ARIES-MLX, ARIES NET*Link*

Printer Port Output for Remote Annunciators

Technical Guide



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1.0 OVERVIEW

This document details the output of the printer port of the ARIES NET*Link* or ARIES-MLX control unit. This data can be exported to support a remote annunciator module.

By default this port is inactive. To enable this port, access the SET>Port Control menu from the keypad or use the remote configuration software.

2.0 DATA FORMAT

On either RS232 port configured for printer output, the data is presented as:

- 38400 baud
- no parity
- 8 data bits
- 1 stop bit

There is no handshaking on this port.

If configured, the USB Printer Port will transmit the data in the format described here. The interface device must 'attach' by mimicking one of the following printers:

- Okidata Microline 186 (USB printer)
- Okidata Microline 320 (Both USB and RS232 printers)
- Epson FX-890 (USB printer)

3.0 SOFTWARE

Output on this port is in three lines as follows:

- The first line is the time and date of the event
- The second line is the event itself.
- The third line (when present) is the programmable text string associated with some events.

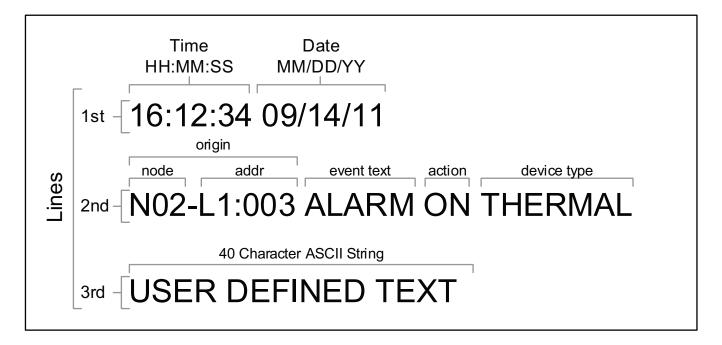


Figure 1. Typical SLC Event Printout

3.1 First Line Format

The first line lists the time and date of the event. The line is terminated with a CR (0Dh) LF (0Ah). The time is displayed in 24Hr/Military format.

For example:

16:12:34 09/14/11

3.2 Second Line Format

The second line lists the type of event being reported. Events can be divided into three types - detector events, panel events and miscellaneous events. The panel event category can be subdivided into Initiating (SLC) device events, I/O module events, and Main CPU events. The line is terminated with CR (0Dh) LF (0Ah).

Note carefully both the spelling and the number of spaces present.

In these lists the following mnemonics are used:

```
"AAM"
Dettype
                "RR"
                "ASM"
                "ION"
                "PHOTO"
                "THERMAL"
                "PALM"
                "ALARM"
                "MANUAL ALM"
                "MAN REL"
                "ABORT"
                "SPV"
                "WATERFLOW"
                "NORMAL"
                "TBL"
                "SQUIRT"
                "FAN"
                "DRILL"
                "SIL"
                "RESET"
                "ACK"
                "RRM"
                "SPURT"
                "MACRO SWITCH"
                "UNKNOWN TYPE"
ONF
                "ON" ("ON ", padded with a space)
                "OFF"
```

""- No Action

addr (each of these may be followed by one or more digits) "SG" (On board NAC circuit, 1-4) "RY" (Relay circuit, 1-3) "AR" (Agent Release circuit, 1-2) "MAIN DISPLAY" (no address) "RDCM" (Remote Display and Control Module 1-15) "LAM" "ATM" "IIM" "HSD" "ICM" "SLC" "NIC" (network module specific events, not NODE specific) "RNAC" "RFLAY" "DACT" "CITY TIE" "PMU" "OG" "RG"

For network systems, events can be preceded by a node number in the following format, where N01 represents node #1.

```
N01-L1:005 ALARM ON PHOTO
```

This node number will only be displayed or transmitted for events that originate from other nodes, not the panel that is connected to the printer. All events discussed below can be preceded by a node number string.

3.2.1 SLC Device Events

These events within this section relate to devices interfaced to the MCB via the Signal Line Circuit (SLC).

3.2.1.1 Event Format

SLC Device events follow the same general format, with a few exceptions, they are all compiled using the following templates:

Local SLC Device Events:

```
"[addr] [event text] [ONF] [Devtype]\r\l" - "L1:005 ALARM ON PHOTO"
```

Remote SLC Device Events:

```
"[node][addr] [event text] [ONF] [Devtype]\r\I" - "N01-L1:005 ALARM ON PHOTO"
```

Where:

```
addr
```

```
"LX:YYY" - X = originating loop (1-8), YYY = device address (000-255)
```

node

```
"NXX-" - XX = originating node (01-64)
```

Device L1:001 is used for illustration. This represents a device on SLC loop number 1 with an address of 1. The valid range for loop number is 1 - 8 and device address range is 001-255.

- L1:001 ALARM ONF Dettype
- L1:001 ALARM VERIFICATION ONF Dettype
- L1:001 **PAS** ONF Dettype
- L1:001 PRE-ALARM ONF Dettype
- L1:001 **ABORT** *ONF* ABORT
- L1:001 ABORT TROUBLE ONF ABORT
- L1:001 **SUPERVISORY** *ONF Dettype*
- L1:001 INPUT ONF TROUBLE
- L1:001 **INPUT** ONF NORMAL
- L1:001 **NOT REGISTERED** *ONF Dettype*
- L1:001 **TROUBLE OPEN** *ONF Dettype*
- L1:001 RCU PASSED TEST Dettype
- L1:001 TEST FAILURE TROUBLE ONF Dettype
- L1:001 **EEPROM FAILURE** *ONF Dettype*
- L1:001 RAM FAILURE ONF Dettype
- L1:001 **CONTACT FAILURE** *ONF Dettype*
- L1:001 **DRIFT ERROR** *ONF Dettype*
- L1:001 **OUTPUT RELAY FAULT** *ONF Dettype*
- L1:001 9 VDC FAULT ONF Dettype
- L1:001 LINE POWER FAILURE ONF Dettype
- L1:001 **ISOLATED** *ONF Dettype*
- L1:001 ILLEGAL TYPE STORED ONF Dettype
- L1:001 **OVERHEAT** ONF AAM
- L1:001 MODULE NOT CONFIGURED ONF AAM
- L1:001 SENSOR CABLE TROUBLE ONF AAM
- L1:001 24 VDC FAULT ONF ASM
- L1:001 PSU SHORT CIRCUIT ONF ASM
- L1:001 PSU OPEN CIRCUIT ONF ASM
- L1:001 **OUTPUT TROUBLE ONF ASM**
- L1:001 ALARM RELAY FAILURE ONF ASM
- L1:001 WALK TESTED ONF Dettype
- L1:001 **DUPLICATE ADDRESS FAULT** *ONF Dettype*
- L1:001 **FAN RESTART** *ONF Dettype*
- L1:001 **DEVICE COMMUNICATION FAULT** *ONF Dettype*
- L1:001 **SWITCH INPUT ACTIVE** *ONF Dettype*
- L1:001 **REMOTE RELEASE** *ONF* RRM
- L1:001 OPEN CIRCUIT FAULT ONF RRM
- L1:001 PSU SUPERVISION FAULT ONF RRM
- L1:001 FAILED TO CARRY OUT COMMAND ONF RRM
- L1:001 SHORT CIRCUIT FAULT ONF RRM

Pegasys Addresable Loop Module Events (PALM).

L1:001 LOW AIRFLOW ONF PALM

L1:001 HIGH AIRFLOW ONF PALM

L1:001 **DETECTOR TROUBLE ONF PALM**

L1:001 **OFFSET TROUBLE ONF** PALM

Format exceptions, these use the following template (no action field)

"[node][addr] [event text] [Devtype]\r\l".

L1:001 **IS IN DAY MODE** Dettype

L1:001 ALARM ON ACK Dettype

L1:001 PREALARM ON ACK Dettype

L1:001 **SUPERVISORY ON ACK** Dettype

L1:001 **PAS ACK** Dettype

L1:001 PAS RESET Dettype

3.2.1.2 SLC Based Group Events

The MCB supports group activations, wherein a group of output devices can be activated quickly in response to a system event. These are called Release Groups or Output Groups. There can be up to seven Release Groups and seven Output Groups. Each group is identified by its type, 'RG' for RRM Groups or 'OG' for ASM and AO Groups, followed by the numerical assignment of the group.

addr: "RGn", where 'n' is the group identifier (1-7)

"OGn", where 'n' is the group identifier (1-7)

RGn GROUP SYSTEM RELEASE ONF

RGn RRM GROUP ISOLATED ONF

OGn OUTPUT GROUP ISOLATED ONF

3.2.2 Panel Events

3.2.2.1 On Board Circuit Events

These events relate to the operation of the on board output circuits, NACs, release and relays. A list of the available modules and addresses can be found in Section 3.2.

addr: ARn, where 'n' is the circuit identifier (1-2)

SGn, where 'n' is the circuit identifier (1-4) RYn, where 'n' is the circuit identifier (1-3)

Example:

"AR2 OPEN CIRCUIT ON" - Open circuit fault on AR output 2 on MCB

addr SHORT CIRCUIT ONF

addr OPEN CIRCUIT ONF

addr ISOLATE ONF

ARn **SYSTEM RELEASE** *ONF* (Agent Release Only Event)

addr ACTIVATION FAILURE ONF addr MANUAL DISCONNECT ONF

3.2.2.2 Expansion Module Events

The backplane modules provide output circuit expansion capabilities to the MCB (R-NAC module provides 3 combinational outputs (R-NAC), while the Relay module provides 4 voltage free relay outputs). Since the expansion outputs are an extension of the MCB, events associated with these outputs are also treat as extensions of the on-board output circuits.

Each circuit is classified by its type 'AR', 'SG' and 'RY', followed by the logical numerical assignment of expansion module (on-board is '0' so not included in the string), followed by the colon, and then the logical numeric assignment differentiating it from the other output circuits supported by the backplane module.

addr: ARx:y, where 'x' is the backplane module logical identifier and 'y' is the

circuit identifier (1-3)

SGx:y, where 'x' is the backplane module logical identifier and 'y' is the

circuit identifier (1-3)

RYx:y, where 'x' is the backplane module logical identifier and 'y' is the

circuit identifier (1-4)

Example:

"SG23:3 SHORT CIRCUIT ON" - Short circuit fault on NAC output 3 on R-NAC expansion module

addr SHORT CIRCUIT ONF

addr OPEN CIRCUIT ONF

addr ISOLATE ONF

ARx:y SYSTEM RELEASE ONF

(Agent Release Only Event)

addr ACTIVATION FAILURE ONF

addr MANUAL DISCONNECT ONF

3.2.2.3 R-NAC Module Events

The MCB supports multiple R-NAC Module connections via the backplane interface, so it is necessary to differentiate the origin of R-NAC Module events with a logical numerical assignment when printing the R-NAC Module event.

addr: "RNAC x", where 'x' is the R-NAC module identifier (1-24)

Example:

"RNAC1 ISOLATED ON" -R-NAC expansion module 1 is isolated

addr COMM FAILURE WITH MODULE ONF

addr MODULE IN THE WRONG SLOT ONF

addr INCOMPATIBLE MODULE FOUND ONF

addr MODULE UNREGISTERED ONF

addr CONFIGURATION FAULT ONF

addr RAM FAILURE ONF

addr BACKPLANE 24VDC LOW ONF

addr BACKPLANE 24VDC HIGH ONF

addr EXT 24V SUPERVISION FAULT ONF

addr **ISOLATED** ONF

3.2.2.4 Relay Module Events

The MCB supports multiple Relay Module connections via the backplane interface, so it is necessary to differentiate the origin of Relay Module events with a logical numerical assignment when printing the Relay Module event.

addr: "RELAYx", where 'x' is the Relay module identifier (1-24)

Example:

"RELAY1 ISOLATED ON" - Relay expansion module 1 is isolated

addr COMM FAILURE WITH MODULE ONF

addr MODULE IN THE WRONG SLOT ONF

addr INCOMPATIBLE MODULE FOUND ONF

addr MODULE UNREGISTERED ONF

addr CONFIGURATION FAULT ONF

addr RAM FAILURE ONF

addr BACKPLANE 24VDC LOW ONF

addr BACKPLANE 24VDC HIGH ONF

addr ISOLATED ONF

3.2.2.5 City-Tie Module Events

The MCB only supports a single City-Tie Module, through which it can interface with an External Monitoring Station. The single connection negates the necessity to have a logical numerical assignment when printing City-Tie events.

Example:

"CITY TIE ISOLATED ON" - City-tie expansion module is isolated

CITY TIE COMM FAILURE WITH MODULE ONF

CITY TIE MODULE IN THE WRONG SLOT ONF

CITY TIE INCOMPATIBLE MODULE FOUND ONF

CITY TIE MODULE UNREGISTERED ONF

CITY TIE CONFIGURATION FAULT ONF

CITY TIE RAM FAILURE ONF

CITY TIE BACKPLANE 24VDC LOW ONF

CITY TIE BACKPLANE 24VDC HIGH ONF

CITY TIE ISOLATED ONF

CITY TIE OUTPUT DISCONNECTED ONF

CITY TIE **OPEN CIRCUIT** *ONF*

3.2.2.6 SLC Module Events

The MCB supports multiple SLC Module connections via the backplane interface, so it is necessary to differentiate the origin of SLC Module events with a logical numerical assignment when printing the SLC Module event.

addr: "SLCx", where 'x' is the SLC module identifier (1-8)

Example:

"SLC3 CONFIGURATION FAULT ON" - SLC expansion module 3 is reporting a configuration fault

addr COMM FAILURE WITH MODULE ONF

addr MODULE IN THE WRONG SLOT ONF

addr INCOMPATIBLE MODULE FOUND ONF

addr MODULE UNREGISTERED ONF

addr CONFIGURATION FAULT ONF

addr RAM FAILURE ONF

addr BACKPLANE 24VDC LOW ONF

addr BACKPLANE 24VDC HIGH ONF

addr ISOLATED ONF

addr DISCONNECT FAULT ONF

addr SLC SHORT CIRCUIT ONF

addr SLC OPEN CIRCUIT ONF

addr SLC NOT MONITORING ONF

addr CONFIGURATION IN PROGRESS ONF

addr UPDATING SLC DEVICE SETTINGS ONF

3.2.2.7 DACT Module Events

The MCB only supports a single DACT Module, through which it can interface with a Central Station via the PSTN and associated DACR connection. The single connection negates the necessity to have a logical numerical assignment when printing DACT events.

Example:

"DACT ISOLATED ON" - DACT expansion module is isolated

DACT COMM FAILURE WITH MODULE ONF

DACT MODULE IN THE WRONG SLOT ONF

DACT INCOMPATIBLE MODULE FOUND ONF

DACT MODULE UNREGISTERED ONF

DACT SESSION FAULT ONF

DACT LINE FAULT CH1 ONF

DACT LINE FAULT CH2 ONF

DACT CONFIGURATION FAULT ONF

DACT RAM FAILURE ONF

DACT BACKPLANE 24VDC LOW ONF

DACT BACKPLANE 24VDC HIGH ONF

DACT MODEM INITIALIZATION FAULT ONF

DACT MODEM CONFIGURATION FAULT ONF

DACT **ISOLATED** ONF

3.2.2.8 PMU Module Events

The MCB supports multiple PMU Module connections via the backplane interface, so it is necessary to differentiate the origin of PMU Module events with a logical numerical assignment when printing the PMU Module event.

addr: "PMUx", where 'x' is the PMU module identifier (1-4)

Example:

"PMU1 LOW BATTERY FAULT ON" - PMU expansion module 1 is reporting a low battery fault

addr COMM FAILURE WITH MODULE ONF

addr MODULE IN THE WRONG SLOT ONF

addr INCOMPATIBLE MODULE FOUND ONF

addr MODULE UNREGISTERED ONF

addr CONFIGURATION FAULT ONF

addr RAM FAILURE ONF

addr 24VDC OUTPUT HIGH ONF

addr 24VDC OUTPUT LOW ONF

addr ISOLATED ONF

addr LOW BATTERY FAULT ONF

addr BATTERY CHARGER FAULT ONF

addr AC INPUT FAULT ONF

addr BATTERY DISCONNECTED ONF

addr SYSTEM ON BATTERIES ONF

addr GROUND FAULT -VDC ONF

addr GROUND FAULT ONF

addr PSU1 24VDC INPUT HIGH ONF

addr PSU2 24VDC INPUT HIGH ONF

addr PSU1 24VDC INPUT LOW ONF

addr AUX1 SHORT CIRCUIT ONF

addr AUX2 SHORT CIRCUIT ONF

addr PSU2 24VDC INPUT LOW ONF

addr PSU2 NOT CONFIGURED ONF

3.2.2.9 NIC Module Events

The MCB only supports a single Network Module, through which it can communicate with other MCB's over a proprietary network. The single connection negates the necessity to have a logical numerical assignment when printing NIC events.

Example:

"NIC COMM FAILURE WITH MODULE ON" - NIC expansion module is not communicating with MCB

NIC COMM FAILURE WITH MODULE ONF

NIC MODULE IN THE WRONG SLOT ONF

NIC INCOMPATIBLE MODULE FOUND ONF

NIC MODULE UNREGISTERED ONF

NIC CONFIGURATION FAULT ONF

NIC RAM FAILURE ONF

NIC BACKPLANE 24VDC LOW ONF

NIC BACKPLANE 24VDC HIGH ONF

3.2.2.10 IIM and HSD Events

The MCB only supports a single IIM connection, through which it can interface with up to 127 HSD Modules. The single connection negates the necessity to have a logical numerical assignment when printing IIM events.

Example:

"IIM ISOLATION ON" - IIM module is isolated

IIM COMMUNICATION FAILURE ONF

IIM AUX ALARM PRESENT ONF

IIM AUX ALARM SUPERVISION ONF

IIM AUX TROUBLE PRESENT ONF

IIM AUX TROUBLE SUPERVISION ONF

IIM DIAL TONE SUPERVISION ONF

IIM MEMORY CHECKSUM FAILURE ONF

IIM LOCAL PC IN CONTROL ONF

IIM HSD SUPERVISION FAILURE ONF

IIM MODEM IN CONTROL ONF

IIM STYLE6 NETWORK FAILURE ONF

IIM RS485 CHANNEL 2 FAILURE ONF

IIM MODEM MISSING ONF

IIM NOT REGISTERED ON ANY PORT ONF

IIM BRAND FAULT ONF

IIM ISOLATION ONF

The MCB supports multiple HSD connections via the IIM interface, so it is necessary to differentiate the origin of HSD events with a logical numerical assignment when printing the HSD event.

addr: "HSDxxx", where 'xxx' is the HSD identifier (001-127), e.g. "HSD001

ALARM LEVEL 1 ON"

Example:

"HSD001 ALARM LEVEL 1 ON" - HSD 1 is reporting an Alarm 1 activation

addr ALARM LEVEL 1 ONF (levels can be 1 or 2)
addr PREALARM LEVEL 1 ONF (levels can be 1 or 2)
addr ALARM LEVEL 1 ON ACK (levels can be 1 or 2)
addr PREALARM LEVEL 1 ON ACK (levels can be 1 or 2)

addr DETECTOR TROUBLE ONF

addr LOW AIR FLOW ONF

addr PSU TROUBLE ONF

addr ISOLATION ONF

addr HIGH AIR FLOW ONF

addr REFERENCE TROUBLE ONF

addr OFFSET TROUBLE ONF

addr MISSING ONF

addr NOT REGISTERED ONF

3.2.2.11 Network Events

The following events relate to network operations or problems. Node numbers can be 1 - 64. For events occurring on the connected node, initial node numbers at the start of strings are not displayed or transmitted.

NODE(S) ADDED: ##
NODE(S) ADDED: ##-##
NODE(S) REMOVED: ##
NODE(S) REMOVED: ##-##

CH1 COMMUNICATION FAULT: N## ONF

CH1 UNMAPPED NODE COMMUNICATING: N## ONF

CH2 COMMUNICATION FAULT: N## ONF

CH2 UNMAPPED NODE COMMUNICATING: N## ONF

N##-ISOLATED FROM NETWORK

The following string is the exception. If the event is occurring on the connected node, the initial node string (N##-) is replaced with "LOCAL NODE".

LOCAL NODE **CH1 TOKEN NOT RECEIVED ON:** N## ONF LOCAL NODE **CH2 TOKEN NOT RECEIVED ON:** N## ONF

3.2.2.12 Remote Display & Annunciator Events

The following are events associated with remote displays, RDCM, and remote annunciators, ATM. Addresses of RDCMs can be 1-15, ATMs can be 1-16.

addr: "MAIN DISPLAY", main UI, no identifier required

RDCMn, where 'n' is the RDCM module identifier (1-15) LAMn, where 'n' is the LAM module identifier (1-16) ATMn, where 'n' is the ATM module identifier (1-16)

Example:

"ATM14 NOT REGISTERED ON" - ATM #14 is responding to system polls, but is not yet registered

3.2.2.12.1 Annunciator Events

The following events relate to general annunciation event reporting:

addr ISOLATED ONF

addr REMOTE PSU LOW VOLTAGE ONF

addr REMOTE PSU HIGH VOLTAGE ONF

addr REMOTE PSU SUPERVISION FAULT ONF

addr REMOTE PSU DETECTED FAULT ONF

addr STUCK BUTTON FAULT ONF

addr RAM FAILURE ONF

addr CONFIGURATION UPDATE FAULT ONF

addr PROGRAM MEMORY FAULT ONF

addr SILENCE INPUT FAULT ONF

addr ACKNOWLEDGE INPUT FAULT ONF

addr NOT REGISTERED ONF

addr COMMUNICATIONS FAILURE ONF

3.2.2.12.2 Annunciator Terminal Module (ATM)

The following events are specific to the ATM device type:

addr REMOTE PSU FAULT ONF

addr MONITORED I/P FAULT ONF

addr MONITORED O/P FAULT ONF

addr COMMUNICATIONS FAILURE ONF

addr TEST LAMPS INPUT FAULT ONF

addr SILENCED OUTPUT FAULT ONF

addr DRILL INPUT FAULT ONF

addr ACKNOWLEDGE INPUT FAULT ONF

addr RESET I/P FAULT ONF

addr SILENCE INPUT FAULT ONF

3.2.3 Miscellaneous & System Events

These events do not fit in any of the above categories. Many of these are transient events which are neither alarms nor troubles.

FRESH START

NO EVENT

EVENT BUFFER CLEARED

PANEL RESET

SILENCE ONF

FIRE DRILL ONF

POWER ON

HARD RESET

DAY MODE ACTIVE

DEFAULT CONFIGURATION SET

CONFIGURATION SENT TO PC

NEW CONFIGURATION RECEIVED FROM PC

BAD CONFIGURATION ONF

PRINTER FAULT ONFONF

CONFIG MEMORY CHECKSUM FAILURE ONF

EVENT MEMORY CHECKSUM FAILURE ONF

CONFIG MEMORY WRITE FAILURE ONF

EVENT MEMORY WRITE FAILURE ONF

WALK TEST: ONF

ISOLATION OF ALL LOCAL OUTPUTS ONF

ISOLATION OF ALL LOCAL INPUTS ONF

SYSTEM CHANGED TO BATTERY POWER ONF

DATE/TIME MUST BE SET TROUBLE ONF

MAIN BOARD VOLT REF FAULT ONF

TIME AND DATE HAVE BEEN SET

CONFIGURATION UPDATED

PROGRAM MEMORY CORRUPT ONF

CONFIG AND EVENT MEMORY CLEARED

NIGHT MODE ACTIVE

SYSTEM COUNTDOWN ONF

EVENT LOG OVERFLOW ONF

FIRMWARE UPGRADE

SLC DEGRADE SIGNAL FAULT ONF

BACKPLANE ADDRESS FAULT ONF

NO PMUS FOUND ONF

COMMUNICATIONS PROCESSOR FAULT ONF

CONFIGURATION RESET

BATTERY REPLACEMENT FAULT ONF

PASSWORD NOT SET ONF

MAIN BOARD RAM FAILURE ONF

INVALID USB DEVICE ATTACHED ONF

3.3 Third Line Format

This, typically, is a programmable text field, as defined in FCS for a device's Owner Location field. For many events this field is blank. This line is terminated with CR (0Dh) LF (0Ah).

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