

# MorphoAccess™ Remote Messages Specification

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## HISTORICAL OF REVISIONS

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# 1 Object

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## 1.1 INTRODUCTION

The MorphoAccess™ terminal can send status messages in real time to a controller by different means and through different protocols. This information, called **Remote Messages** in this document, can be used, for instance to display on an external screen the result of a biometric operation, the name or the ID of the person identified...depending on the rôle of the controller in the system.

This document describes the different solutions offered by the MorphoAccess™ to dialog with a controller, and how to make use of them.

## 1.2 REFERENCES

Reading the following manuals may be usefull to understand the fonctionnalities presented in this document :

- [1] SAGEM SA MorphoAccess™ Installation Guide.  
Ref. : SK-0000011196 (English version) / SK-000001145 (French version)
- [2] SAGEM SA MorphoAccess™ Host Sytem Interface Specification.  
Ref. : ERA U32 MORPHOACC DTP 012 (English version)

## 2 Using Remote Messages

### 2.1 SUPPORTED PROTOCOLS

Messages about the biometric operations performed by the MorphoAccess™ can be sent by the terminal to a controller through the following protocols :

- Wiegand or Dataclock (exclusive)
- RS232 (COM2)
- RS422/485 (COM1)
- Ethernet (UDP)

The format of the messages frames differs according to the protocol choosen. Note that Serial and Ethernet messages can be also enrich with Time and Attendance information (if *T&A* activated), and Wiegand/Dataclock messages with extended error ID (if *Failure ID* activated).

	Identification / Authentication Success		Identification / Authentication Failure		
	Default	With T&A	Default	With T&A	With Failure ID
<b>Wiegand</b> The terminal acts as a magnetic badge reader.	The ID (0 to 65535) of the identified user is sent.		No message sent.		A numerical ID is sent to describe the cause of the failure.
<b>Dataclock</b> The terminal acts as a magnetic badge reader.	The ID (ISO2) of the identified user is sent.		No message sent.		A numerical ID is sent to describe the cause of the failure.
<b>RS232/RS422</b> Complete identification result is sent.	The ID of the identified user is sent (in ASCII, BCD or hexa).	The following information is added to the default message (in ASCII): - hour and date - T&A info : IN, OUT, IN DUTY, or OUT DUTY	The biometric check result (failure) is sent.	The following information is added to the default message (in ASCII) : - hour and date - T&A info : IN, OUT, IN DUTY, or OUT DUTY	
<b>UDP</b> Complete identification result is sent.	The ID of the identified user is sent (in ASCII, only).	The following information is added to the default message : - T&A info : IN, OUT, IN DUTY, or OUT DUTY	The biometric check result (failure) is sent.	The following information is added to the default message : - hour and date - T&A info : IN, OUT, IN DUTY, or OUT DUTY	

## 2.2 REMOTE MESSAGES ACTIVATION

### 2.2.1 CONFIGURATION OF THE PROTOCOLS

Remote messages can be sent by the MorphoAccess™ terminal on several layers at the same time (for example: Wiegand and Ethernet). This chapter explains how to activate the sending of the remote messages for each layer available : Wiegand/Dataclock, Serial, Ethernet.

The configuration of each protocols requires to modify some parameters in the CFG partition of the terminal from the System Menu. If you don't know how to perform a such operation, please refer to the document [1].

#### 2.2.1.1 ACTIVATING WIEGAND / DATACLOCK REMOTE MESSAGES

- *Software configuration :*

CFG Keys	Description
./CFG/Maccess/Wiegand-Dataclock/send	0 : Messages sending deactivated on Wiegand / Dataclock 1 : Messages sending activated on Wiegand / Dataclock

Note :

- Parameters specific to Wiegand or Dataclock protocol (facility code... dataclock level...) are also configurable from the CFG partition. These parameters must be compatible with the settings of the controller to allow the communication. Please refer to the document [1] to know how to adjust them.
- Wiegand/Dataclock frames format responds to the Wiegand/Dataclock norm. You can find a description of this format in the document [1].

- *Hardware configuration :*

Wiegand and Dataclock are exclusive. Switching from a protocol to another requires changing the jumpers configuration on the motherboard of the terminal. Please refer to the document [1] to know how to configure the MorphoAccess™ in Wiegand or in Dataclock mode.

#### 2.2.1.2 ACTIVATING ETHERNET REMOTE MESSAGES

- *Software configuration :*

CFG Keys	Description
./CFG/Maccess/Ethernet/send	0 : Messages sending deactivated on the Ethernet link * 1 : Messages sending activated on the Ethernet link
./CFG/Maccess/Ethernet/ip	Ethernet address of the controller

Note :

- Ethernet messages are sent from the port 11020 through UDP protocol.
- The format of the frames sent is described in the chapter 3 *Understanding Remote Messages*.

\* This does not prevent communication by ILV Commands through TCP/IP. ILV communication is made through TCP/IP protocol on the port 11010.

### 2.2.1.3 ACTIVATING SERIAL REMOTE MESSAGES

- *Software configuration :*

CFG Keys	Description
<code>./CFG/Maccess/com1/send</code>	0 : Messages sending deactivated on the serial link COM1 1 : Messages sending activated on the serial link COM1*
<code>./CFG/Maccess/com1/format</code>	0 : The user ID in the message is coded in ASCII 1 : The user ID in the message is coded in hexa 2 : The user ID in the message is coded in BCD
<code>./CFG/Maccess/com2/send</code>	0 : Messages sending deactivated on the serial link COM2 1 : Messages sending activated on the serial link COM2*
<code>./CFG/Maccess/com2/format</code>	0 : The user ID in the message is coded in ASCII 1 : The user ID in the message is coded in hexa 2 : The user ID in the message is coded in BCD

Note :

- COM1 refers to RS422 interface.
- COM2 refers to RS232 interface.
- Parameters specific to the serial communication (speed, flow control, parity... ) are configurable from the CFG partition, in the entry `./CFG/ser0` (COM1) or `./CFG/ser1` (COM2). Please refer to the document [1] to know how to adjust them.

\* Sending messages on COM1 (or COM2) is possible only if ILV Communication is not set on COM1 (or COM2). How to select the ILV Communication interface (Stand Alone, COM1, COM2, or TCP/IP) is explained in the document [1] (see parameter `host com` in the CFG partition).

- *Hardware configuration :*

Specific hardware designs may prevent to use COM1 and/or COM2 ports :

- On MorphoAccess™ FFD family, COM2 port is used by the Fake Finger detection module.
- COM1 port is not usable if a Mifare Deister external contactless card reader is connected to the MorphoAccess™ terminal.



## 2.2.2 ACTIVATION OF THE T&A ADDITIONNAL MESSAGES

*Time and Attendance* is a particular working mode in which the MorphoAccess™ is used to check and log the entry and exit times of the users. Please refer to the document [1] for more details about the functioning of the T&A mode.

As far as the remote messages sending are concerned, this option allows to enrich the data sent to the controller via the ethernet or the serial links with time and attendance information (date, IN or OUT...).

**This feature has no impact on the Wiegand/Dataclock remote messages.**

- *Software configuration :*

CFG Keys	Description
<code>./CFG/Maccess/time attendance/mode</code>	0 : T&A mode is disabled 1 : T&A mode enabled with 2 functions (IN and OUT) 2 : T&A mode enabled with 4 functions (IN, IN DUTY, OUT DUTY, OUT)
<code>./CFG/Maccess/time attendance/display</code>	0 : T&A menu in english 1 : T&A menu in spanish 2 : T&A menu in french 3 : Graphic T&A menu

## 2.2.3 ACTIVATION OF THE FAILURE ID EXTENDED MESSAGES

*Failure ID* option allows sending extended error codes through the Wiegand/Dataclock layer. You can activate this option and set any value between 0 to 65535 for each existing extended error code directly from the CFG partition of the MorphoAccess™ terminal\*. If you don't know how to perform a such operation, please refer to the document [1].

**This feature has no impact on the Ethernet and Serial remote messages.**

\**Failure ID* extended error codes values, and the activation of their sending through Wiegand/Dataclock, can also be set via the ILV Command *Set Configuration*. Please refer to the document [2] for more details.

- **Software Configuration :**

CFG Keys	Description
./CFG/Maccess/Wiegand-Dataclock /send failure ID	0 : Failure ID deactivated 1 : Failure ID activated
./CFG/Maccess/Wiegand-Dataclock /Not recognized ID	[0 to 65535]. This value is sent when a user is not identified (i.e. a biometric operation has failed).
./CFG/Maccess/Wiegand-Dataclock /FFD ID	[0 to 65535]. This value is sent when a fake finger is detected (MA FFD only).
./CFG/Maccess/Wiegand-Dataclock /Not on time ID	[0 to 65535]. This value is sent when the identified user is not authorized to access at the current time (Time Mask error)
./CFG/Maccess/Wiegand-Dataclock /Timeout ID	[0 to 65535]. This value is sent when the identification/authentication operation aborts due to a timeout error.
./CFG/Maccess/Wiegand-Dataclock /Not in db ID	[0 to 65535]. This value is sent when no record can be found in the database for the specified user id (i.e. no biometric operation can be performed).
./CFG/Maccess/Wiegand-Dataclock /Generic error ID	[0 to 65535]. This value is sent when any other biometric error occurs.

## 3 Understanding Remote Messages

### 3.1 MESSAGES SENT THROUGH WIEGAND/DATACLOCK

The payload data encapsulated in a Wiegand/Dataclock frame is either the ID of the person identified, in case of successful identification, or an ID describing the reason of the identification failure (if the *Failure ID* are activated, see chapter 2.2.3).

The document [1] explains how a Weigand/Dataclock frame is formatted.

### 3.2 MESSAGES SENT THROUGH THE ETHERNET OR THE SERIAL LINK

#### 3.2.1 FRAME SENT WHEN BIOMETRIC VERIFICATION SUCCEEDS

##### 3.2.1.1 TIME AND ATTENDANCE DISABLED

<b>Format Flag</b>	0x00 : User ID is sent in ASCII format, or 0x01 : User ID is sent in HEXA format, or 0x02 : User ID is sent in BCD format	
<b>Data Length</b>	$L_{ID}$	
<b>Data</b>	User ID	$L_{ID}$ bytes

##### 3.2.1.2 TIME AND ATTENDANCE ENABLED

<b>Format Flag</b>	0x20 : User ID is sent in ASCII format, or 0x21 : User ID is sent in HEXA format, or 0x22 : User ID is sent in BCD format	
<b>Data Length</b>	$0x0000 + L_{ID} + 1 + 17$	
<b>Data</b>	User ID	$L_{ID}$ bytes
	Attendance Status	1 byte
	MA date and hour	17 bytes

- **Attendance Status :**

This is an ASCII character defining the transaction performed :

- 0x49 = ' I ' : IN
- 0x4F = ' O ' : OUT
- 0x69 = ' i ' : IN DUTY
- 0x6F = ' o ' : OUT DUTY

- **MA date and hour :**

A 17 bytes ASCII buffer formatted as follow : “ HH/MM/SS DD:MM:YY”

### 3.2.2 FRAME SENT WHEN BIOMETRIC VERIFICATION FAILED

#### 3.2.2.1 TIME AND ATTENDANCE DISABLED

<b>Format Flag</b>	0x10 : User ID is sent in ASCII format, or 0x11 : User ID is sent in HEXA format, or 0x12 : User ID is sent in BCD format
<b>Data Length</b>	0x0000 + 1 (+ L <sub>ID</sub> )
<b>Data</b>	Biometric Error Code 1 byte User ID (according to the configuration) L <sub>ID</sub> bytes

- **Biometric Error Code:**

Name	Description	Value
LOG_OK	Success	0x00
LOG_FAILED	User not identified	0x01
LOG_NOT_ON_TIME	User is not on time (time mask error)	0x02
LOG_BAD_ILV	ILV error	0x10
LOG_BIO	Biometric error	0x11
LOG_PK	PK error or user id not found in db (authent mode)	0x12
LOG_BASE	Base error	0x13
LOG_TIMEOUT	Timeout error	0x19
LOG_NOT_ADMIN	User identified, but with no administration rights	0x40
LOG_IDENT_ERROR	Generic error (all other cases)	0xFF

- **User ID :**

The user ID is sent if the MorphoAccess™ works in authentication mode (with contactless card).

#### 3.2.2.2 TIME AND ATTENDANCE ENABLED

<b>Format Flag</b>	0x30 : User ID is sent in ASCII format, or 0x31 : User ID is sent in HEXA format, or 0x32 : User ID is sent in BCD format
<b>Data Length</b>	0x0000 + 1 (+ L <sub>ID</sub> ) + 1 + 17
<b>Data</b>	Biometric Error Code 1 byte User ID (according to the configuration) L <sub>ID</sub> bytes Attendance Status 1 byte MA date and hour 17 bytes

- **User ID :**

The user ID is sent if the MorphoAccess™ works in authentication mode (with contactless card).

- **Attendance Status :**

This is an ASCII character defining the transaction performed :

- 0x49 = ' I ' : IN
- 0x4F = ' O ' : OUT
- 0x69 = ' i ' : IN DUTY
- 0x6F = ' o ' : OUT DUTY

- **MA date and hour :**

A 17 bytes ASCII buffer formatted as follow : “ HH/MM/SS DD:MM:YY”