



# **MPI232**

**Version 2.30**

## **Specification**

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## General Description MPI232 V2.2

The MPI232-interface is intended to create an I/O port for sending alarm messages with a network interface (modem, PAD etc.). This interface, AT-HAYES compatible, is connected to one of the two serial ports of the MPI232:

- V24 port (also referred to as RS232 port)
- V31bis port (also referred to as Current loop port)

The V31bis is a optical separated current loop. This loop provides a supervised connection between the MPI and the network interface (Break of current loop). The V31bis is a simplex connection. Therefore a master is assigned: the MPI. So all actions are initiated by the MPI.

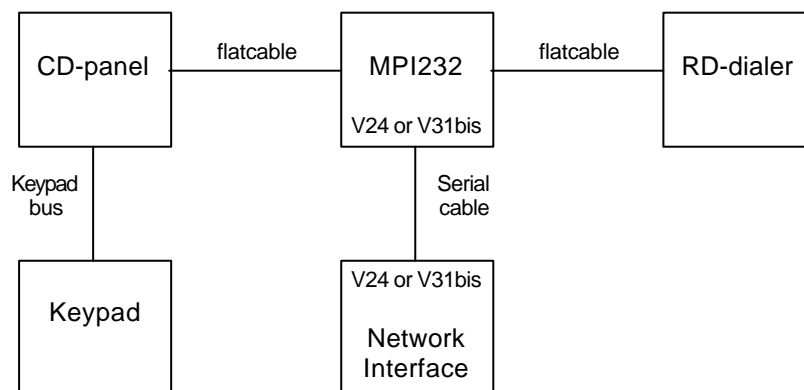
The Sia protocol is used to transmit alarm messages by the MPI.

Because the MPI must have all information about the status of the panel and loops, the MPI is placed between the panel and the dialer. By doing this the dialer can still be connected to the system for backup messages if the network connection is down and for error reporting.

For direct panel to dialer communication, the MPI is transparent. During normal operation all messages, except Sia alarm messages, are passed to the backup dialer. In case of a network trouble condition the Sia events are transmitted through the dialer. Events which are not programmed for a network address in the MPI, and events the MPI doesn't recognise, will also be sent to the dialer.

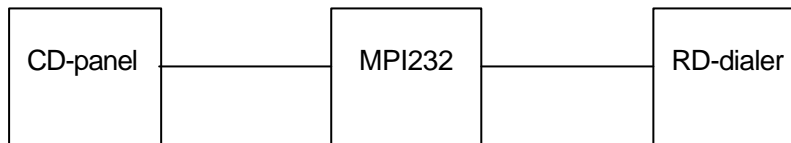
The MPI232 allows remote programming (upload/download) using the V24 network connection.

Total overview CD-panel, MPI232, network interface and RD-dialer:



Note that only one serial port of the MPI232 can be used at a time, so the Network Interface will be connected to the V24 (RS232) port or the V31bis (current loop) port.

## Communication between CD-panel, MPI and dialer



Normal operation:

All information from the panel to the MPI is redirected to the dialer (if present) except the SIA alarm messages. The MPI stores the SIA alarm messages into a buffer for transmission to the selected MPI communication port. If the MPI or network interface is not able to transmit the message correctly the messages are redirected to the backup dialer. Unknown SIA events and events for which no network addresses are programmed in the MPI are also sent to the backup dialer.

The number of attempts to make a connection (call) with a Central Station (CS) via the network is programmable (max. dial attempts per CS default value: see programming map). If, during a call, the MPI does not get an acknowledge from the CS, it will send the data again (still during this call) for a programmable total number of times.

By default the MPI stops dialing after having received a valid acknowledge from a Central Station (Dual reporting: No). If the option *Dual reporting* is set to Yes, the events will be reported to all for this event programmed Central Stations.

Example:

- Max.dial attempts/CS = 3
- Dual reporting: No
- Event BA (Burglar Alarm) programmed for CS 1 and CS 2

At a moment a BA01 event occurs. If the MPI is not able to complete the calls to the Central Stations, the dialing sequence is as follows:

CS 1  
CS 1  
CS 1  
CS 2  
CS 2  
CS 2

After these 6 attempts the BA01 event will be redirected to the backup dialer. The backup dialer is detected automatically by the MPI. If an alarm was transmitted by the backup dialer, the restore transmission of that alarm will also be transmitted by the backup dialer.

### Settings

Various settings of the MPI are programmable. The MPI can be programmed by using:

- Via the programming menu of the MPI (using a PC connected to the V24/RS232 port)
- Via Transport PC (up-download via V24 network interface of MPI, not via dialer)
- Via the CD9006 memory cards (connected to the V6 CD-panel)

For a complete description of these options see: Programming tree and default settings MPI232.

## Specification MPI232 V2.2

### Protocols used by the MPI232

All communication performed by the MPI is based on three protocols:

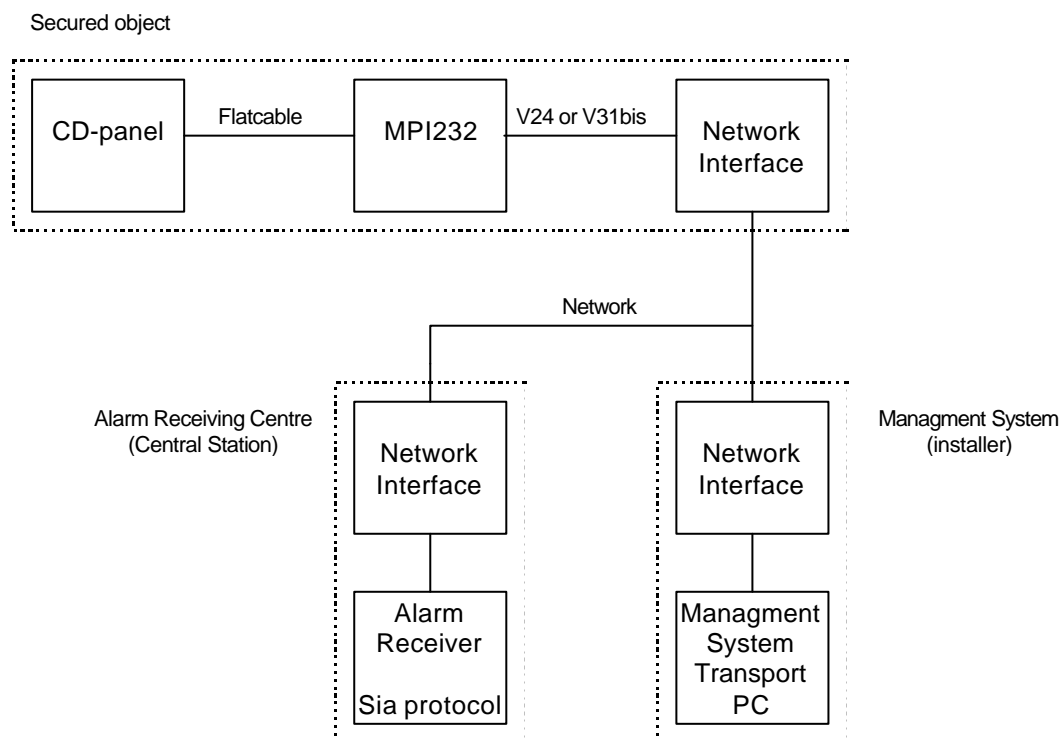
- AT-Hayes protocol
- Sia protocol
- Transport PC Communication Protocol

The AT-Hayes protocol is used for setting up and clearing calls (handling the *command mode* of the network interface). When a call is set up, and the network interface is in its *data mode*, the datatransmission follows one of the other two protocols (Sia or Transport PC).

The Sia protocol handles the transmission of events (alarms) to the Central Station, the Alarm Receiving Centre (ARC).

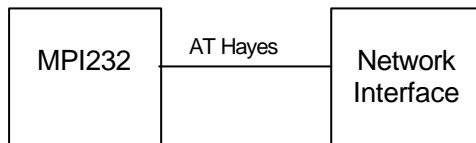
The Transport PC Communication Protocol handles the remote programming of an alarm panel (system consisting of CD-panel, MPI232 and RD-dialer) through a Management System. The Managment System usually consists of a PC running the Aritech Transport PC package (TPC). This is also referred to as up-download.

Overview of the complete system including receivers:



Usually the Alarm Receiver and the Managment System are two different systems.

## Communication between MPI and network interface



### Datalink:

The data link is controlled by AT-commands. These commands are described below. Several commands are programmable in the MPI (for example *init*, *dial* and *hangup* commands). The network interface can be initialised in two ways:

- Use of a default init string. This string will be transmitted by the MPI after every communication cycle and after power up.
  - Or the interface is initialised by a programming device (PC) connected to the interface.
- If no initialisation is necessary, the initialisation string is left blank and will not be sent.

### Overview AT-Hayes protocol:

For a complete list of supported AT-Hayes commands see the chapter *Supported network interface commands*.

#### Start of connection:

If no connection is made, the network interface is in command mode. After the connection is made, it is in data mode and no commands can be given. To test the connection between the MPI and the network interface, the MPI will poll periodically (poll time is 8 sec) using:

AT                      No action.

Response to the AT command:

OK                      When the communication between MPI and network interface is ok.  
When OK is not received for a programmable number of times, a line fault condition will be sent to the panel.

#### Make a connection:

To make a connection the MPI must first dial the required number:

Dialling Command (sent by MPI):

ATD <number>              Number (max. 16 digits) contains normally the receiver address or short number info.

Response to the ATD command:

CONNECT                  When the communication is established.

NO DIALTONE              If there is no communication possible with the network to which the network interface is connected.

NO CARRIER              If there is no proper response from the receiver.

BUSY                      If the receiver is busy.

#### Disconnect a connection:

Before the MPI can disconnect a connection, the network interface must be brought back from data mode into the command mode:

Return to command mode command:

+++

No data must be sent for 1 second before and after +++, except in the V31bis mode, in which +++ is followed by <CR>.

Response to the +++ command:

OK                      The command mode is entered.

If this response is not received, the MPI will retry entering the command mode every 8 seconds until OK is received for a programmable number of times, after which a line fault condition is sent to the panel.

The connection can now be disconnected by the command:

ATH                      Disconnect.

Response to the ATH command:

OK                      The connection is disconnected and the network interface is ready for new commands.

If a connection is disconnected by the network the network interface will response with:

NO CARRIER              The connection is disconnected and the network interface is ready for new commands.

#### Note:

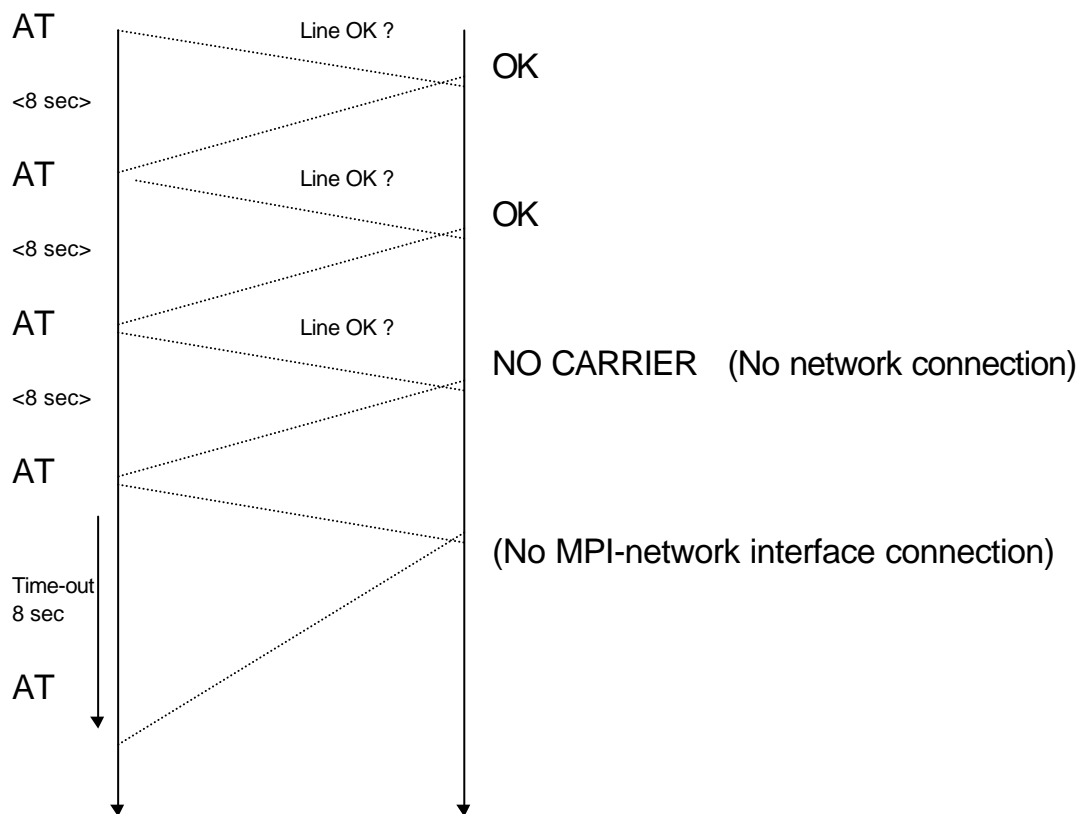
The MPI will also drop the DTR (Data Terminal Ready) line on the V24 (RS232) port before sending +++ to the network interface. Most network interfaces will then disconnect and send NO CARRIER to the MPI. If the MPI receives NO CARRIER while disconnecting (sending +++ or ATH), the network interface is off-line and the MPI will send the initstring to the network interface.

#### Incoming calls:

RING <CLID>              MPI receives RING during the AT-polling (asynchronous).  
The Caller Line ID is compared with two programmable strings. If one of the strings is the same with the incoming CLID the call will be accepted. If not the line will be disconnected (see above).

ATA                      MPI answers always the call by sending ATA to the network interface

### Schematic Line supervision:



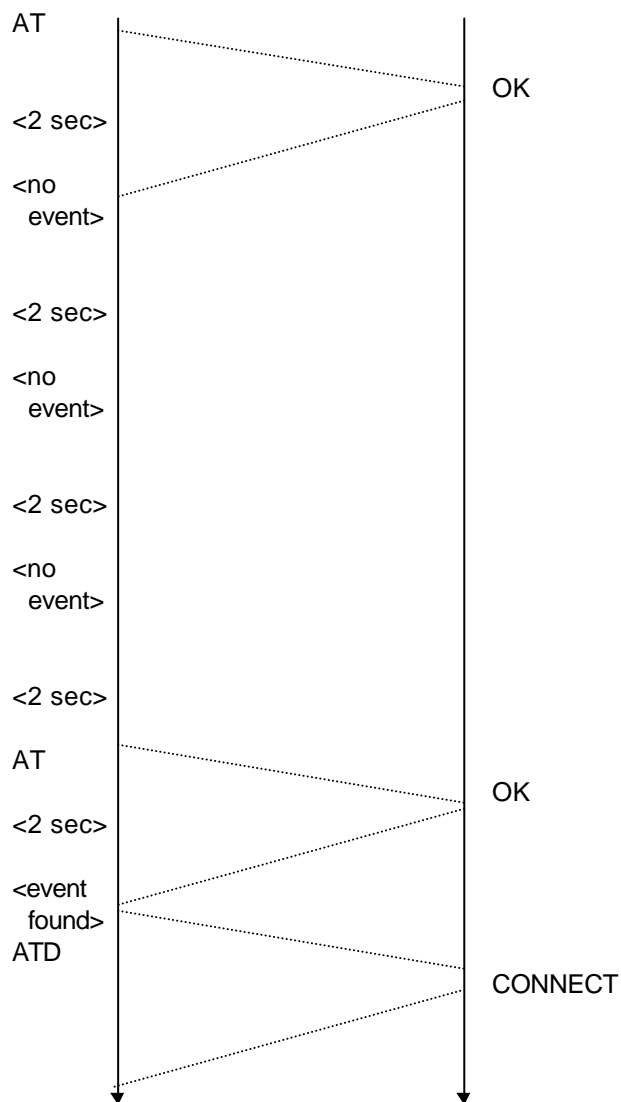


### Detailed line supervision:

MPI Version 2.1beta4 and higher will send AT to the network interface every 8 seconds. This time has been increased to prevent (long) CLID strings from being corrupted by the AT-command and its response from the network interface (OK). The MPI will check for Sia events and up-download start by panel (keypad) every two seconds.

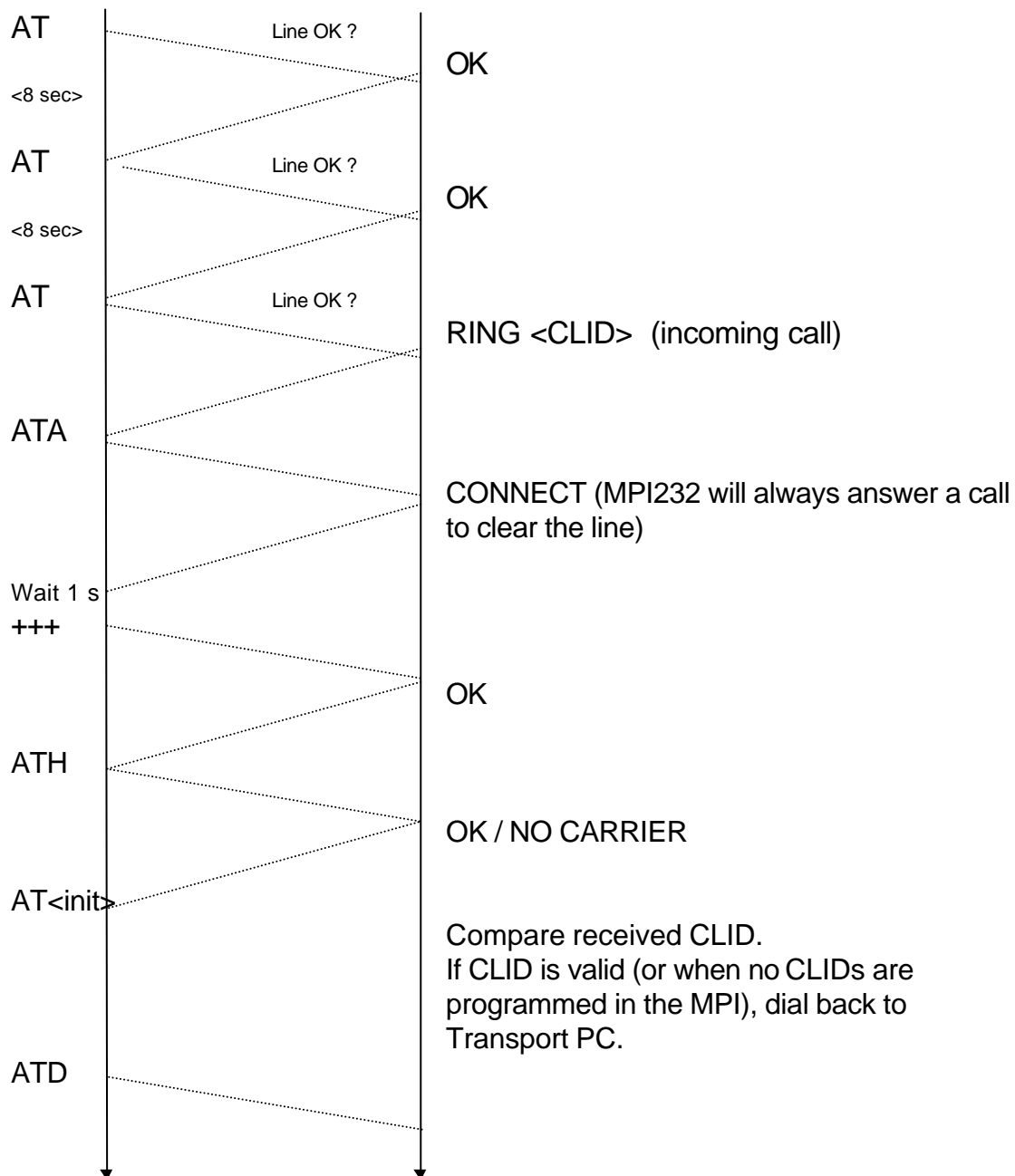
### Example:

(The dial string is programmable. In this example ATD is the dial string).



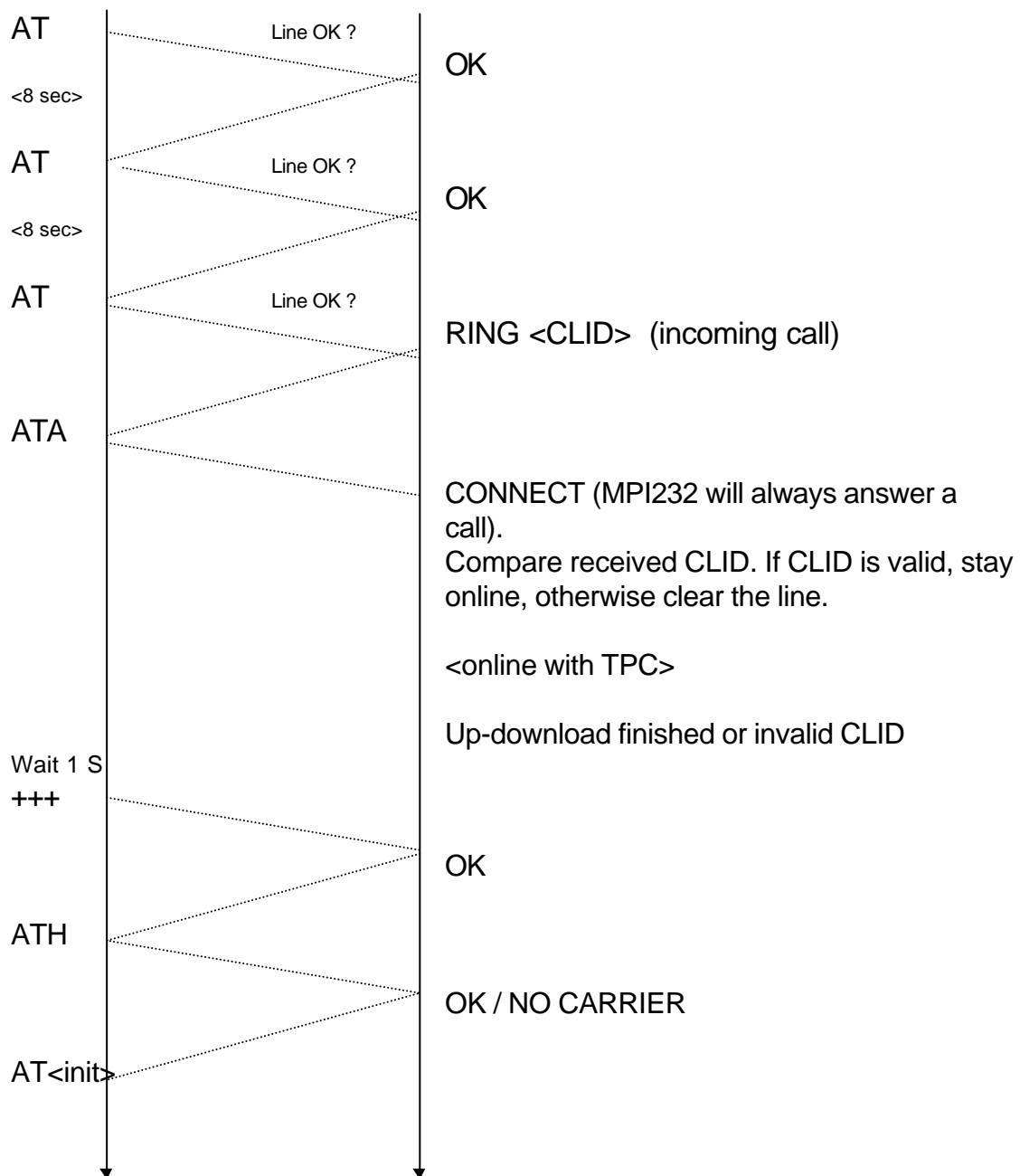
### Incoming call (upload-download started by Transport PC):

1. Dipswitch 5 on (MPI will dial back to Transport PC)



The RING can occur at any moment, and doesn't have to be synchronised with the AT's sent by the MPI. See the attached description of Transport PC for a more detailed description of up-download. If there is one or more CLID strings programmed in the MPI, the received CLID must match one of the programmed strings, otherwise the MPI will not dial back.

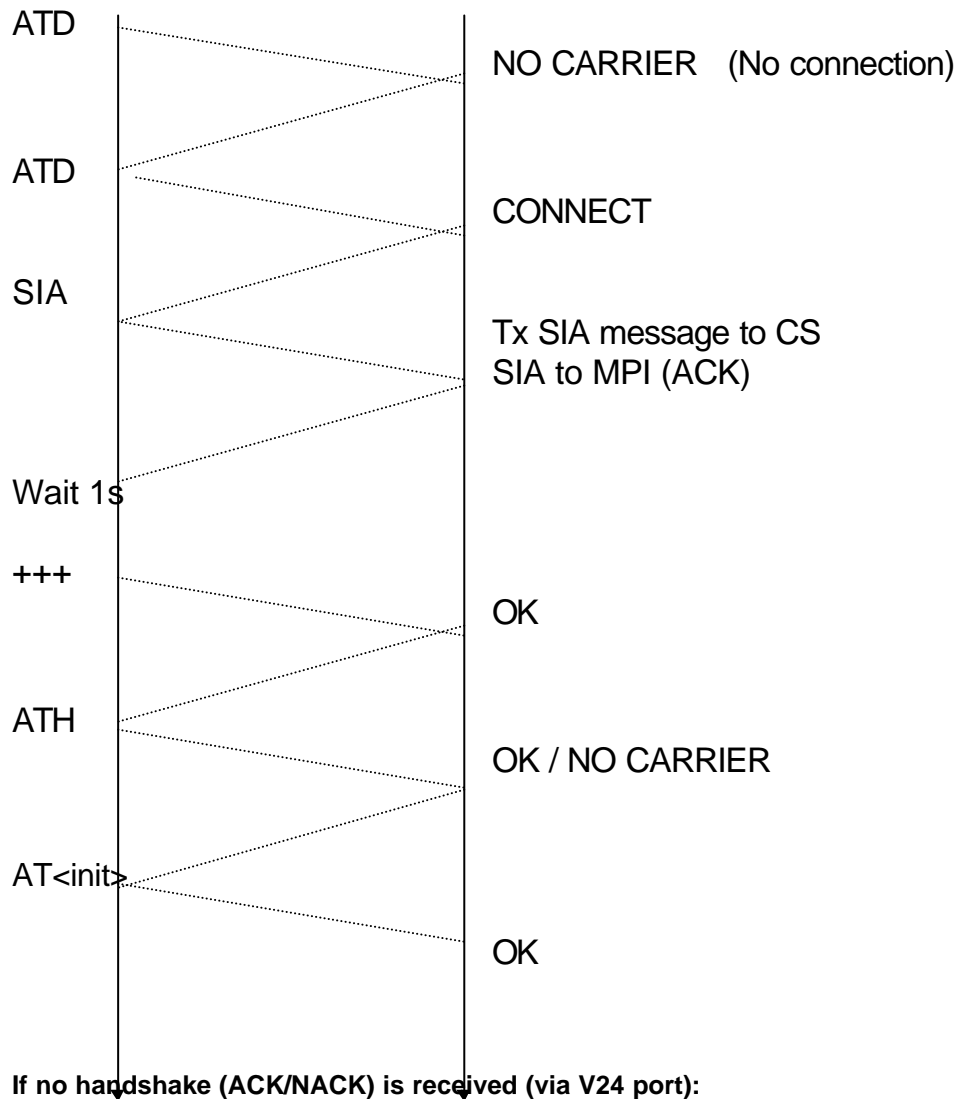
2. Dipswitch 5 off (MPI will stay online if it is called by Transport PC)



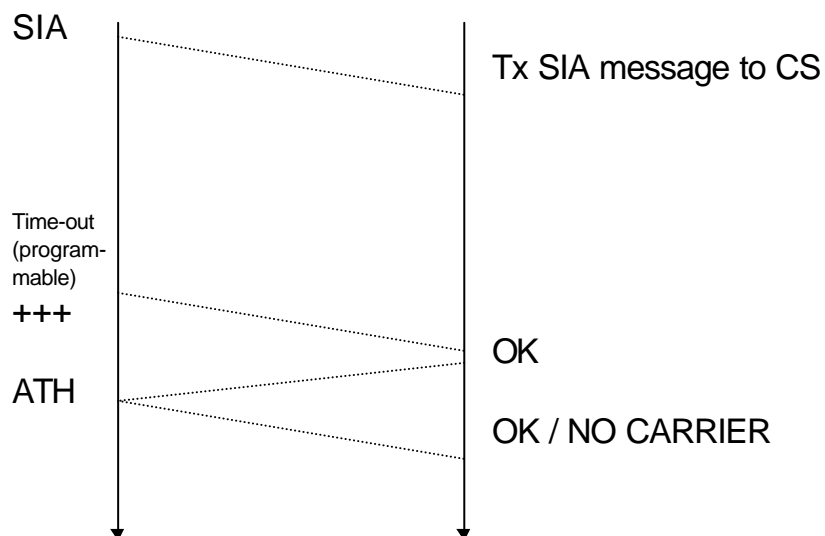
The RING can occur at any moment, and doesn't have to be synchronised with the AT's sent by the MPI. See the attached description of Transport PC for a more detailed description of up-download. If there are no CLID strings programmed in the MPI, the MPI will hang up.

### Schematic SIA Communication (via V24 port):

(The dial string is programmable. In this example ATD is the dial string)



If no handshake (ACK/NACK) is received (via V24 port):



### Sia via the V31bis port:

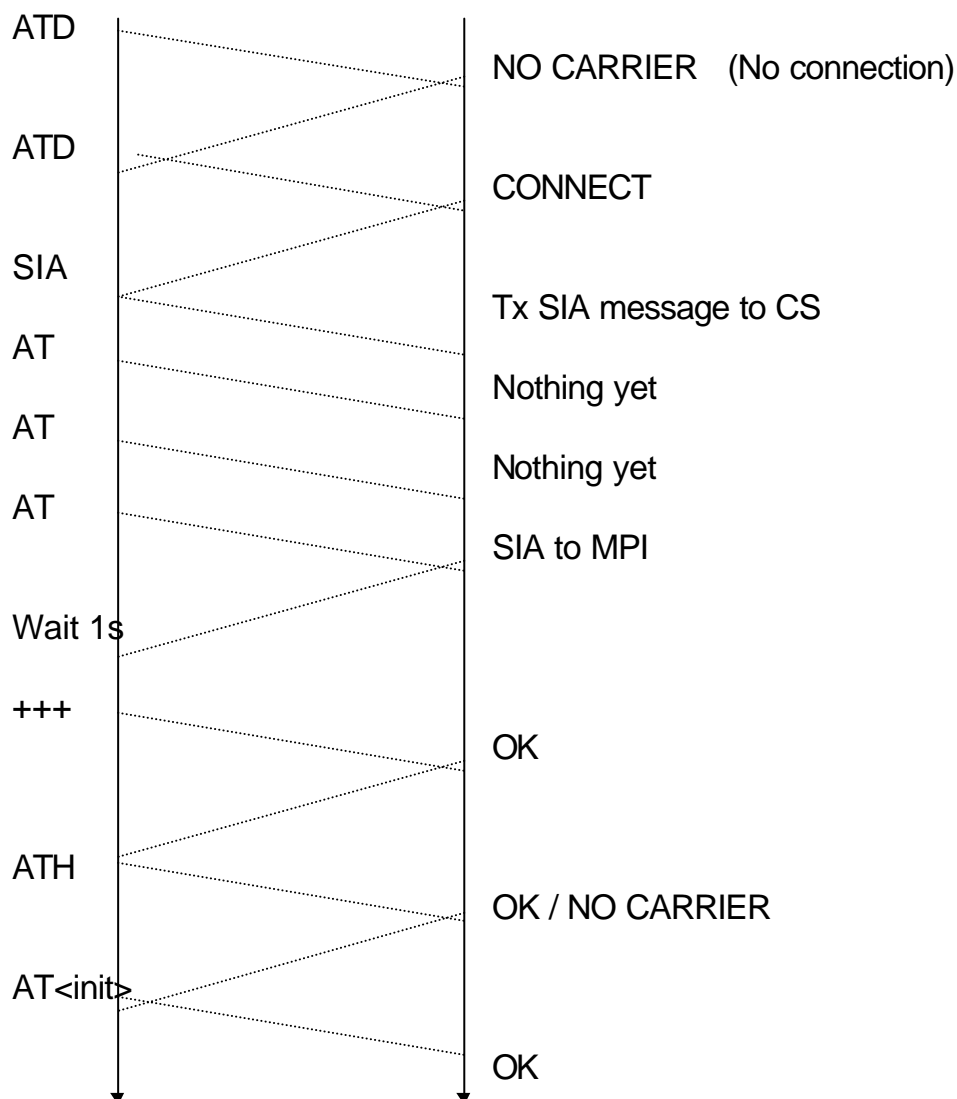
The V31bis protocol is almost the same as the V24 protocol.

Exceptions:

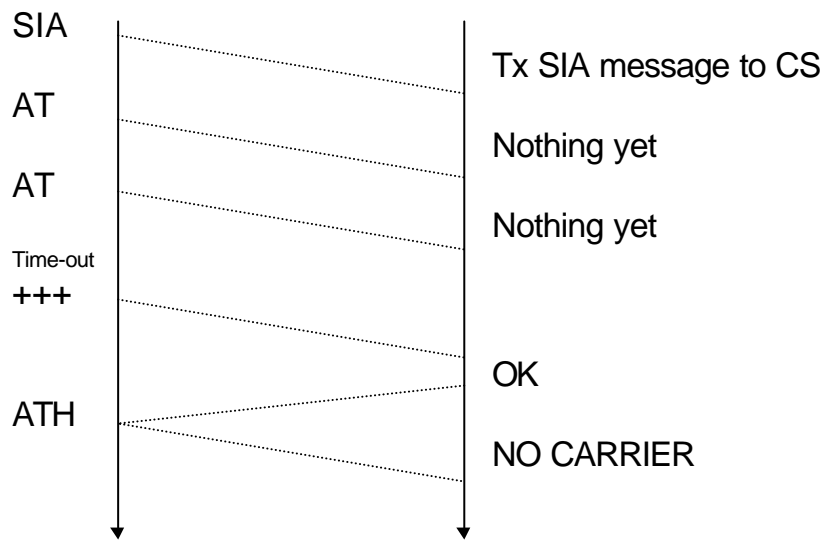
- After sending a SIA message to the network interface the MPI will start to poll the status of the interface (2.5 sec interval) using the command: AT
- The format of Sia event blocks is different (see also chapter *Network: Sia protocol*). When a Sia event block is transmitted, the area number will be inserted between the event name and the zone/user number. Example: BA1002 (BA for area 1, zone 2, 3 digit event numbers selected).
- The command +++ is followed by a <Carriage Return>.

### Schematic Communication (V31bis):

(The dial string is programmable. In this example ATD is the dial string).



If no handshake (ACK/NACK) is received (V31bis):



## Line fault and error conditions

The MPI can send Line Fault and Fail To Communicate (FTC) messages to the CD-panel. This will occur in the next cases.

### Line fault

A line fault signals:

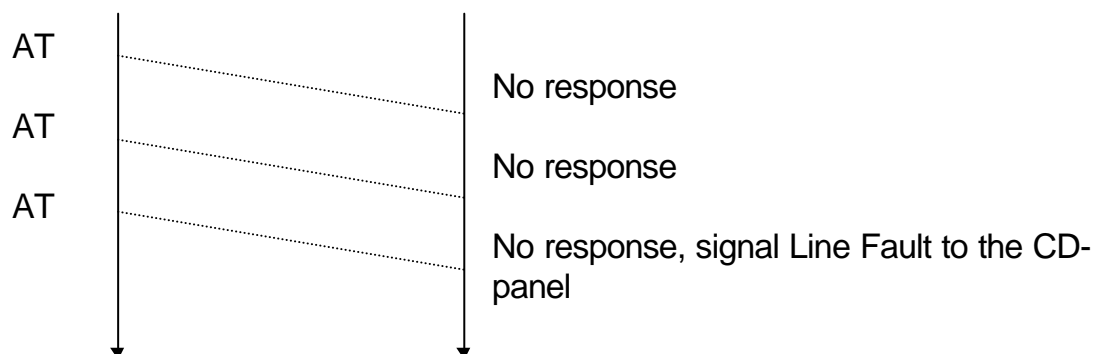
- an error in the communication between the MPI and the Network Interface.
- or the network is down (if the Network Interface responded with *NO CARRIER* to the AT-polling)

A line fault can be caused by:

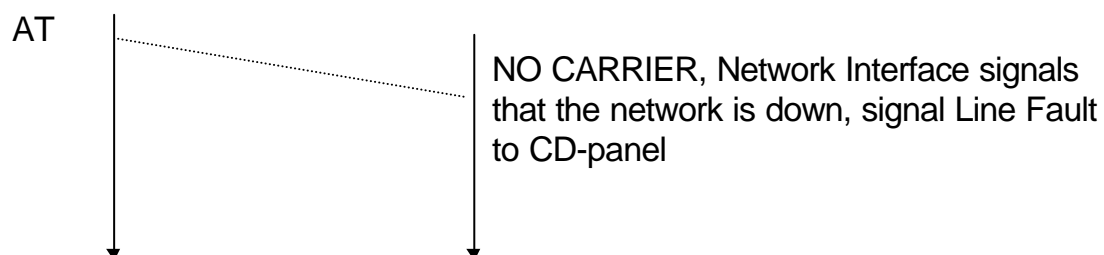
- No response to the initstring (for the number of times programmed by *max modem command attempts*)
- No response to the AT-polling (for the number of times programmed by *max modem command attempts*)
- *NO CARRIER* or *ERROR* as response to the AT-polling
- *ERROR* as response to the +++ escape sequence
- No response to the modem hangup command (for the number of times programmed by *max modem command attempts*)

Example 1:

In this example the option *max modem command attempts* is supposed to be 3.



Example 2:



### Fail To Communicate (FTC)

A FTC is signalled to the CD-panel if the MPI is not able to complete three calls to a Central Station in a row. If the number of dial attempts is set to a number less than three (which is not recommended), a FTC will be signalled after the last failed dial attempt.





## Network: Sia Protocol

The alarms data from the panel is wrapped into the SIA format.

The format consists of a number of data blocks each separated by an acknowledge. The first block transmitted by the MPI contains always the user address info (ID or account code). The next block(s) can contain alarm info or a new ID block.

If all blocks are transmitted, a final ZERO block is sent to acknowledge the total transmission.

All Sia blocks transmitted by the MPI are followed by a Carriage Return (CR, ascii 0dh). Sia blocks send to the MPI do not have to be followed by a Carriage Return (but this is allowed).

The length of a single SIA block will not exceed 64 bytes (total block: header, function, data and checksum, but without the CR).

The format of a Sia block is:

Block header: (byte 0)	bit7 =	Reverse channel enable. Messages txed by the MPI will have this bit cleared.
	bit6 =	Acknowledge request. The MPI will always make a request.
	bit5..0 =	Number of data bytes.
Function code: (Byte 1)	ASCII 0..9 :	System codes.
	"0" =	Zero block
	"8" =	Ack block
	"N" =	New event
	"O" =	Old event
	"#" =	Account ID (First block transmitted by MPI) See chapter <i>Supported Sia block codes</i> for a full description of the function codes.
Data bytes: (Byte 2..64)		Sia messages separated by <i>packet separator</i> "/"
Column parity: (last byte)		Complement of the EXOR of all bytes, start at block header up to and including the last data byte.

### Example:

Transmit a BA06 for account 123456:

First block:

046h	6 data bytes & acknowledge request.
023h	"#" function = Account code.
031h, 032h, 033h, 034h, 035h, 036h	Data = "123456"
09D	Parity.

Data block:

044h	4 data bytes & acknowledge request.
04Eh	"N" New data.
042h, 041h, 030h, 036h	Data = "BA06"
0f0h	Parity.

Zero block:

040h	0 data bytes & acknowledge request.
030h	"0" Zero block.
08Fh	Parity.



## Text in Sia format

The transmission of literal descriptions (text strings) is a programmable option of the MPI. Text strings (e.g. zone or area descriptions) have a fixed length of 13 characters. Spaces are filled with 020h. The text string is preceded by the *text identifier* character or *unit tag* (\*), surrounded by quotation marks, and followed by the characters *NM*.

When text in Sia is selected, the format of the Sia data block is:

(example for *BA06* event, with text *Front door*, 2 digit event numbers)

056h	22 data bytes & acknowledge request.
04Eh	"N" New data.
042h, 041h, 030h, 036h	Data = <i>BA06</i>
02ah	"*"
027h	"
046h, 072h, 06fh, 06eh, 074h, 020h, 064h, 06fh, 072h, 020h, 020h, 020h	Data = <i>Front door</i>
027h	"
04Eh	"N"
04Dh	"M"
**h	Parity.

Two events in the same Sia block would look like:

06Dh	45 data bytes & acknowledge request.
04Eh	"N" New data.
042h, 041h, 030h, 036h	Data = <i>BA06</i>
02ah	"*"
027h	"
046h, 072h, 06fh, 06eh, 074h, 020h, 064h, 06fh, 072h, 020h, 020h, 020h	Data = <i>Front door</i>
027h	"
04Eh	"N"
04Dh	"M"
02Fh	"/"
042h, 041h, 030h, 037h	Data = <i>BA07</i>
02ah	"*"
027h	"
046h, 072h, 06fh, 06eh, 074h, 020h, 064h, 06fh, 072h, 020h, 020h, 020h	Data = <i>Front door</i>
027h	"
04Eh	"N"
04Dh	"M"
**h	Parity.

## ***Event Chart***

The following list of SIA events is supported by the MPI V2.2:

BA	Burglar Alarm Activation *
BR	Burglar Alarm Restore *
BB	Alarm Zone Bypassed (inhibited) *
BU	Alarm Zone Unbypassed *
TA	Tamper Alarm *
TR	Tamper Alarm Restore *
TB	Tamper Zone Bypassed (inhibited) ... after user reset *
TU	Tamper Zone Unbypassed ... when next code entry readmits the tamper again *
HA	Hold-up (Duress) Activation *
HR	Hold-up (Duress) Reset *
PA	P.A. Activation *
PR	P.A. Reset *
FA	Fire Alarm Activation *
FR	Fire Alarm Reset *
FB	Fire Zone Bypassed (inhibited) *
FU	Fire Zone Unbypassed *
MA	Medical Alarm Activation *
MR	Medical Alarm Reset *
ZA	Technical Zone Alarm Activation *
ZR	Technical Zone Alarm Reset *
BC	Burglar Alarm Activation Cancelled (Aborted) *
CE	Closing time Extended *
CF	Forced Closing *
CG	Partguard Selected *
CL	System fully armed by code *
CP	System fully armed by timer (set automatically)
OA	System opened by timer (unset automatically)
OP	System opened by code *
OR	Disarm from alarm *
OT	Late to close (system not armed on time)
OK	(OE) Open early
LB	Local programming begin
LS	Local programming successful
RB	Remote programming begin (Up/Download)
RS	Remote programming successful (Up/Download)
RU	Remote programming unsuccessful (fail Up/Download)
RP	Automatic test call
RR	System power restored (Full Power Up)
RX	Manual test call <sup>2</sup>
AR	AC (Mains) Restored
AT	AC (Mains) Fail
YR	System/Battery trouble restored
YT	System/Battery trouble ... followed by individual number (for a particular fuse) or 99 (for global fuse failure)

YC Failure to communicate (dialer) ... between CD control panel and MPI232  
 YS Failure to communicate, Communication trouble, MPI232 could not report to CS

ER Zone expansion fault cleared  
 ET Zone expansion fault

QQ Reset alarm digi<sup>23</sup>  
 UA Unknown alarm<sup>2</sup>  
 EE Exit fault<sup>\*5</sup>  
 JS Closing extended until<sup>5</sup>  
 WP Walk test pass<sup>45</sup>  
 WF Walk test fail<sup>45</sup>  
 BV Burglar Alarm Verify Activation<sup>\*1</sup>  
 BW (BZ) Burglar Alarm Verify Restore<sup>\*1</sup>

\* Sia text available

<sup>1</sup> ACPO events, only available when MPI232 is used with UK versions of the CD-panels.

<sup>2</sup> Not in report options list.

<sup>3</sup> Only used internally, will never be reported to a Central Station (is not a Sia event).

<sup>4</sup> No Sia event, will be reported to a Central Station only if the Walk Test function of the V6 CD-panel is used

<sup>5</sup> Only available when MPI232 is used with V6 CD-panel.

For events which occurred during an up-download session no text will be sent. The alarm receiver must always check if the text is present for an event.

For a more detailed description of Sia events see the *SIA Digital Communication Standard, Appendix A - Data Code Definitions, January 1996*.

## Events for which Sia text is available

Information	Events			
Zone	BA	BR	BB	BU
	TA	TR	TB	TU
	PA	PR	FA	FR
	FB	FU	MA	MR
	ZA	ZR	AR	AT
	BV	BW		
User	HA	HR	BC	CE
	CF	CG	CL	OP
	OR	EE		

## Supported Sia block codes

Next Sia Block codes are supported by the MPI:

Transmitted by	Block Code	Block Type
MPI	0	End of data
CS	2	Abort (this is not a positive acknowledge of previous blocks)
CS	6	Positive acknowledge and standby
MPI/CS	7	Positive acknowledge and disconnect
CS	8	Positive acknowledge
CS	9	Reject (acknowledge of previous blocks, abort transmission)
MPI	N	Event (new)
MPI	O	Event (old)
MPI	#	Account ID

- All Sia blocks transmitted by the MPI are followed by a Carriage Return (CR, ascii 0dh).
- Sia blocks send to the MPI by the Central Station (CS) do not have to be followed by a Carriage Return (but this is allowed).
- The MPI V2.2 will not sent any Sia '1'-blocks (wait).
- The MPI will only use the Block Code 'O' (old event) if the option *Old events* of the *Protocol options menu* is set to *Yes*.
- If the option *One account per call* is set to *Yes*, the MPI will regard the block code '6' (positive acknowledge and standby) as a block code '8' (positive acknowledge), and hang up after having received an acknowledge to the '0'-block.
- If the option *One account per call* is set to *No* and the MPI receives a '6'-block as response to a '0'-block, the MPI will poll the Central Station by sending '0'-blocks every *zero block poll time* seconds (MPI stays online). If a new event occurs, the MPI will immediately transmit the account block for this new event (and also the event block after an acknowledge to the account block). If an event occurs which is programmed for another Central Station, the MPI will disconnect and dial to this other Central Station (even if the last response was a '6'-block). If the *zero block poll time* is set to zero, no more '0'-blocks will be sent by the MPI after having received a '6' block as response to the first '0'-block.
- The MPI will transmit a '7'-block only as a response to a from the Central Station received '7'-block. If the Central Station doesn't transmit '7'-blocks, the MPI also doesn't.

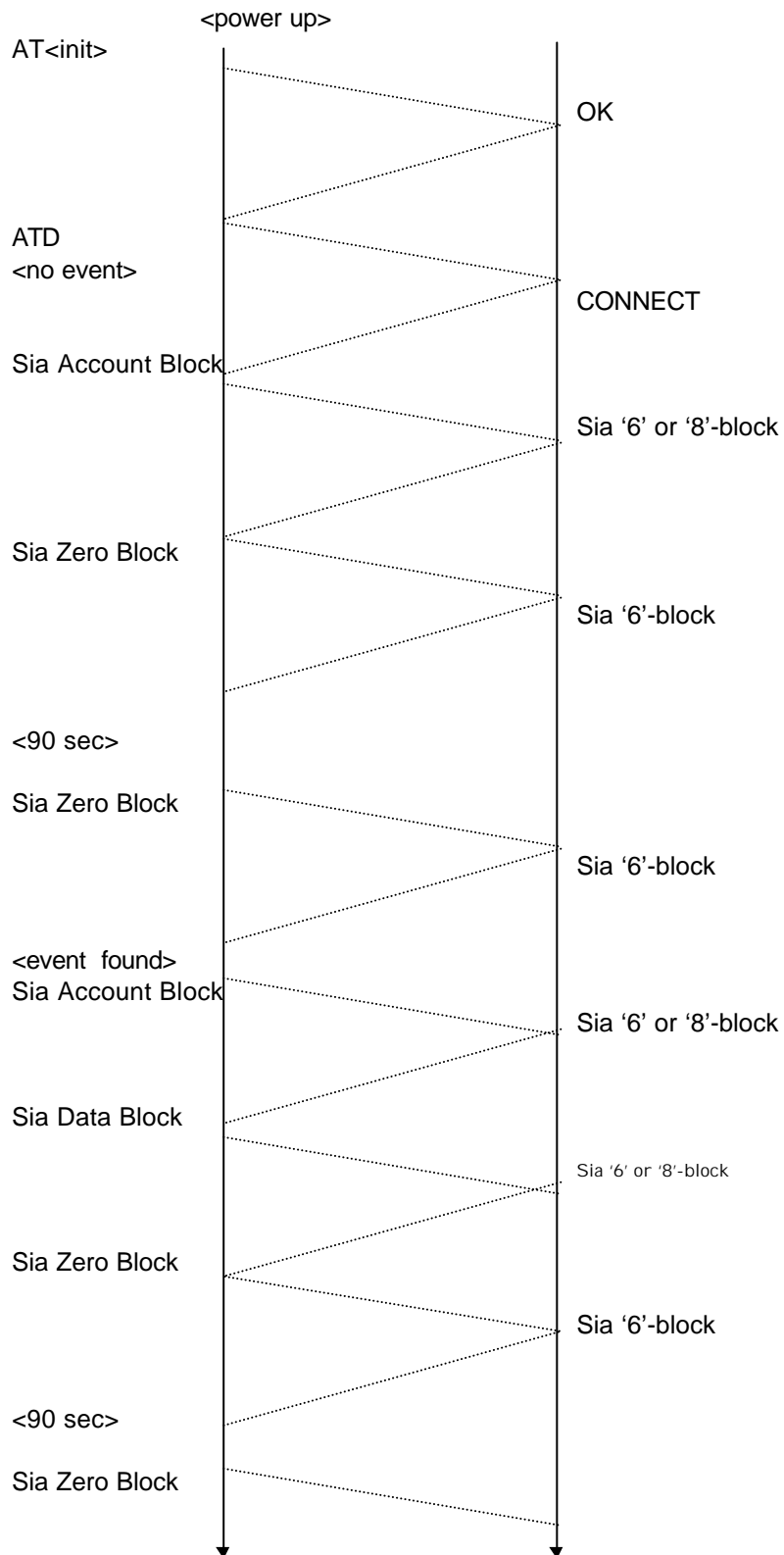
## Auto dial option of the MPI232

This chapter describes an example of the *auto dial* option. When the *Auto dial* option in the Protocol options list is set to *Yes*, the MPI232 will dial automatically to Central Station 1 after power up, even if there are no events to report. The MPI232 will then send the account code 1 for Central Station 1, and after the acknowledge a Sia zero block. If the connection breaks, the MPI232 will dial back. Together with the Sia '6'-blocks (send by Central Station) and the *Zero block poll time* option this option can be used to set up a fixed connection with polling every xx seconds (for example every 90 seconds). When this option is used, check the following options for full functionality.

In this example next settings are used:

- *One Account per call*: No
- *Auto dial*: Yes
- *Zero block poll time*: 90
- All report options set for Central Station 1 only

Example:





## Miscellaneous

### Serial ports (V24 and V31bis):

Dataformat is 1 startbit, 8 databits, no parity, 1 stopbit.

Programmable baudrate for communication with the network interface (separate programmable for V24 (RS232) port and the V31bis port):

Baudrate	
0	9600 bit/s
1	4800 bit/s
2	2400 bit/s
3	1200 bit/s
4	600 bit/s
5	300 bit/s

The baudrate for the PC programming menu via the V24 (RS232) port is fixed at 9600 baud.

### SIA communication

SIA communication can be performed via the V24 (RS232) port or via the V31bis port. The port to use can be programmed via the PC Programming Menu.

### Supported network interface commands

The MPI uses the AT Hayes protocol.

- Command from MPI accepted, network interface should return:

OK

- Valid connect strings from the network interface are (valid response to the ATD command):

CON

CONNECT

<one programmable connect string>

Any additional data following the two fixed responses is not evaluated, so *CONNECT 9600* for example will also be accepted.

The *CON* string must be followed by at least one space (020h) character. If the network interface sends back the *CON* or *CONNECT* string, the modem connect string in the MPI232 menu does not have to be programmed.

- Next messages as a response to a dial command will cause the MPI to reinit the network interface.

NO CARRIER

NO DIALTONE

NO ANSWER

BUSY

ERROR

Of these messages *NO CARRIER* and *ERROR* can occur in every state of the communication. *NO DIALTONE*, *NO ANSWER* and *BUSY* can only occur as a response to the dial string sent by the MPI232.

- Network interface ring string

RING <CLID>

The Calling Line Identity string must be separated from the *RING* by a <space> (ascii 20h). The MPI232 will answer the call directly after the first ring (not programmable).

### **Programmable network interface commands:**

The following commands are programmable via the PC programming menu:

- Init string
- Dial string
- Hang-up string
- CLID strings
- Connect string

The maximum length of these strings (except connect string) is 40 characters. The maximum length of the connect string is 31 characters. The MPI232 will add a Carriage Return (CR, ascii 0dh) to these command strings. Control characters (like ^M) are not supported in these command strings.

### **Panel compatibility of MPI V2.2**

- Compatible with V6.0 CD-panels and lower
- Up-download of CD-panel via MPI, with- and without dialer
- Up-download of CD-panel via dialer

### **Programming of the MPI**

The MPI232 settings can be programmed in the following ways:

- Via the programming menu of the MPI (using a PC connected to the V24 (RS232) port).
- Via Transport PC (up-download via network port of MPI, not via dialer)
- Via the CD9006 memory cards (connected to a V6 CD-panel, memory card up-download of the MPI232 V2 is not possible with V5 CD-panels)

Notes:

- MPI programming via the dialer menu of the panel (keypad) is not possible.
- When using the CD9006 memory cards to program the MPI, dipswitch 1 on the MPI selects whether the RD-dialer or the MPI will be programmed.

### **Dialer menu (keypad)**

The MPI V2 can't be programmed via the dialer menu. However, it is possible to enter the dialer menu. The programming map of this menu is attached (RD62 master programming map). When no RD-dialer is connected to the MPI all options in the dialer menu will be blank. The "digi code" (dialer code) is the MPI's "digi code" (default: 123456) in this case. The only action that can be performed is generating a manual testcall (Sia RX event). This testcall will then be transmitted by the MPI.

When a RD-dialer is connected to the MPI all dialer options will be displayed in the dialer menu (as if there was no MPI connected between RD-dialer and CD-panel). The default "digi code" is

7812 for the RD-dialer. If a manual testcall is generated, it will be transmitted by the MPI. This testcall will only be transmitted by the RD-dialer if the MPI is not able to transmit the testcall via the network.

## **Test calls**

### Automatic:

The Sia RP event (automatic testcall) can be generated by the MPI.  
Programmable On/Off , short or long interval:

- short interval: 0-255 seconds
- long interval: 1-24 hours (The panel will be used to determine the time)

### Manual:

This event can be generated via the dialer menu (keypad, see attached RD62 programming map and dialer menu description in this document).

The Sia RX event (manual testcall) can't be generated via the MPI PC-programming menu, because during programming a PC is connected to the MPI instead of a network interface.

## **Factory testing**

Test software for quality inspection is covered in a separate document.

## **TPC modifications**

In previous versions of TPC (V6.05 and lower) the baudrate for Up/Download is 300 baud. To use the benefits of the MPI this (line) baudrate is switchable up to 9600 baud in new versions of TPC (TPC V6.06 and higher). For Up/Down-load of the MPI settings a new .STF file is available, because the MPI has many programmable options not present in the RD-dialers (each product has its own, unique .STF file).

## Programming tree and default settings MPI Version 2.2x

Programming of the MPI V2.2x via the RS-232 port. The MPI can't be programmed via the dialer menu (keypad).

The baudrate for the programming menu is fixed at 9600 baud. The dataformat is 1 startbit, 8 databits, no parity and 1 stopbit.

While the MPI is in its programming menu, communication with panel and dialer is stopped.

Alarms can not be transmitted as long as the MPI is in its programming menu.

MPI V2.2 Main Menu	1. Central station menu	1. Central station 1 menu	1. Account code 1 : 2. Account code 2 : 3. Account code 3 : 4. Account code 4 : 5. Account code 5 : 6. Account code 6 : 7. Account code 7 : 8. Account code 8 : 9. Network address: 0. Back to CS menu
		2. Central station 2 menu	1. Account code 1 : 2. Account code 2 : 3. Account code 3 : 4. Account code 4 : 5. Account code 5 : 6. Account code 6 : 7. Account code 7 : 8. Account code 8 : 9. Network address: 0. Back to CS menu
		3. Central station 3 menu	1. Account code 1 : 2. Account code 2 : 3. Account code 3 : 4. Account code 4 : 5. Account code 5 : 6. Account code 6 : 7. Account code 7 : 8. Account code 8 : 9. Network address: 0. Back to CS menu
		4. Central station 4 menu	1. Account code 1 : 2. Account code 2 : 3. Account code 3 : 4. Account code 4 : 5. Account code 5 : 6. Account code 6 : 7. Account code 7 : 8. Account code 8 : 9. Network address: 0. Back to CS menu
	5. Up/download menu		1. U/D Network address 1: 2. U/D Account code 1 :

3. U/D Network address 2:

4. U/D Account code 2 :

0. Back to CS menu

0. Back to main menu

2. Report options      See "Report options" list

3. Protocol options    See "Protocol options" list

0. Exit MPI programming

# **Report options list:**

Report Opts.	Network Reported to	Addr	Delay/ No
delay			
1. BB:	-	-	-
2. BU:	-	-	-
3. BA:	1	2	3
4. BR:	1	2	3
5. TB:	-	-	-
6. TU:	-	-	-
7. TA:	1	2	3
8. TR:	1	2	3
1. PA:	1	2	3
2. PR:	1	2	3
3. HA:	-	-	-
4. HR:	-	-	-
5. FB:	-	-	-
6. FU:	-	-	-
7. FA:	1	2	3
8. FR:	1	2	3
1. ZA:	1	2	3
2. ZR:	1	2	3
3. MA:	-	-	-
4. MR:	-	-	-
5. CF:	1	2	3
6. CG:	-	-	-
7. BC:	1	2	3
8. CE:	-	-	-
1. OA:	-	-	-
2. OP:	1	2	3
3. CL:	1	2	3
4. CP:	-	-	-
5. OK:	-	-	-
6. LB:	-	-	-
7. OR:	1	2	3
8. OT:	-	-	-
1. RS:	-	-	-
2. RU:	-	-	-
3. LS:	-	-	-
4. RB:	-	-	-
5. AR:	1	2	3
6. AT:	1	2	3
7. RP:	1	2	3
8. RR:	1	2	3
1. YC:	1	2	3
2. YS:	1	2	3
3. YR:	1	2	3
4. YT:	1	2	3
5. ER:	-	-	-
6. ET:	-	-	-
7. EE:	-	-	-
8. JS:	-	-	-
1. WP:	-	-	-
2. WF:	-	-	-
3. BV:	-	-	-
4. BW:	-	-	-

#### Protocol options list:

```
1. Modem init string      : ATSO=0
2. Modem dial string      : ATD
3. Modem hangup string    : ATH
4. Modem connect string   :
5. CLID string 1          :
6. CLID string 2          :
7. Baudrate RS-232 port   : 9600
8. Baudrate V31bis port   : 9600
9. Protocol               : V24

1. One account per call   : No
2. One event per block    : No
3. Three digit event numbers : Yes
4. Text in SIA            : No
5. PA auto-restore        : No
6. Dual reporting         : No
7. Auto Dial              : No
8. PC calls               : No

1. Wait for modem reply   : 005
2. Wait for modem dial reply : 010
3. Wait for redial        : 010
4. Max dial attempts/CS   : 015
5. Max modem command attempts: 003
6. Event delay            : 020
7. DCD timeout            : 255

1. Testcall interval (0=none): 000
2. Testcall resolution      : seconds
3. Testcall delay           : 000
4. Zero block poll time     : 000
5. MPI engineer code        : 123456
6. MPI program code         :
7. Mixed TPC/Sia            : No
8. Dump eng.mem             : No

1. Old events              : No
2. YS MPI via RD           : No
3. YS RD via MPI           : No
4. RP when YS MPI          : 000
5. RP when YS RD           : 000
6. RP/YS number            : 000
7. Dual reporting (MPI+RD)  : No
8. RD style XSIA           : No
9. Radio modem             : No
```

#### Notes concerning the PC Programming Menu:

- Central Station Account codes can be up to 8 digits long (Sia specification is 6 digits, if your receiver does not support 8 digit codes, program codes of no more than 6 digits in the MPI232).
- UD-site Account Codes can be up to 4 digits long.
- Network addresses can be up to 16 digits long.
- To go to the next page in the *Report Options Menu* or the *Protocol Options Menu* the - and + keys on the main field of the PC keyboard must be used. The - and + keys on the numeric field of a PC keyboard might not work, depending on the used terminal-program.





## ***Description of the Protocol options list***

### Page 1:

1. Modem init string
  - Can be up to 40 characters long
  - AT-Hayes command to initialize the Network Interface
2. Modem dial string
  - Can be up to 40 characters long
  - AT-Hayes dial command
3. Modem hangup string
  - Can be up to 40 characters long
  - AT-Hayes hang up command
4. Modem connect string
  - Can be up to 31 characters long
  - AT-Hayes reply to dial command if connection is established
  - The from the modem received connect string must exactly match this string
  - The MPI will also accept the fixed strings CON and CONNECT
5. CLID string 1
  - Calling line identity, can be up to 40 characters long
6. CLID string 2
  - Calling line identity, can be up to 40 characters long
7. Baudrate RS-232 port
  - 9600, 4800, 2400, 1200, 600 or 300 baud (bps)
8. Baudrate V31bis port
  - 9600, 4800, 2400, 1200, 600 or 300 baud (bps)
9. Protocol
  - V24: Connect network interface to V24 (RS232) port of the MPI
  - V31bis: Connect network interface to V31bis port of the MPI (current loop)

Page 2:

1. One account per call
  - Yes: Only events for one account tx'ed per call. The MPI will always disconnect after having received an acknowledge to the Sia '0'-block, even if this acknowledge was a '6'-block (ack and standby).
  - No : All events for the selected phone number (Central Station) will be tx'ed during the call.
2. One event per block
  - Yes: Only one event per SIA datablock.
  - No : More events (for same account) per SIA datablock.
3. Three digit event numbers
  - Yes: 3-digit event numbers
  - No : 2-digit event numbers (if the number to send can be represented by two digits. If the number is too large it will be represented by three digits).
4. Text in SIA
  - Yes: Text in SIA datablocks
  - No : No text in SIA datablocks
5. PA auto-restore
  - Yes: Restore immediately
  - No : Restore when disarming
6. Dual reporting
  - Yes: Event will be reported to all (by the report options) selected Central Stations
  - No: Event will be reported only to the first Central Station that gives an acknowledge.
7. Auto dial
  - Yes: The MPI232 will dial automatically to Central Station 1 after power up, even if there are no events to report. The MPI232 will then send the account code 1 for Central Station 1, and after the acknowledge a Sia zero block. If the connection breaks, the MPI232 will dial back. Together with the Sia '6'-blocks (send by Central Station) and the *Zero block poll time* option this option can be used to set up a fixed connection with polling every xx seconds (for example every 90 seconds). When this option is used, check the following options for full functionality.
    - Option *One account per call* set to *No*
    - Set the report options for the Sia events to Central Station 1 only
    - Acknowledge the Sia zero blocks with a Sia '6'-block (ack. and standby)
  - No: Normal operation, the MPI232 will only start a call in case of an event.
  - The option *Mixed TPC/Sia* must be *No*, otherwise the MPI232 will dial to UD network address 1, and start in Mixed TPC/Sia mode.
8. PC calls:
  - Yes: PC calls allowed, start up-download by Transport PC allowed.
  - No: PC calls not allowed. The MPI232 will only clear the line.

Page 3:

The wait times in the Protocol Options Menu are in seconds.

1. Wait for modem reply
  - Time (in seconds) the MPI waits for the modem to respond to all AT-commands except the dial command (default ATD)
  - Time (in seconds) the MPI waits for the Central Station to send a SIA-ack block
2. Wait for modem dial reply
  - Time (in seconds) the MPI waits for the modem to respond to the dial command (default dial command is ATD)
3. Wait for redial
  - Wait time (in seconds) before the MPI redials after the occurrence of a communications error (min. 0, max. 255)
4. Max dial attempts/CS
  - Maximum number of dial attempts per Central Station before sending the data through the backup dialer (min. 1, max. 255).
5. Max modem command attempts
  - Maximum number of attempts to send AT-commands (except dial command, default ATD)
  - Maximum number of attempts to send SIA-blocks
  - Minimum number of attempts is 1, maximum is 255
6. Event delay
  - The delay time (in seconds) for events which have to be reported delayed (min. 0, max. 255)
7. DCD timeout
  - Data Carrier Detect timeout
  - Delay (in seconds) before the MPI detects the loss of the modem's carrier (min. 1, max. 255)
  - A value of 255 will cause the DCD signal to be ignored (use this value if your modem does not provide a DCD signal, or when software V2.2 or higher is used on PCB's of revision 525.4 and lower).

Page 4:

1. Testcall interval:
  - Interval time: 0=no testcalls
  - If resolution is seconds: min. 10 s, max. 255 s (numbers below 10 will be changed to zero).
  - If resolutions is hours: max. 24 hr
2. Testcall resolution:
  - Hours or seconds
  - If testcall resolution is changed, the testcall interval will be set to zero (no testcalls).
3. Testcall delay
  - delay before the first testcall will be generated, programmable from 0:00 .. 23:00 in steps of 1 hr.
  - delay occurs only when the testcall resolution is set to hours.
4. Zero block poll time
  - Time (in seconds) before sending another zero-block after having received a Sia '6'-block (Positive acknowledge and standby) (min. 0, max. 255)
  - If this value is set to zero, the MPI will send the zeroblock only once (MPI stays online). New Sia data will be sent if a new Sia event occurs.
5. MPI engineer code
  - Code to enter the dialer-(MPI)-menu on the panel (keypad) (max. 6 digits).
6. MPI program code
  - Code to enter the PC programming menu of the MPI232 (max. 8 digits).
  - If no code is programmed, the MPI232 will not request for the code when entering the PC programming menu.
7. Mixed TPC/Sia
  - Yes: 20 seconds after power up the MPI will dial to UD Network Address 1. The MPI232 will then act like up-download was started from the panel, and perform handshake with the Managment System. In this mode both Managment functions (TPC protocol) and Sia alarm reporting will be done while remaining online. Sia events will be sent without text, even if the option text in Sia is set to on.
  - No: Normal operation
8. Dump eng. Mem
  - Yes: The MPI232 will dial to up-download site 1 if the log in the CD-panel is full. Transport PC will then automatically upload the contents of the engineer log.
  - No: Normal operation

1. **Old events:**

Determines whether old events are transmitted as *new* or as *old* events. An event will be tagged as old if it could not be reported to any of the for this event programmed Central Stations.

No:

The Sia function code 'O' will not be transmitted by the MPI. Old events will be transmitted using the Sia function code 'N' (new event).

Yes:

Old events will be transmitted using the Sia function code 'O' (old event).

Note:

If a backup RD62 dialer is present, the old events will be backed up to the RD62 dialer.

2. **YS MPI via RD:**

No:

*Fail to communicate (FTC)* of the MPI232 (YS99) will be reported by the MPI232 after the next succesfull call.

*Line fault* of the MPI232 will not be reported.

Yes:

*Fail to communicate (FTC)* or *Line fault* of the MPI232 (YS99) will immediately be transmitted via the RD62 backup dialer (if present).

A restore of this FTC or line fault will be transmitted as an Automatic testcall (RP99) via the RD62.

Note:

The report options for the events YS and RP must be programmed for a Central Station and Account in the RD62 dialer.

3. **YS RD via MPI:**

No:

*Fail to communicate (FTC)* of the RD62 (YS00) will be transmitted by the RD62 after the first succesfull call via PSTN.

*Line fault* of the RD62 will not be reported.

Yes:

*Fail to communicate (FTC)* of the RD62 (YS00) will be transmitted by the RD62 after the first succesfull call.

*Line fault* of the RD62 backup dialer (YS00) will be transmitted by the MPI232.

An *Automatic Testcall* (RP00) will be transmitted by the MPI232 if the line fault condition of the RD62 has disappeared.

Note:

The report options for the events YS and RP must be programmed for a Central Station and Account in the MPI232.

#### 4. **RP when Line Fault of MPI:**

If this option is set to a value greater than zero, in case of a *Line fault* (not *FTC*) of the MPI232 an automatic testcall (RP00) will be transmitted every number of specified minutes via the channel (PSTN) which is still functional.

If the *Line fault* condition of the MPI232 clears, the MPI232 will try to transmit an automatic testcall (RP00). This testcall is the trigger to transmit all events which might still be in the MPI232's buffer.

##### Possibilities:

- Zero: No additional testcalls will be transmitted
- Greater than zero: An automatic testcall will be transmitted by the RD62 with the interval as specified by this value (minutes), (if the RD62 dialer is present, and the PSTN line is present). If the MPI232 gets its line back, it will transmit a testcall.

##### Note:

This will not affect the testcalls as programmed by the options *Testcall interval* and *Testcall resolution* in the MPI232, nor the testcalls programmed in the RD62.

The report options for the event RP must be programmed for a Central Station/Phone number and Account in the MPI232 and in the RD62 dialer.

#### 5. **RP when Line Fault of RD:**

If this option is set to a value greater than zero, in case of a *Line fault* of the RD62 an automatic testcall (RP99) will be transmitted every number of specified minutes via the channel (Network) which is still functional.

If the *Line fault* condition of the RD62 clears, the RD62 will try to transmit an automatic testcall (RP99). This testcall is the trigger to transmit all events which might still be in the RD62's buffer.

##### Possibilities:

- Zero: No additional testcalls will be transmitted
- Greater than zero: An automatic testcall will be transmitted by the MPI232 with the interval as specified by this value (minutes). If the RD62 gets its line back, it will transmit a testcall.

##### Note:

This will not affect the testcalls as programmed by the options *Testcall interval* and *Testcall resolution*, nor the testcalls programmed in the RD62.

The report options for the event RP must be programmed for a Central Station/Phone number and Account in the MPI232 and in the RD62 dialer.

#### 6. **RP/YS number:**

This *RP/YS number* will be used for Testcalls generated by the MPI232. The user/zone-number 99 in the chapter *Description of the YS and RP Sia events* on the next page will be replaced by the number programmed with this option *RP/YS number*. Programming a new value for the option *RP/YS number* is only required if the options *YS MPI via RD*, *YS RD via MPI*, *RP when Line Fault MPI* or *RP when Line Fault RD* are used.

#### 7. **Dual reporting (MPI+RD)**

With the option *Dual reporting (MPI+RD)* it is possible to have events transmitted by both the MPI232 and the RD62 dialer. The following four situations can be programmed:

Events transmitted by:	Program in MPI232	Program in RD62
MPI232 only	<ul style="list-style-type: none"> <li>• <i>Report options</i>: All On</li> <li>• <i>Dual reporting</i> (MPI+RD): No or Yes</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Report options</i>: All Off</li> </ul>
RD62 only	<ul style="list-style-type: none"> <li>• <i>Report options</i>: All Off</li> <li>• <i>Dual reporting</i> (MPI+RD): No or Yes</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Report options</i>: All On</li> </ul>
MPI232 with backup via RD62	<ul style="list-style-type: none"> <li>• <i>Report options</i>: All On</li> <li>• <i>Dual reporting</i> (MPI+RD): No</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Report options</i>: All On</li> </ul>
Both MPI232 and RD62	<ul style="list-style-type: none"> <li>• <i>Report options</i>: All On</li> <li>• <i>Dual reporting</i> (MPI+RD): Yes</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Report options</i>: All On</li> </ul>

### **8. RD style XSIA**

The option *RD style XSIA* affects the Text in Sia format.

No:

The MPI232 will replace characters in a user/zone-name with an ascii value of 127 or higher by a space character.

Yes:

The characters in a user/zone-name with an ascii value of 127 or higher will be transmitted without changes.

### **9. Radio modem**

The option *Radio modem* can be used to monitor Relay radio information (signal strength) when the MPI232 is used in combination with a Dr.Neuhaus Mobycom network interface .

No:

Use the standard "AT" to poll the network interface.

Yes:

Use the standard "AT#R" to poll the network interface. The result from the network interface will be evaluated, and a loss of signal (line fault) will be signalled to the CD-panel.



## Description of the YS and RP Sia events

It is recommended not to use the options *YS MPI via RD* and/or *YS RD via MPI* together with the options *RP when Line Fault MPI* and/or *RP when Line Fault RD*. If they are used together, the meaning of the RP events will not be clear.

The value 99 in the *Event*-column in the following tables will be replaced by the value programmed with the option *RP/YS number*. In these examples a programmed value of 99 is assumed for the option *RP/YS number*.

When the options *YS MPI via RD* and/or *YS RD via MPI* are used:

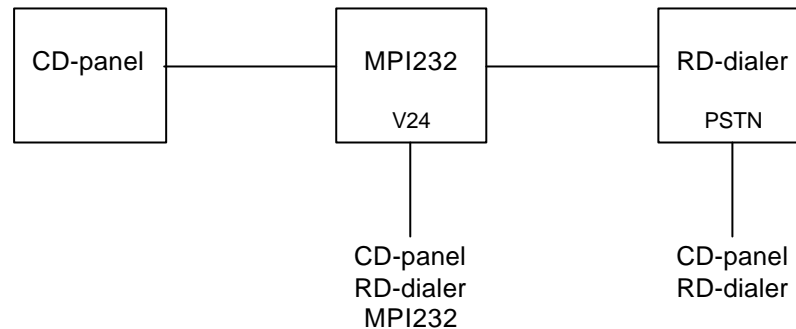
Event	Transmitted by	Signals
YS00	RD62	FTC of RD62 has occurred earlier (line is OK now)
YS00	MPI232	RD62 Line Fault (PSTN line is gone)
RP00	MPI232	Restore of RD62 Line Fault (PSTN line is back)
RP00	RD62	Automatic testcall of the RD62, caused by: <ul style="list-style-type: none"> <li>• In RD62 programmed testcall interval</li> </ul>
YS99	MPI232	FTC of MPI232 has occurred earlier (network is OK now)
YS99	RD62	MPI232 Line Fault or FTC (Network or receiver is down)
RP99	RD62	Restore of MPI232 Line Fault or FTC (Network and receiver are operational again)
RP99	MPI232	Automatic testcall of the MPI232, caused by: <ul style="list-style-type: none"> <li>• In MPI232 programmed testcall interval</li> </ul>

When the options *RP when Line Fault MPI* and/or *RP when Line Fault RD* are used:

Event	Transmitted by	Signals
YS00	RD62	FTC of RD62 has occurred earlier (line is OK now)
RP00	MPI232	Restore of MPI232 Line Fault (Network and receiver are operational again)
RP00	RD62	Automatic testcall of the RD62, caused by: <ul style="list-style-type: none"> <li>• In RD62 programmed testcall interval, or</li> <li>• Line Fault of MPI232 (programmed in MPI232)</li> </ul>
YS99	MPI232	FTC of MPI232 has occurred earlier (network is OK now)
RP99	RD62	Restore of RD62 Line Fault (PSTN line is back)
RP99	MPI232	Automatic testcall of the MPI232, caused by: <ul style="list-style-type: none"> <li>• In MPI232 programmed testcall interval, or</li> <li>• Line Fault of RD62 (interval programmed in MPI232)</li> </ul>

## Up/download via MPI232

A full specification of the commands send/received by Transport PC is available from Aritech Roermond (*Transport PC Communication Protocol - Technical Description*). Up-download is possible only via the V24 port of the MPI, not via the V31bis port.



With this setup the following up/download configurations are possible:

- U/D of CD-panel via MPI (network)
- U/D of CD-panel via RD-dialer (PSTN)
- U/D of RD-dialer via MPI (network)
- U/D of RD-dialer via RD-dialer (PSTN)
- U/D of MPI via MPI (network)

U/D of the MPI via the RD-dialer (PSTN) is not possible.

The MPI232 V2 will be programmable through Transport PC using the MPI2.STF driver file. The MPI V2 settings can only be accessed via new panel stuff-files, in which the option *Program MPI V2* is added (in the same way as the *Program dialer* option).

As of V6.05 Transport PC features a programmable baudrate, which can be selected by a command line switch. The available baudrate settings are:

TP /B=9600	for 9600 baud,
TP /B=4800	for 4800 baud,
TP /B=2400	for 2400 baud,
TP /B=1200	for 1200 baud,
TP /B=600	for 600 baud,
TP /B=300	for 300 baud.

The default Transport PC baudrate is 300 baud.

### Notes:

- Changes in the CD-panel settings will only be stored if the panel is disarmed and not in alarm. This includes (un-) shunting zones.
- Changes in the MPI232 settings will be stored if the panel is armed, but any change in MPI232 settings will become valid after the moment that the *Hangup*-command from Transport PC is selected. If the connection breaks before the user hangs up, the MPI232 will keep its previous settings.

## ***Occurrence of Sia-events during up-download***

The following high priority events will abort up-download:

Level 1:	HA	PA		
Level 2:	BA	BB	TA	TB
	FA	FB	MA	ZA

All other events will be stored into the MPI232's buffer and are transmitted after the user finishes up-download. Therefore arm-disarm events (for example) will not be transmitted to Transport PC immediately. A Sia event of level 1 and 2 will cause the MPI to abort up-download, as soon as the pending message/action has been completed. The pending message must be completed to prevent settings from being corrupted. In case of a full up/download this might take however take a minute.

New events (openings/closings/activations) which occur during up-download will be transmitted without text description, even if the option *Text in Sia* is set to *Yes*. Restores of events of which the activation occurred before up-download was started will be transmitted with the text description. The alarm receiver will have to check if the text was transmitted by the MPI232 (by looking for the quotation marks and the *NM* characters), and accept both events with and without text description.

## ***Staying online if MPI received valid CLID (no-dial-back mode of MPI)***

When dipswitch 5 is in the *Off*-position, and the option *PC calls* set to *Yes*, the MPI stays online with TPC if the received Calling Line Identity (CLID) is valid. This will only work with a special version of Transport PC (version 6.xx S12, see also the description of how the MPI232 handles incoming calls). The Sia-event RB (Remote-programming Begin) will not be reported if this dipswitch is *off*, since the RB-event has low priority and would be transmitted together with the RS or RU (Remote-programming Successful/Unsuccessful) after the user finishes up-download.

If the received CLID matched CLID string 1 programmed in the MPI, UD account code 1 will be checked by the MPI (the person using Transport PC will have to enter this code). If the received CLID matched CLID string 2, UD account code 2 will be checked.

## ***RB, RS and RU events when doing up-download via RD-dialer***

When doing up-download via the RD-dialer the RB, RS and RU events will be transmitted by the RD-dialer, and not via the MPI232 (even if their report options are set in the MPI232). The dialer can be prevented from transmitting these events by clearing the report options for these events in the RD-dialer menu (keypad).

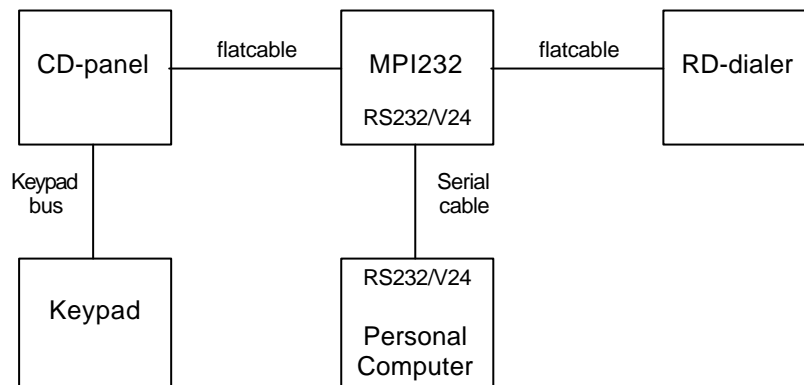
When doing up-download via the MPI232, the RB, RS and RU events will be transmitted by the MPI if their report options are set in the MPI232 (with the exception as described above).

## Up/download with PC direct connected to MPI232

As of MPI232 software version 2.21 it is possible to program the system (CD/MPI/RD) by using a PC running Transport PC, which is connected directly to the MPI232 using a serial cable ("null modem").

This feature can also be useful in systems which normally operate without MPI232. The installer can temporary connect an MPI232 between the CD-panel and the RD-dialer, program the system using his PC running Transport PC directly connected to the MPI, and afterwards remove the MPI232. The MPI232 is then used as a programming tool for the alarm system.

The setup is as follows:



No modems/network interfaces are needed.

The required items for direct up-download of a system (CD/MPI/RD) are:

- MPI232 software version 2.21 or higher
- Personal Computer (IBM compatible)
- Transport PC V6.06 or higher
- Serial cable (null modem cable)

The procedure for direct up-download is as follows:

- Power down the MPI232 (disconnect it from the CD-panel)
- Connect the PC to the RS232 port of the MPI232 using a null modem cable. If a network interface (modem) is connected to the RS232 port of the MPI232, this must be disconnected first.
- Set dipswitch 6 on the MPI232 to *OFF*
- Power up the MPI232 (connect it to the CD-panel)
- Start the Transport PC program at the desired baudrate on the PC by typing *TP /B=<baudrate>* (for example *TP /B=9600* for 9600 bps) at the Dos-prompt in your Transport PC directory. This baudrate must match the baudrate which is programmed in the MPI232 for the RS232 port. The default value is 9600 bps.
- Log on into Transport PC
- Now up-download can be started from the CD-panel, by entering an Up-download code on the keypad. If no up-download code is programmed yet, program it by entering the *Engineer menu* (type the *engineer code* on the keypad). The default *engineer code* is 1278. Then select *Users -> U/D code*, and enter the desired code to start up-download. Note that the CD-panel and the MPI232 need 20 seconds to initialise after power-up (reconnecting) of the MPI232. Therefore up-download will be started earliest 20 seconds after power-up.
- Transport PC will display the text *Phone is ringing*. The call can now be answered by selecting *Answer* from the Transport PC menu bar. Transport PC is now online with the MPI232.
- After having made all settings in the alarm system, up-download can be stopped by selecting *Exit/Hang up* from the Transport PC menu bar.

- When the call is cleared, the keypad display will show the message *MPI: Set DIP6 ON*. On the MPI232 PCB dipswitch 6 must be set back to ON now. If this dipswitch is set to ON, the keypad display will show the text *Hit any key...*
- The PC can be disconnected from the MPI232, and the network interface (modem) can be reconnected to the MPI232.

Notes:

- For direct up-download no settings in the MPI232 have to be made. It will already work with the factory default settings of the MPI232.
- During direct up-download no alarms will be transmitted.
- Checking the RS232 baudrate of the MPI232 can be done as follows:
  - Enter the PC programming menu (Run terminal software on your PC, set dip 3 of the MPI232 to *off*, and power down/up the MPI232)
  - Select *3. Protocol options*.
  - Check the value labeled as *Baudrate RS-232 port*
  - Set dip 3 back to on, and select *0* twice to leave the PC Programming menu

## MPI232 for France

The French MPI232 version (MPI232-F, in combination with a French CD-panel) handles multiple activations and restores different from the other MPI232 versions.

Three message types, Request zone status, Zone status, and TPC code OK, have been added to the MPI232-Panel communication.

Every minute the MPI232 sends the Request zone status message to the panel.

The Panel responds with the message Zone status.

The TPC code OK message will be transmitted to the CD-panel in the beginning of an up-download session, when the Up-download Account Code sent by Transport PC matches the one programmed in the MPI232. If the French V6 CD-panels don't receive this message at the beginning of the up-download session for five consecutive times (five attempts to start up-download with the wrong account code, or while using an international version of the MPI232 or RD62 dialler), the message *TPCAccèsEchouée* will be displayed on the keypad.

The MPI will generate a restore for all BA,TA,PA,MA and FA zones which have restored.

A PA caused by pressing the panic keys is not restored until the system is disarmed, unless the option *PA auto restore* is enabled in the MPI232 *Protocol options*.

## Jumpers and dipswitches

### Jumper BU2 settings:

Jumper:	Setting:
1	open
2	closed
3	closed
4	open
5	closed
6	open
7	open
8	open

These jumpers are used to redirect/connect the serial interfaces and factory testing. For correct operation they should be set to the values shown here.

### Jumper BU7 and BU11 settings:

Jumpers 9 and 10 (BU7 and BU11) define the current through the v31bis current loop. These jumpers must be both ON or both OFF.

Jumper:	Setting:
9	open (off): 5 mA closed (on): 15 mA
10	open (off): 5 mA closed (on): 15 mA

### DIP-switches SW1 settings:

1. MPI/RD programming via CD9006 memory card and Dialer menu (keypad) selection.
  - on: RD62 reading/programming when using memory card.  
RD62 options programmable via the Dialer Menu of the panel (via keypad). If no RD-dialer is present, the keypad will display zero's (empty).
  - off: MPI232 reading/programming when using memory card.  
Memory card up-download of the MPI232 is possible, but only with V6 CD-panels (not with V5 CD-panels).  
Manual testcalls can be started from the Dialer Menu of the panel (via keypad). Other options may be displayed incorrectly, because the MPI has many options which are different from (or added to) a RD-dialer. Therefore **no** MPI-options should be changed via the Dialer Menu (keypad) when this dipswitch is *off*. After reading/programming the MPI via a memory card this dipswitch should always be set back to **on**.
2. Defaults programming at start-up of the MPI232
  - on: normal operation
  - off: return to the default settings at power-up
3. MPI Programming via PC at power-up (via V24/RS232 port)
  - on: normal operation
  - off: PC programming at power-up

4. Start up-download by keypad via MPI or via RD-dialer
  - on: up-download via MPI (if started from panel/keypad)
  - off: up-download via RD-dialer (if started from panel/keypad)
  
5. Enable CLID check on incoming calls (Transport PC), and stay online if CLID is valid.  
(Enable no-dial-back mode of the MPI)
  - on: normal operation (MPI drops line, and dials back to TPC)
  - off: MPI stays online with TPC if the received CLID is valid.  
 This will only work with a special version of Transport PC. See also the description of how the MPI232 handles incoming calls. The Sia-event RB (Remote-programming Begin) will not be reported if this dipswitch is *off*, since the RB-event has low priority and would be transmitted together with the RS or RU (Remote-programming Successful/Unsuccessful) after the user finishes up-download.
  
6. Start up-download with PC direct connected to the MPI232 at start-up of the MPI232
  - on: normal operation
  - off: perform up-download with PC direct connected to the MPI232
  
7. Reserved for future use
  
8. Enter testmode at power-up (the text "QE-mode" will be sent to the RS232 port @ 9600 baud)
  - on: normal operation
  - off: enter testmode at power-up (the MPI will also return to its factory default settings!)

Default DIP-settings (SW1) are:

Number:	Setting:
1	on
2	on
3	on
4	on
5	on
6	on
7	on
8	on



## Electrical Specification MPI232 ports

### Network ports :

#### Port 1 (BU1 on the PCB):

V31bis according to VdS standard.

This port is connected to the SCC2691 UART on the MPI-PCB.

#### Port 2 (BU6 on the PCB):

RS-232 compatible (V24). Connector: Sub D 9p

This port is connected to the UART of the CPU.

No	Signal	Name	Direction
1	DCD	Data Carrier Detect	in
2	RxD	Receive Data	in
3	TxD	Transmit Data	out
4	DTR	Data Terminal Ready	out
5	SG	Signal Ground	
6	NC		
7	RTS	Request To Send	out
8	NC		
9	NC		

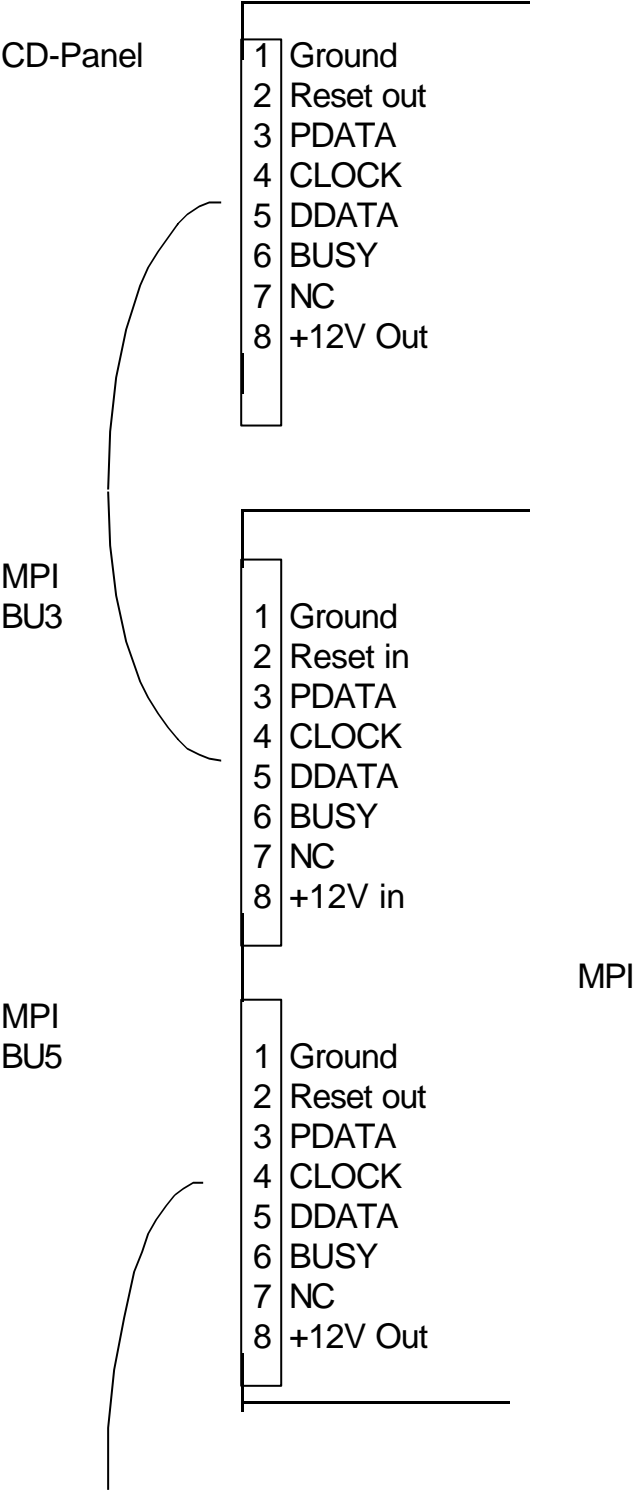
The mark/space signal levels on the MPI TxD-pin are -5V/+12V.

The DCD and DTR signals are functional on MPI232 PCBs rev. 525.5 and higher.

### Software compatibility:

For full functionality it is recommended to use PCB revisions 525.5 and higher. PCB revisions 525.4 and lower can be used if the DCD timeout is set to 255. By doing this the DCD signal will be ignored.

Connection Panel, MPI and Dialer:



### Power (BU1):

1	O-
2	O+
3	I-
4	I+
5	COM- V31bis
6	COM+ V31bis
7	GND
8	+12V out
9	GND
10	+12V in

### Power supply:

Voltage Udc : 11.5..14.5 V

Current Idc : 50 mA (typical, 12V)

### Mechanical data:

The MPI fits into a CD91 housing. The MPI dimensions are the same as a RD62 dialer, and can be mounted on top of the RD62 dialer.

## Glossary

Account	or Account Number, information that identifies a particular alarm panel
ACPO	Association of Chief Police Officers.
ARC	Alarm Receiving Centre. The SIA and NACOSS term for the operational centre to which branch panels report Events/Alarms.
AT-Hayes	See <i>Hayes Commands</i> .
CD-panel	Aritech alarm panel. The CD34, CD61, CD62, CD72, CD91, CD92, CD95, CD148 and CD150 are all CD-panels.
CLID	Calling Line Identity is an identification string which is assigned to a CSDN line and is transmitted by the CSDN exchange (if enabled) to the called party as part of the call set-up sequence.
CS	Central Station. The system which receives alarms from remote panels.
CSDN	Circuit Switched Data Network.
DCE	Data Circuit-Terminating Equipment (modem)
Dial-Up Account Code (DUAC)	Four digit password assigned to each installed panel/MPI to allow it to validate dial-up access from remote management stations. It is used in the session handshake phase of the Transport PC protocol. It is stored in the MPI.
DTE	Data Terminal Equipment (computer)
Hayes Commands	Standard command language for host to communicate with local modems.
Management System	A system which can remotely manage alarm panels. This function is also referred to as upload/download.
MPI232	MPI, Multi Platform Interface.
Network Interface	Interface between the MPI232 and the network over which the data has to be transferred, modem.
PAD	Packet Assembler/Disassembler
PSTN	Public Switched Telephone Network.
RD-dialer	Aritech PSTN dialer. The RD62 series dialer can be used together with the CD-panels and the MPI232.
SIA	Security Industry Association.
TPC	Transport PC. Aritech's PC based remote panel management product.
Up-download	Remote programming of an alarm panel.

## Document revision log

### MPI Version 2.0 and 2.1:

Revision:	Date:	Changed:
V1.1	10-04-1996	Draft for final discussion
V1.2	10-11-1996	No Xon/Xoff flow control. CLID info added to RING command. Small text changes. Sia events:     OE -> OK BZ -> BW
V1.3	11-29-1996	<b>MPI V2.1B:</b> Dipswitch 1 on/off settings swapped Added dipswitch 4 (up-download via MPI or RD) Added dipswitch 5 (enable CLID, up-download without dial-back) Up-download @ 9600 baud improved Changed description of incoming calls Added description new TPC version to up-download section Minor changes in Dialer menu & Test call description
V1.4	12-2-1996	<b>MPI V2.1B2:</b> Minor change priority of events High priority events will abort up-download in all cases (independent of dipswitch 5) Fixed arm problem and shunt zones problem using TPC
V1.5	12-11-1996	<b>MPI V2.1B3:</b> AT-poll time increased to 7 seconds, to allow a pause between 'RING' and CLID string Spaces at the end of a received CLID string will be ignored If the MPI has to call back to TPC, it will now first wait for the number of seconds programmed by <i>wait for redial</i> , instead of calling immediately. <b>MPI V2.1B4:</b> AT-poll time set to 8 seconds. MPI will check for events and up-download-start once every two seconds (MPI will start dialing 2, 4, 6 or 8 seconds after the last AT-command has been sent).
V1.6	12-19-1996	<b>MPI V2.1B5:</b> Increased guard time before and after escape sequence (+++).
V1.7	1-6-1997	<b>MPI V2.1B6:</b> Decreased guard time before and after escape sequence (+++). Improved disconnect. Changed default init string.
V1.8	1-10-1997	<b>MPI V2.1B7:</b> Changed FTC handling. Changed default settings. When using TPC in no-dial-back mode, it will use UD acc.code 1 if CLID 1 is received, and UD acc.code 2 if CLID 2 is received, instead of using code 1 only.
V1.9	1-20-1997	<b>MPI V2.1B8:</b> Changed FTC handling. FTC will no longer fill up log. Sia blocks do no longer need to be followed by a Carriage Return (CR, ascii 0dh). MPI will try to hang up if no response to dial command was received. Up-download: Improved hangup and full MPI upload

V1.91	1-28-1997	<b>MPI V2.1β9:</b> MPI will ignore leading and trailing <space> characters (ascii 20h)
V1.92	2-24-1997	<b>MPI V2.1β10:</b> Arm and disarm allowed within one Transport PC session Text in Sia format changed One AT-poll will be skipped if MPI is waiting for CLID
V1.93	3-3-1997	<b>MPI V2.1β11:</b> Event descriptions up until 16 characters supported Improved NO CARRIER detection after up-download

## MPI Version 2.2:

Revision:	Date:	Changed:
V2.0	12-19-1996	<b>MPI V2.2:</b> Support of Sia '6' and '7' block codes Added DTR and DCD handling on RS232 port Programmable engineer code Programmable connect string Programmable DCD timeout Programmable Zero block poll time Description of supported Sia block codes
V2.1	1-10-1997	<b>MPI V2.2β2:</b> Added MPI V2.1β7 changes Removed buffer status monitoring
V2.2	1-13-1997	Changed default settings Added DCD ignore
V2.3	1-23-1997	<b>MPI V2.2β3:</b> Added MPI V2.1β8 changes Minor text changes
V2.4	1-30-1997	<b>MPI V2.2β4:</b> Added MPI V2.1β9 changes
V2.41	2-5-1997	Corrected ACPO events description
V2.42	2-14-1997	Minor text changes, added chapter <i>Protocols used by MPI</i> Corrected chapter <i>Sia via the V31bis port</i>
V2.5	2-25-1997	<b>MPI V2.2β5:</b> Added MPI V2.1β10 changes Full functionality V31bis port
V2.51	3-10-1997	<b>MPI V2.2β6:</b> Corrected hang up after up-download Corrected YS event Corrected BC restores 2 digit event numbers will always be 2 digits Added Auto dial, PC calls allowed and MPI program code options Changed default settings Minor text changes
V2.52	3-19-1997	<b>MPI V2.2:</b> MPI now allows for 8 area arm/disarm during up-download Changed description up-download
V2.53	3-28-1997	<b>MPI V2.21:</b> Added direct connection MPI232 to Transport PC
V2.54	4-10-1997	<b>MPI V2.22β:</b> Prototype for evaluation:

		Added <i>Mixed TPC/Sia</i> CLID2 points to UD code 2 again (when dip5 off)
V2.55	4-24-1997	<b>MPI V2.23:</b> Added Dump engineer memory Increased TPC end of message timeout Changed TPC type 5 & 6 BCD format
V2.56	5-25-1997	<b>MPI V2.24:</b> Variable baudrate for Direct TPC
V2.57	6-20-1997	<b>MPI V2.25:</b> Added old Sia event reporting Added options <i>YS MPI via RD, YS RD via MPI, RP when YS MPI, RP when YS RD</i> Added up-download of MPI232 settings via RD62 dialer (PSTN) Corrected full upload RD62 dialer Corrected restores on QQ
V2.58	9-4-1997	<b>MPI V2.25:</b> Modified options <i>RP when YS MPI</i> and <i>RP when YS RD</i>
V2.59	3-5-1998	<b>MPI V2.26:</b> Added options <i>RP/YS number, Dual reporting MPI+RD, RD style XIA</i> Modifications for France. Added full upload of RD6202/RD6202V6 dialers. Allow for RD62 defaulting with MPI232 connected.
V2.60	15-6-1998	<b>MPI V2.27:</b> Added option <i>Radio modem</i> Corrected YC, HA and HR handling MPI232 goes online after having received ATA, for usage as Access Control AC2CD & easier up-download. Up-download (Direct TPC) can now be started by selecting <i>Answer</i> in TPC.
V2.61	3-3-1999	<b>MPI V2.28:</b> Changes for support <i>Radio modem</i>
V2.62	1-11-1999	<b>MPI V2.30:</b> Changes to also support 68HC11E controller. The "up-download in progress" status is now cleared when polling in Mixed TPC/Sia mode.