 4-B	

Table 2-1 RJ45 Pin Assignment - N1 & N2 of Dry Contact I/O Plug-in card

Pin Number	Signal	Signal Description
1	U-NO	U1 to U8 Normal Open
2	U-COM	U1 to U8 GND
3	U-NC	U1 to U8 Normal Close

Table 2-2 Screw Type connector Pin Assignment - Dry Contact I/O Plug-in card

2.2 Default Setting

I/O	Item	Description	Default
Dry Contact Input	Alarm Trigger	ON - Send alarm trap	V
		OFF - No alarm trap is sent	
	Alarm Message	Programmable message with length to 255 bytes	
	Alarm Status	ON - Alarm	
		OFF - Normal	
Dry Contact Output	Dry Contact Setup	Set the dry contact to normal	V
		Set the dry contact to operated	
	Contact Status	Contact normal	
		Contact Oprated	

Table 2-3 Dry Contact I/O Port Default Setting

2.3 LED

LED Type	Color	Description
ACT	Flashing Green	Normal
	Off	Port is failed

Table 2-4 LED Indication

3 SYSTEM SETUP

3.1 Dry Contact Sub-Menu

Under the Controller Menu, press “U” to choose a slot for Dry Contact port. The screen will show as below. Then press “P” to choose Dry Contact port, press **ENTER** to get into the port menu.

```
SLOT 3  Dry Contact          === Port Menu ===            11:10:29 06/30/2009

Version      : HW FPGA Ver.A




[DISPLAY]                                [SETUP]
C -> Inputs & Outputs Configuration      S -> Inputs & Outputs Setup
A -> Inputs Alarm Message                M -> Inputs Alarm Message Setup
I -> Inputs & Outputs Status




[LOG]                                    [MISC]
U -> Choose Other Slot                   Y -> Unit Load Default Config
F -> Log Off [SETUP],[MISC] Menu
O -> Log On  [SETUP],[MISC] Menu
E -> Return to Controller Main Menu


>>SPACE bar to refresh or enter a command ===>
```

3.2 Dry Contact-B Sub-Menu

The functions and management options for Dry Contact-B are the same with Dry Contact. The only difference in VT100 system is its naming. The name for Dry contact-B is “DC-B”. When operating a dry contact-B card, you will see the name “DC-B” on the upper left side of the screen.

```
SLOT 3  DC-B                 === Port Menu ===            11:10:29 06/30/2009

Version      : HW FPGA Ver.A




[DISPLAY]                                [SETUP]
C -> Inputs & Outputs Configuration      S -> Inputs & Outputs Setup
A -> Inputs Alarm Message                M -> Inputs Alarm Message Setup
I -> Inputs & Outputs Status




[LOG]                                    [MISC]
U -> Choose Other Slot                   Y -> Unit Load Default Config
F -> Log Off [SETUP],[MISC] Menu
O -> Log On  [SETUP],[MISC] Menu
E -> Return to Controller Main Menu


>>SPACE bar to refresh or enter a command ===>
```

Please note that in the controller's plug-in card information summary table or card registration setup, "DC-B" also refers to "Dry Contact-B" card.

```
LOOP AM3440-A                 === Information Summary ===             11:08:13 06/30/2009

Slot Card/Interface    Serial   Software Version    Registered Card
==== ================  ======  ==================  ===============
 A
 B
 C
 D

==== ================  ======  ==================  ===============
 1
 2
 3
 4
 5   DC-B                 N/A                      Dry Contact
 6
 7
 8
 9
 10
 11
 12

<< ESC key to return to previous menu, SPACE bar to refresh >>
```

3.3 Inputs & Outputs Configuration

To display port system setting, enter "C" from the "Port Menu". This menu will show the current setting for alarm trigger of inputs and alarm relay of outputs.

```
SLOT 3  Dry Contact     === Inputs & Outputs Configuration ===    11:10:29 06/30/2009


  [---Dry Contact Inputs---]        [---Dry Contact Outputs---]
      [Pair] [Alarm Triger]             [Pair] [Relay]
   N1   P1       DISABLE                  U1    Normal
   N1   P2       DISABLE                  U2    Normal
   N1   P3       DISABLE                  U3    Normal
   N1   P4       DISABLE                  U4    Normal
   N2   P1       DISABLE                  U5    Normal
   N2   P2       DISABLE                  U6    Normal
   N2   P3       DISABLE                  U7    Normal
   N2   P4       DISABLE                  U8    Normal


  Dry Contact Channel: Controller/DS0 x2 /DS0 x16



<< ESC key to return to previous menu, SPACE bar to refresh >>
```

Note:

1. Version B support controller and DS0×2 only. FPGA Version C support controller, DS0×2 and DS0×16.
2. The application illustration of DS0×2 (Figure 6-1 and 6-2) and DS0×16 (Figure 6-3 and 6-4) is shown below

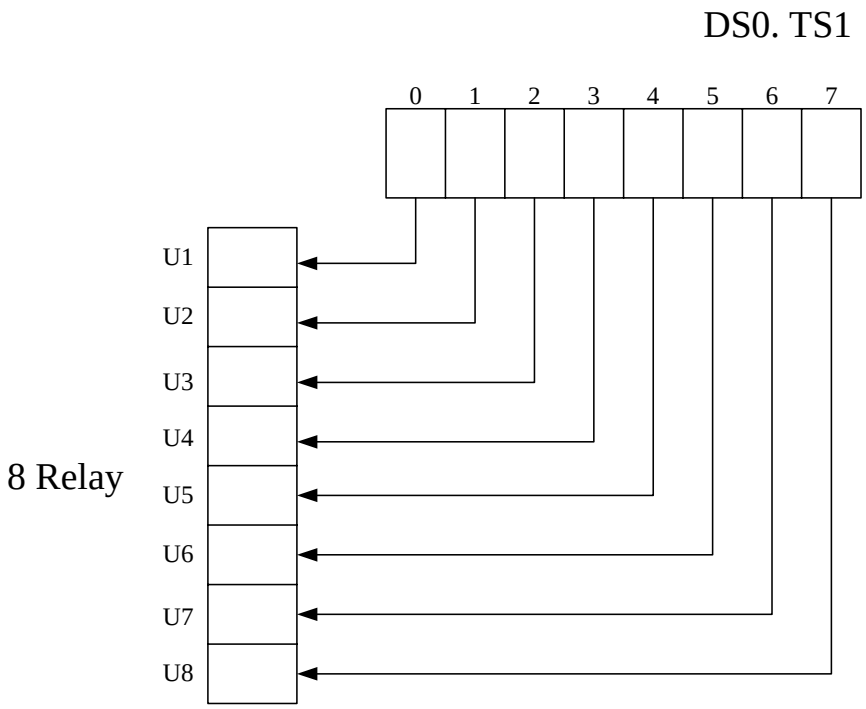


Figure 3-1 Relay Control of DS0×2

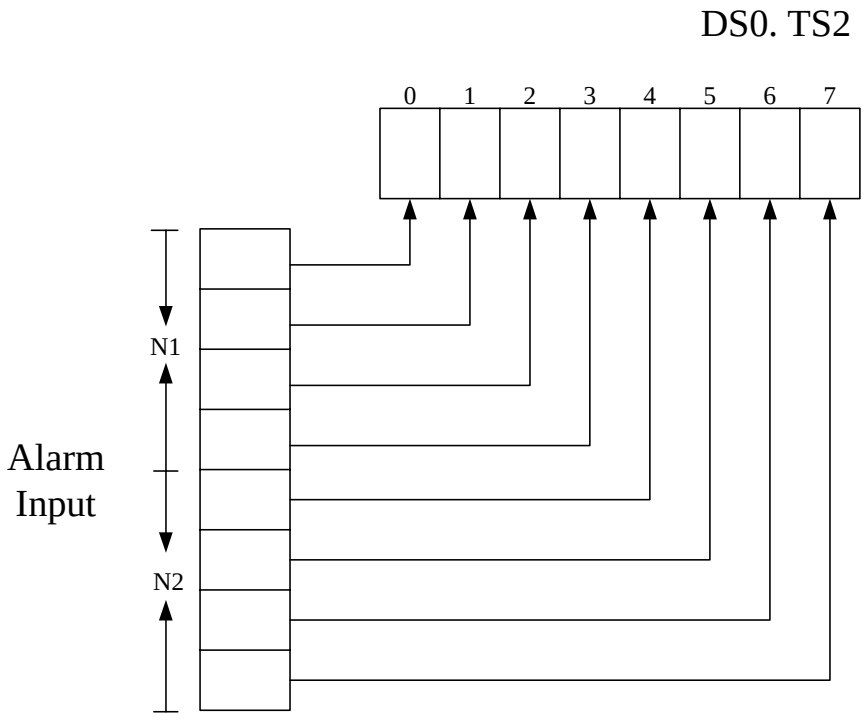


Figure 3-2 Alarm Signal of DS0×2

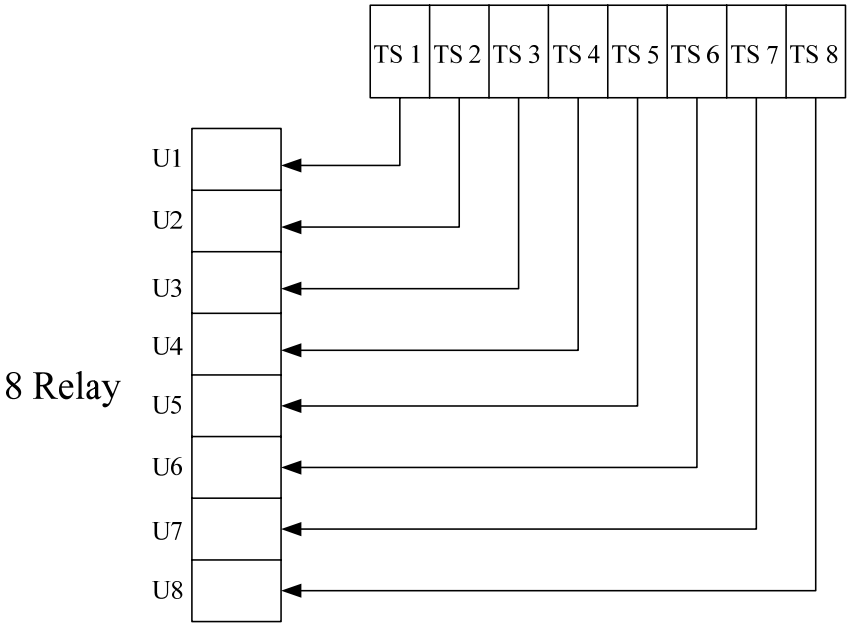


Figure 3-3 Relay Control of DS0×16

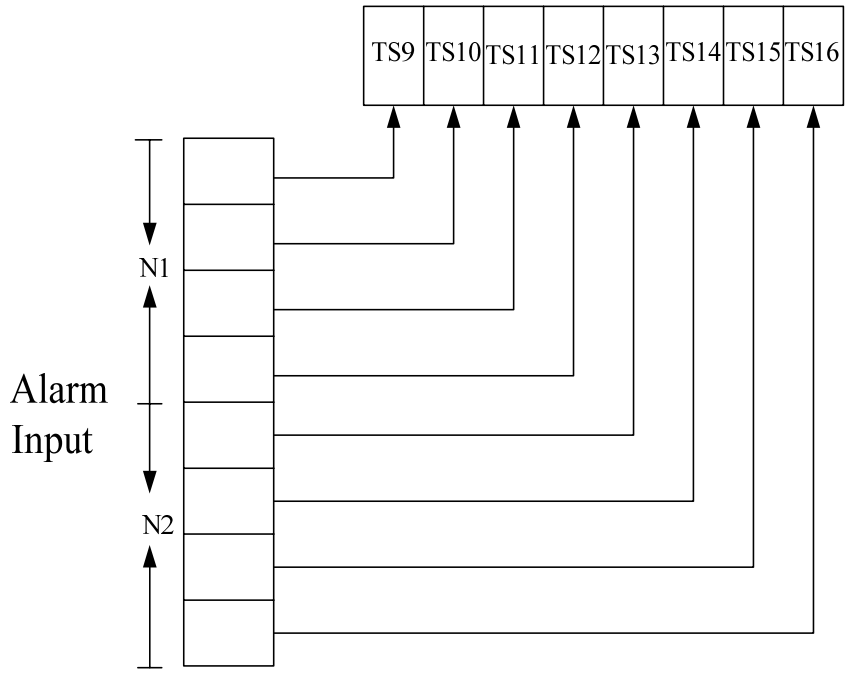


Figure 3-4 Alarm Signal of DS0×16

3.4 Inputs Alarm Message

To display alarm message of inputs, press "A" from the "Port Menu". Then move the cursor to select "N1" or "N2" from this menu.

```
SLOT 3  Dry Contact      === Alarm Message Configuration ===      11:10:29 06/30/2009



Dry Contact Inputs ?  N1  *N2
```

Press **ENTER** from the above menu. Then the coming menu will display detail alarm messages as below screen shows.

```
SLOT 3  Dry Contact     === Alarm Message Configuration ===   11:10:29 06/30/2009

[N2-Pair_1]
Alarm Message:  N2_Pair_1 Device Alarm



[N2-Pair_2]
Alarm Message:  N2_Pair_2 Device Alarm



[N2-Pair_3]
Alarm Message:  N2_Pair_3 Device Alarm



[N2-Pair_4]
Alarm Message:  N2_Pair_4 Device Alarm



<< ESC key to return to previous menu, SPACE bar to refresh >>
```

3.5 Inputs & Outputs Status

To display the current status for inputs and outputs, enter ”I” from the "Port Menu". This menu will show as below. For dry contact inputs, this menu will display "OK" or "Alm"(alarm) for pair 1 to pair 4 (P1 to P4) of N1 and N2. For dry contact outputs, this menu will display "Operated" or "Normal" for pair 1 to pair 8 (U1 to U8).

```
SLOT 3  Dry Contact      === Inputs & Outputs Status ===      11:10:29 06/30/2009

  [---Dry Contact Inputs---]        [---Dry Contact Outputs---]
     [Pair]  [Status]                   [Pair]  [Status]
   N1   P1       OK                      U1     Operated
   N1   P2       Alm                     U2     Normal
   N1   P3       OK                      U3     Normal
   N1   P4       OK                      U4     Normal
   N2   P1       OK                      U5     Normal
   N2   P2       OK                      U6     Normal
   N2   P3       OK                      U7     Normal
   N2   P4       OK                      U8     Normal









<< ESC key to return to previous menu, SPACE bar to refresh >>
```

3.6 Inputs & Outputs Setup

To set up system configuration for inputs and outputs, press ”S” from the "Port Menu". Use arrow key to move the cursor at a desired item and TAB key to select a desired option, "ON " or "OFF" for alarm triger, "Operated" or "Normal" for alarm relay.

```
SLOT 3  Dry Contact      === Inputs & Outputs Setup ===    11:10:29 06/30/2009
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS
  [---Dry Contact Inputs---]        [---Dry Contact Outputs---]
      [Pair] [Alarm Triger]             [Pair] [Relay]
   N1   P1       DISABLE                U1    Normal
   N1   P2       DISABLE                U2    Normal
   N1   P3       DISABLE                U3    Normal
   N1   P4       DISABLE                U4    Normal
   N2   P1       DISABLE                U5    Normal
   N2   P2       DISABLE                U6    Normal
   N2   P3       DISABLE                U7    Normal
   N2   P4       DISABLE                U8    Normal


  Dry Contact Channel: Controller









<< Press ESC key to return to previous menu >>
```

Note: 1. Option of Dry Contact Channel control alarm source from “Controller” or DS0 (support hardware FPGA version >= Ver. B only).

2. Please refer to 6.20.1 (Figure 6-1 and Figure 6-2) for Relay Control of DSO and Alarm Signal of DSO.

Press **ESC** key from the above menu to continue. Then the system will ask for confirmation. Press "Y" to confirm the new setting or "N" to abort.

```
SLOT 3  Dry Contact      === Inputs & Outputs Setup ===    11:10:29 06/30/2009
ARROW KEYS: CURSOR MOVE, TAB: ROLL OPTIONS
  [---Dry Contact Inputs---]        [---Dry Contact Outputs---]
      [Pair] [Alarm Triger]             [Pair] [Relay]
   N1   P1       ON                     U1    SHORT
   N1   P2       ON                     U2    OPEN
   N1   P3       ON                     U3    OPEN
   N1   P4       ON                     U4    OPEN
   N2   P1       ON                     U5    OPEN
   N2   P2       ON                     U6    OPEN
   N2   P3       ON                     U7    OPEN
   N2   P4       ON                     U8    OPEN









>> Change configuration (Y/N)? (Note:to save,please use V-command)
```

To save the new setting, press "V" from the "Controller Menu".

```
LOOP AM3440-A              === Controller Menu ===        11:10:29 06/30/2009

Serial Number    : 1014                  Redundant Controller: Enabled
Hardware Version: Ver.F                  Start Time  : 19:16:09  11/01/2007
Software Version: V7.01.01 11/01/2007  Device Name: LOOP AM3440-A



[DISPLAY]                                  [SETUP]
C -> System Configuration                  S -> System Setup
B -> Clock source Configuration            M -> System Alarm Setup
Q -> Alarm Queue Summary                   W -> Firmware Transfer
I -> Information Summary                   V -> Store/Retrieve Configuration
                                             K -> Clock source Setup
                                             T -> Bit Error Rate Test

[LOG]                                      [MISC]
U -> Choose a Slot                         A -> Alarm Cut Off
F -> Log Off [SETUP],[MISC] Menu           X -> Clear Alarm Queue
O -> Log On  [SETUP],[MISC] Menu           Y -> Controller Return to Default
                                             Z -> Controller Reset



>>SPACE bar to refresh or enter a command ===>
```

3.7 Inputs Alarm Message Setup

This menu is used to edit alarm messages for dry contact inputs. Press "M" from the "Port Menu", then select a desired port, N1 or N2. The current selection will be highlighted by an asterisk (*).

```
SLOT 3  Dry Contact     === Alarm Message Setup ===       11:10:29 06/30/2009



Dry Contact Inputs ?  *N1  N2
```

Press **ENTER** from the above menu. The coming menu, as below shows, is allowed users to edit alarm messages. The space for editing each message are 252 digitals 4 lines (63 digitals each line). Use arrow key to move the cursor at the desired position and BACKSPACE key to edit messages. To abort editing, press **ESC** key.

```
SLOT 3  Dry Contact       === Alarm Message Setup ===       11:10:29 06/30/2009
ARROW KEYS: CURSOR MOVE, BACKSPACE to edit, ESC to abort
[N1-Pair_1]
Alarm Message:  N1_Pair_1 Device Alarm_____________________________________________



[N1-Pair_2]
Alarm Message:  N1_Pair_2 Device Alarm



[N1-Pair_3]
Alarm Message:  N1_Pair_3 Device Alarm



[N1-Pair_4]
Alarm Message:  N1_Pair_4 Device Alarm



<< Press ESC key to return to previous menu >>
```

3.8 Unit Load Default Configuration

This menu is used to download default configuration. Press "Y" from the "Port Menu". Then the system will ask for confirmation. Press "Y" to return to default setting or "N" to abort.

```
SLOT 3  Dry Contact        === Port Menu ===          11:10:29 06/30/2009

Version      : HW FPGA Ver.A




[DISPLAY]                                  [SETUP]
C -> Inputs & Outputs Configuration        S -> Inputs & Outputs Setup
A -> Inputs Alarm Message                  M -> Inputs Alarm Message Setup
I -> Inputs & Outputs Status




[LOG]                                      [MISC]
U -> Choose Other Slot                     Y -> Unit Load Default Config
F -> Log Off [SETUP],[MISC] Menu
O -> Log On  [SETUP],[MISC] Menu
E -> Return to Controller Main Menu


>> Return to default - are you sure ? [Y/N]
```

Note: When you load the default configuration, the current daughter card map will not be cleared.