

Structure of the Management Parameters



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At a Glance

Management parameters are grouped together in the form of an array of four integers. The values contained in this array can be used to manage communication functions.

NOTE: In technical documentation, these management parameters are also called a management table or report.

NOTE: The first two words are managed by the system. You are responsible for managing the last two words.

Structure

The following table describes the structure of the data in the communication management table:

	Order of the Word	Most Significant Byte	Least Significant Byte
Data managed by the system	1	Exchange number	Activity bit
	2	operation report	communication report
Data managed by the user	3	Timeout	
	4	Length	

Activity Bit

This bit indicates the execution status of the communication function.

It is set to 1 when launched and returns to 0 when its execution is complete.

This is the first bit of the first element of the table.

Example: If the management table has been declared as follows:

Tab_Gest ARRAY [1..4] OF INT, the activity bit is the bit with the notation Tab_Gest[1].0.

NOTE: the notation previously used requires configuration of the project properties in such a way as to authorize the extraction of bits on integer types. If this is not the case Tab_Gest[1].0 cannot be accessed in this manner.

Exchange Number

When a communication function is sent, the system automatically allocates it a number, enabling the exchange to be identified.

This number can be used where necessary to stop the exchange in progress (using the [CANCEL](#) function).

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Management Parameters: Communication and Operation Reports


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At a Glance

Communication and operation reports are part of the management parameters.

NOTE: It is recommended that communication function reports always be tested at the end of their execution and before the next activation. On cold start-up, it is imperative that all communication function management parameters be checked and reset to 0.

Communication Report

This report is common to all functions. It is significant when the value of the activity bit switches from 1 to 0. The reports with a value between 16#01 and 16#FE concern errors detected by the processor that executed the function.

The different values of this report are indicated in the following table:

Value	Communication Report (Least Significant Byte)
16#00	Correct exchange
16#01	Exchange stop on timeout
16#02	Exchange stop on user request (CANCEL)
16#03	Incorrect address format
16#04	Incorrect destination address
16#05	Incorrect management parameter format
16#06	Incorrect specific parameters
16#07	Problem in sending to the destination
16#08	Reserved
16#09	Insufficient receive buffer size
16#0A	Insufficient send buffer size
16#0B	No processor system resources
16#0C	Incorrect exchange number
16#0D	No telegram received
16#0E	Incorrect length
16#0F	Telegram service not configured
16#10	Network module missing
16#11	Request missing
16#12	Application server already active
16#13	UNI-TE V2 transaction number incorrect
16#FF	Message refused

NOTE: The function can detect a parameter error before activating the exchange. In this case the activity bit remains at 0, and the report is initialized with values corresponding to the error.

NOTE: 16#FF value is returned to indicate a correct exchange using WRITE_VAR function in a Modbus broadcast request. This report value is implemented in SCY 21601 from V2.8 IE46, in SCY 11601 from V1.2 IE11 and in TSX SCP 111/114 from V3.2 IR25.

Operation Report

This report byte is specific to each function, and specifies the result of the operation on the remote application.

It is significant only if the communication report has the following values:

- I 16#00 (correct exchange),
- I 16#FF (message refused).

If the value of the communication report is 16#00, the operation report will have the following values:

Value	Operation Report (Most Significant Byte)
16#00	Positive result
16#01	Request not processed
16#02	Incorrect response
16#03	Reserved NOTE: For Premium this report signals a bad reception buffer size (the reception buffer is too small to contain the response).
Request code + 16#30	Upon positive reply for certain requests
16#FB	Upon reply to minor request
16#FD	Operational error
16#FE	Upon positive reply for certain request

If the value of the communication report is 16#FF, the operation report will have the following values:

Value	Operation Report (Most Significant Byte)
16#01	No resources towards the processor
16#02	No line resources
16#03	No device or device without resources (*)
16#04	Line error
16#05	Length error
16#06	Faulty communication channel
16#07	Addressing error
16#08	Application error
16#0B	No system resources
16#0C	Communication function not active
16#0D	Destination missing
16#0F	Intra-station routing problem or channel not configured

16#11	Address format not managed
16#12	No destination resources
16#14	Non-operational connection (example: Ethernet TCP/IP)
16#15	No resource on the local channel
16#16	Access not authorized (example: Ethernet TCP/IP)
16#17	Inconsistent network configuration (example: Ethernet TCP/IP)
16#18	Connection temporarily unavailable
16#21	Application server stopped
16#30	Transmission error
Legend:	
(*)	Code only managed by PCMCIA cards: TSX FPP20 and TSX FPP10

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Management Parameters: Length and Timeout


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At a Glance

You are responsible for these two parameters.

_length

The length parameter is used both to specify the number of characters (in bytes) to be sent during transmission, but also to store the number of characters (in bytes) received after reception of a message. Before certain communication functions are launched (SEND_REQ, DATA_EXCH, PRINT_CHAR, SEND_TLG), it is compulsory for some of these functions, and advisable for others, to update the length parameter.

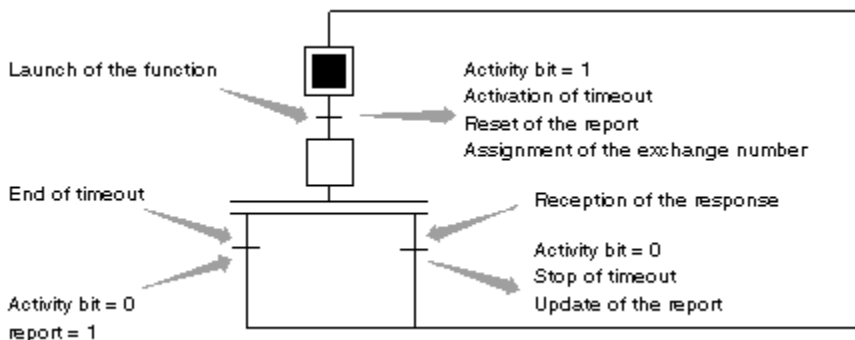
NOTE: With the PRINT_CHAR function, for example, if another function in the application is using the same report table where the number of bytes to send is different to the previous function, it is imperative to initialize the length parameter with the new number of bytes to transmit. Otherwise it keeps the same number of bytes sent by the previous function.

Timeout

Timeout determines the maximum waiting time for the response. The time base for this parameter is 100 ms (the value 0 corresponds to an infinite waiting value).

When the timeout elapses, the exchange is ended with an error report. Also, the system does not accept any responses after the end of the timeout.

Example



NOTE: The value of a communication function's timeout must be sufficient to ensure that the response to the question asked is received (use of an external modem on a protocol-based link, for example).

NOTE: For Modbus master communication, application timeout set under the communication functions must be greater than the configuration screen timeout multiplied by the number of retries (hardware timeout).

NOTE: Communication EFs timeout (as WRITE_VAR or READ_VAR) must be greater than communication master equipment timeout (answer delay).

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