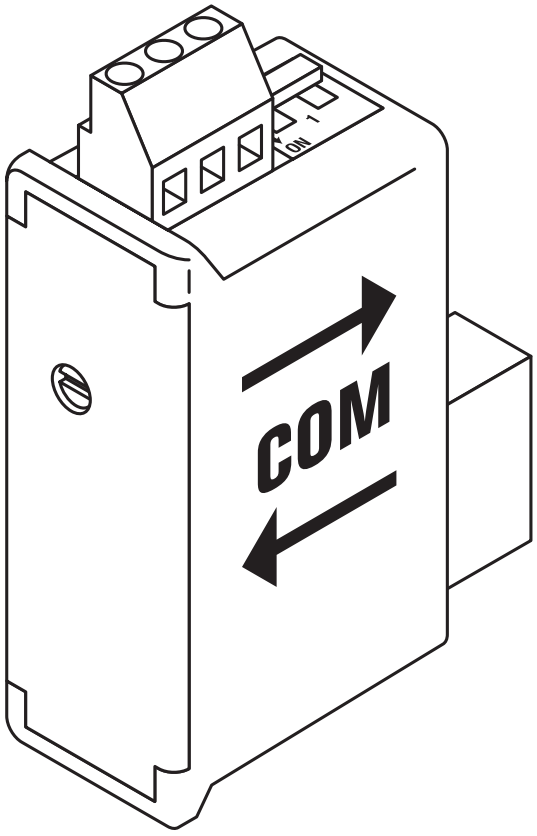
DIRIS A-30/A-41/A-60

RS485 – JBUS/MODBUS®

EN Operating instructions



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PRELIMINARY OPERATIONS

For personnel and product safety please read the contents of these operating instructions carefully before connecting.
Check the following points as soon as you receive the ***DIRIS A-30/A-41/A-60*** package:
- the packing is in good condition,
- the product has not been damaged during transit,
- the product reference number conforms to your order,
- the package contains the product and the operating instructions.

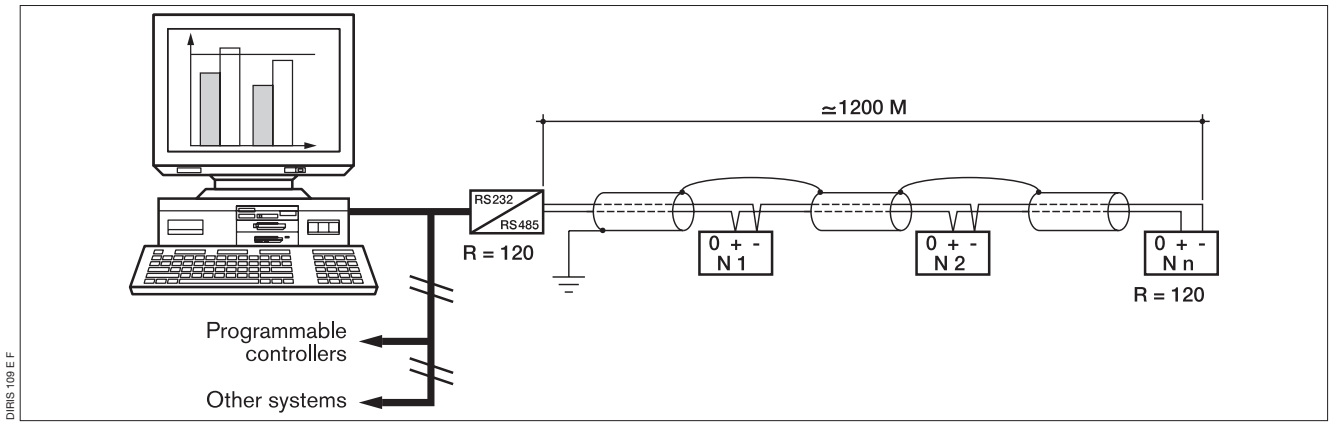
GENERAL INFORMATION

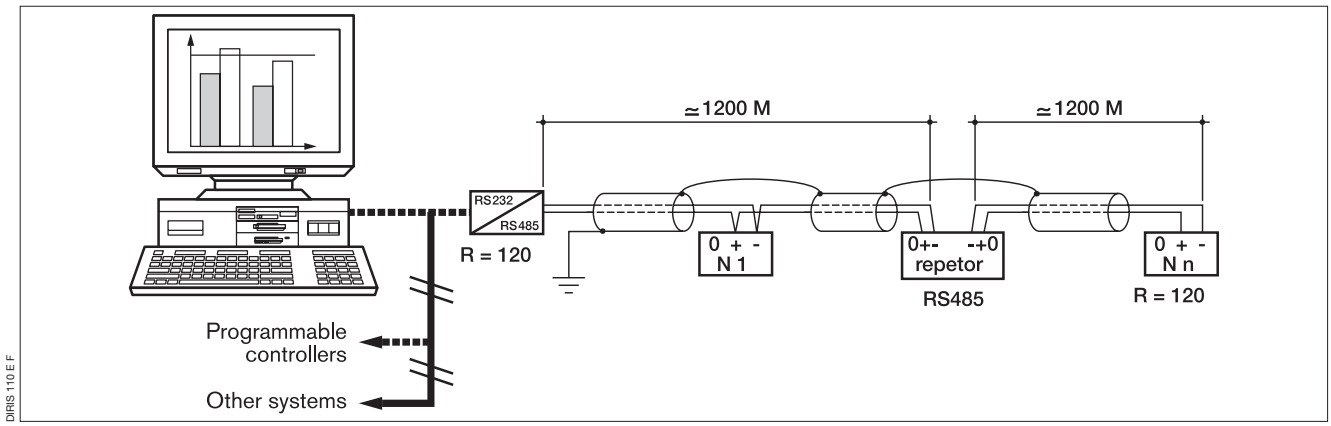
Functions

The optional IP Communication module must be connected to the ***DIRIS A-30/A-41/A-60*** (réf. : 48250402, 48250403, 48250404, 48250405, 48250406). It provides an RS485 serial link (2 or 3 wires) with JBUS/MODBUS® protocol for the use of ***DIRIS A-30/A-41/A-60*** from a PC or PLC.

General points

For a standard configuration, an RS 485 link is used to connect up to 31 ***DIRIS*** or ***COUNTIS Ci*** with a PC or a PLC over a distance of 1200 metres, using JBUS/MODBUS© protocol.





Recommendations:
You should use a shielded twisted pair (LIYCY type). In a disturbed environment or large network (in terms of length) we recommend the use of a shielded twisted pair (type LIYCY-CY).
*A repeater (1 channel) or an arrestor (4 channels) should be used if you intend to exceed the distance (1200 m) and/or maximum number (31) of **DIRIS**. Please contact us for more information.*

NB :
A 120 ohm resistance (found on the additional module) must be fixed at both ends of the link.

Other solutions are available (modem, optical fibre, etc.). Please contact us.

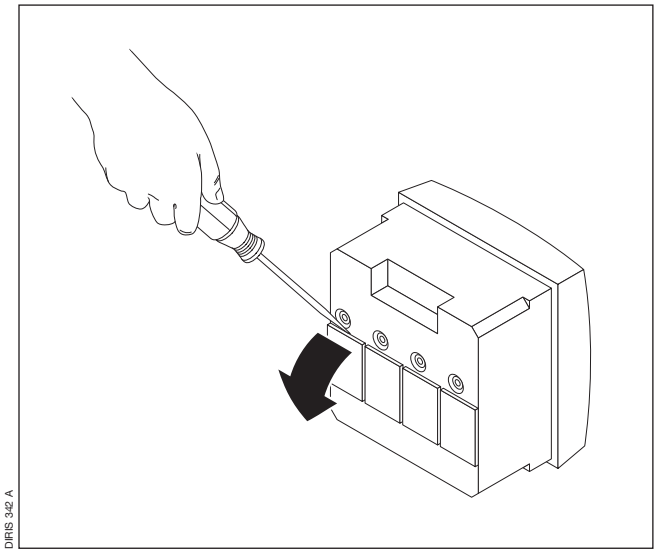
INSTALLATION

CONNECTION

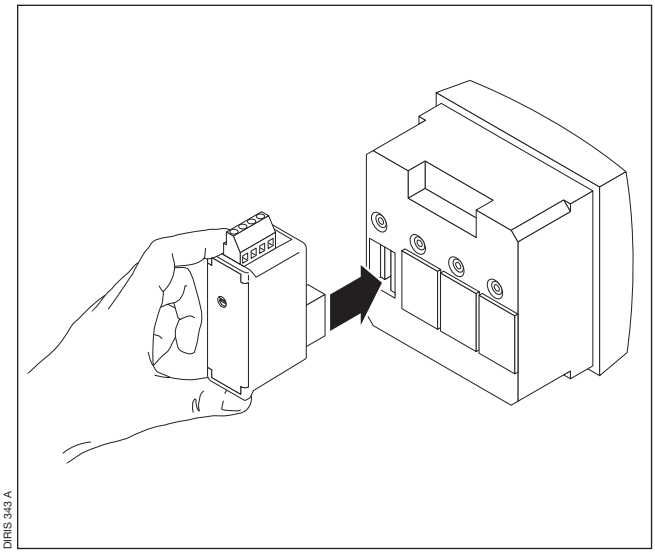
The module is fitted onto the back of the ***DIRIS A-30/A-41/A-60*** in one of the 4 positions provided.

The *DIRIS A-30/A-41/A-60* must be switched off

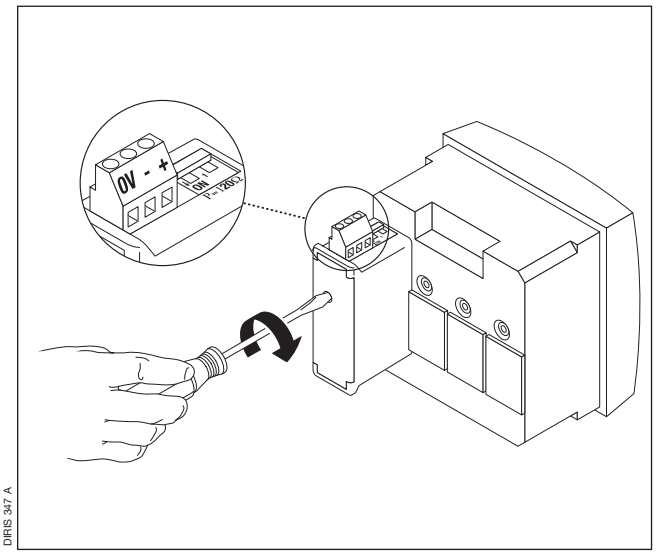
1



2 Fix the module in one of the four positions.

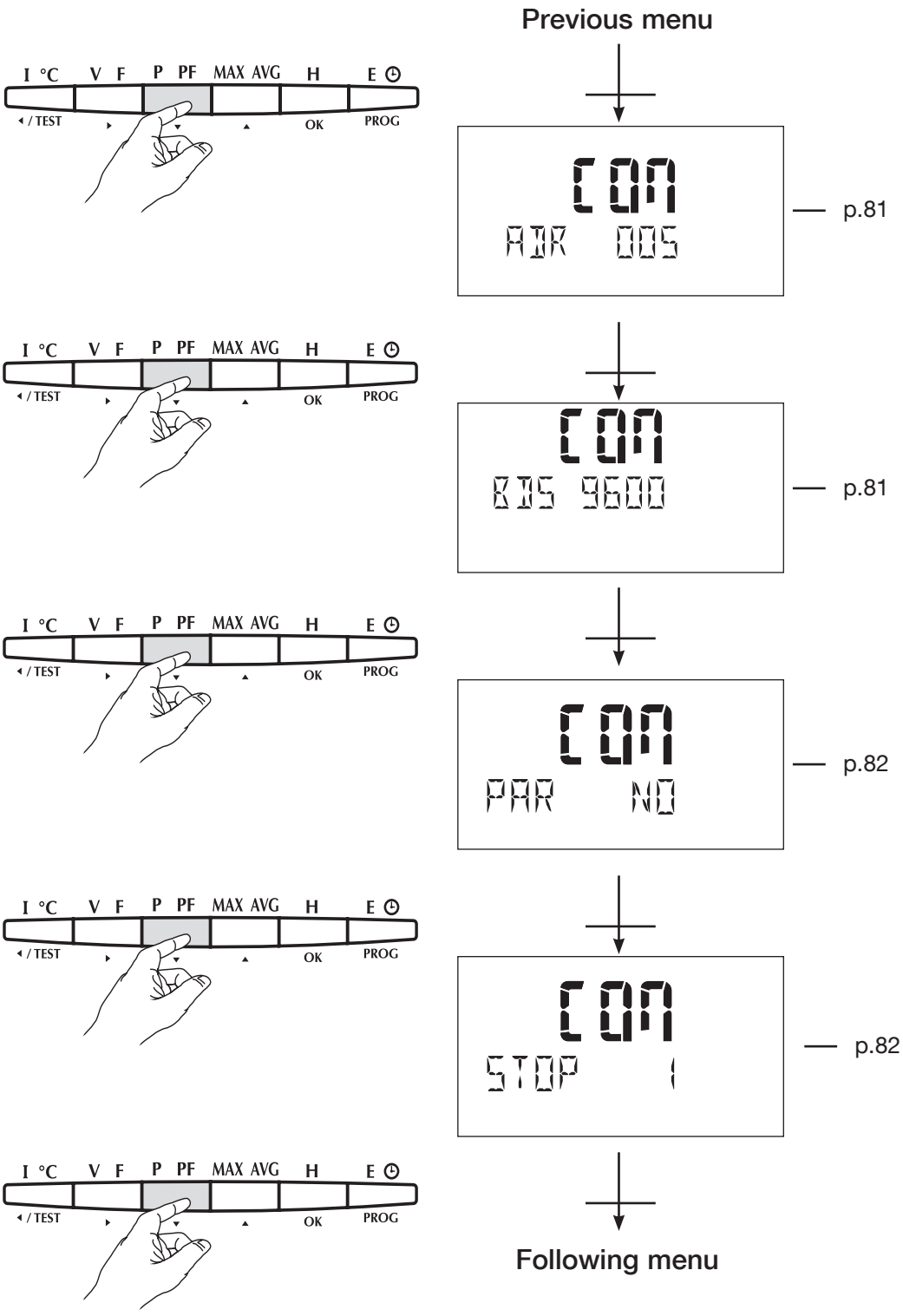


3



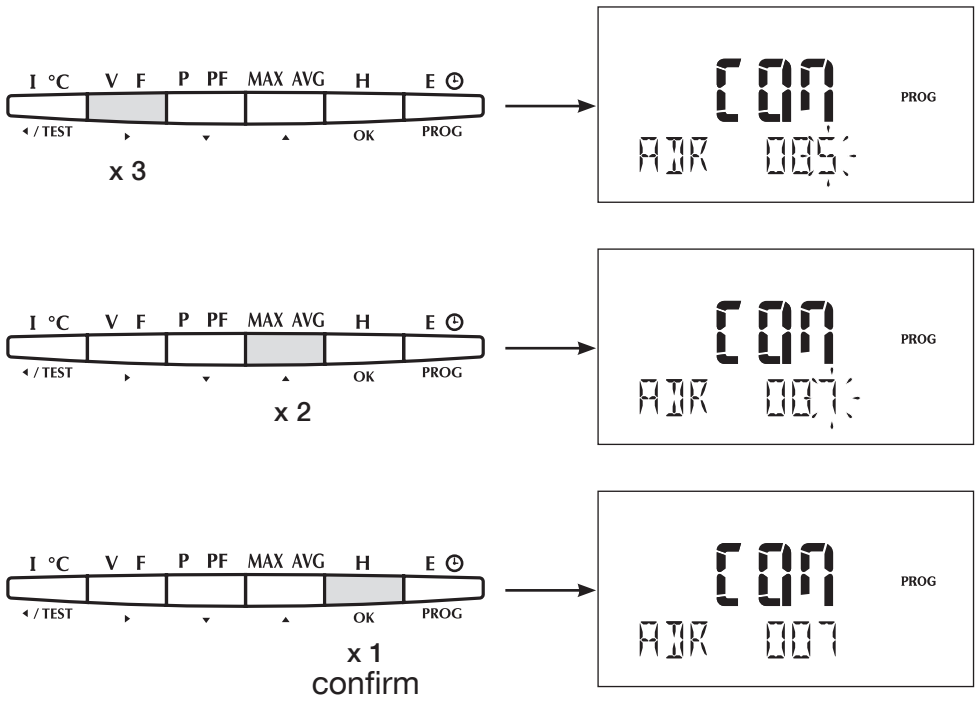
4 Follow indications when connecting the terminal.
Switch on voltage supply.

PROGRAMMING



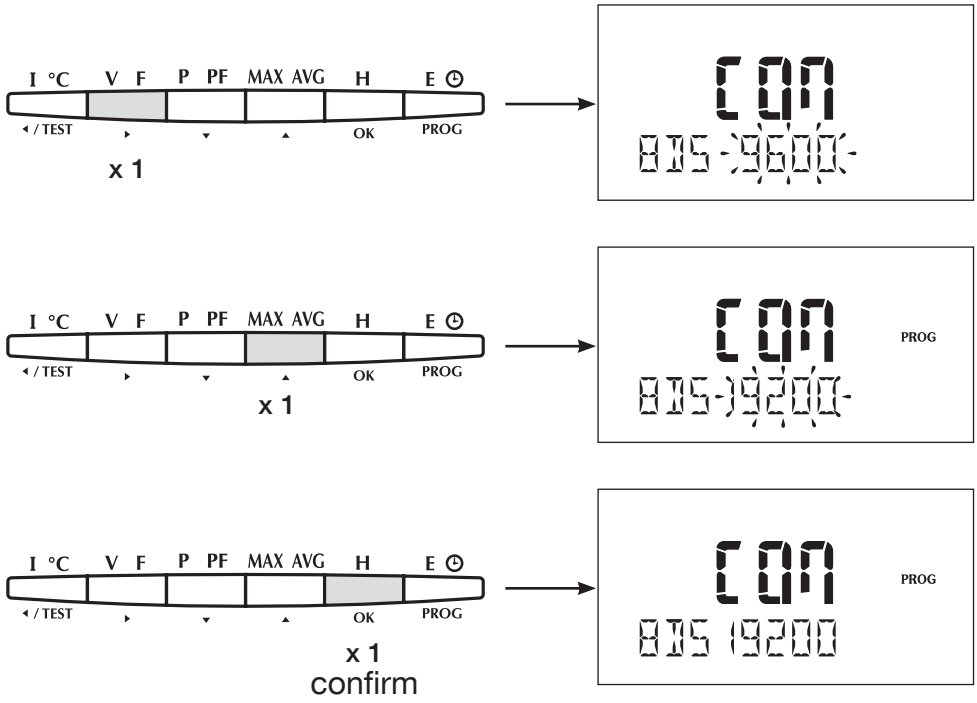
COMMUNICATION ADDRESS

> Example : COM ADR = 7



COMMUNICATION SPEED

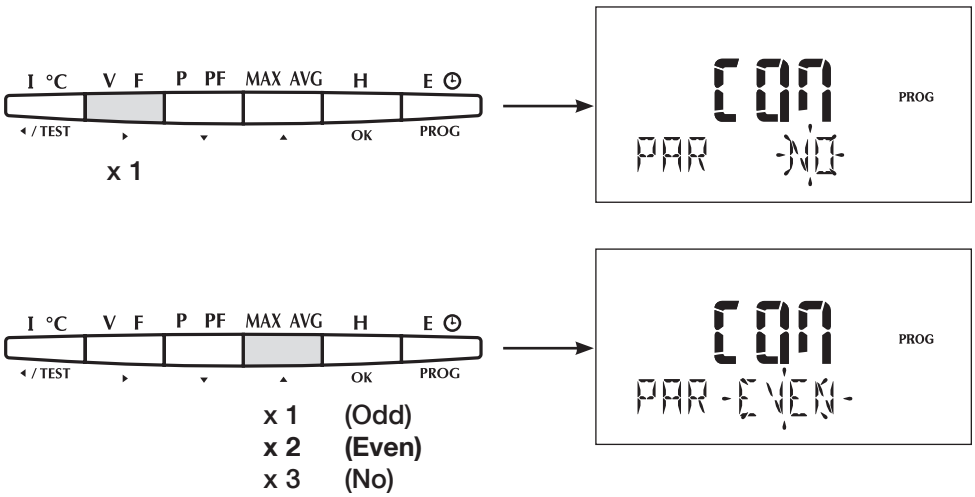
> Example : BDS = 19 200 bauds



PROGRAMMING

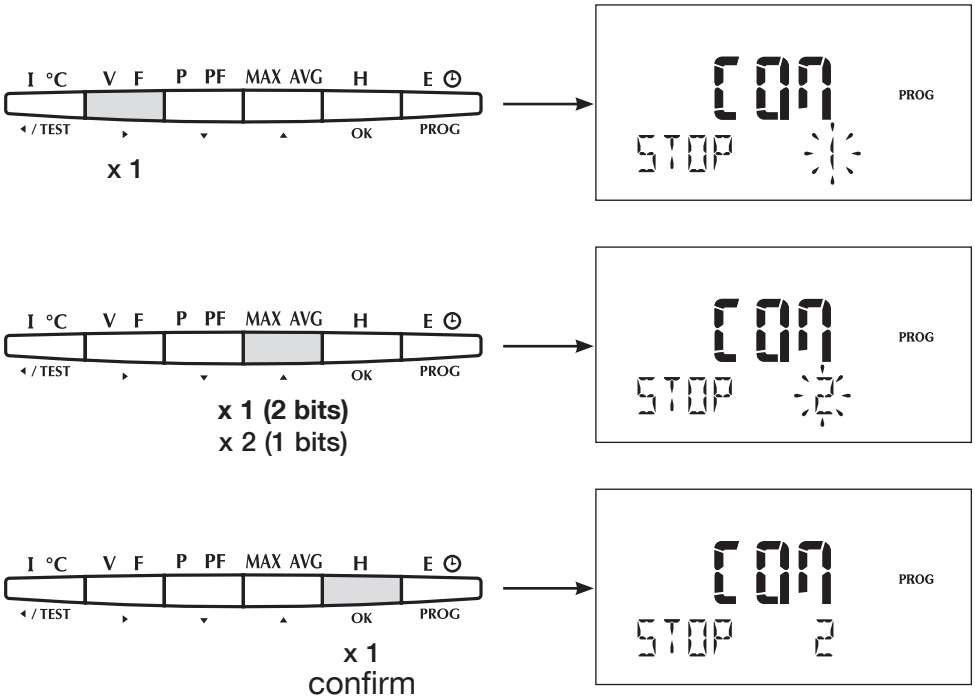
COMMUNICATION PARITY

> Example : PAR = Even



COMMUNICATION STOP BIT

> Example : STOP = 2



COMMUNICATION

The JBUS/MODBUS® used by the ***DIRIS A-30/A-41/A-60*** involves a dialogue using a master-slave hierarchical structure. There are two possible dialogues:

- the master communicates with a slave (***DIRIS***) and waits for its reply
- the master communicates with all the slaves (***DIRIS***) without waiting for their reply.

The mode of communication is the RTU (Remote Terminal Unit) using hexadecimal characters of at least 8 bits.

THE STANDARD COMMUNICATIONS FRAME

The standard communications frame consists of:

Slave address	Function code	Address	Data	CRC 16

According to the JBUS/MODBUS® protocol, transmission time must be less than 3 silences, i.e. the emission time of 3 characters so that the message is processed by the ***DIRIS***.

To correctly use information, the following functions are important:

3 : to read n words (maximum 128).
6 : to write one word.
8 : to diagnose exchanges between the master and the slave via meters 1, 3, 4, 5 and 6.
16 : to write n words (maximum 128).

NB:
When selecting slave address 0, a message is sent to all the instruments present on the network (only for functions 6 and 16).

Comment :
The response time (time out question/answer) is 250 ms maximum

COMMUNICATION

COMMUNICATION TABLE

DIRIS A-30

DIRIS A-41

DIRIS A-60

TECHNICAL CHARACTERISTICS

COMMUNICATION

RS485	2 or 3 wires half duplex
Protocole	JBUS/MODBUS® protocol / RTU mode
Speed	2400 to 38400 Bauds
Galvanic insulation	4 kV

UL - CSA APPROVAL

Standard	UL 61010-1 CSA-C22.2 No. 61010-1
Certificate	UL file No : E257746

GLOSSARY OF ABBREVIATIONS

COM	Communication
ADR	Slave address
BDS	Speed of communication in bauds
PAR	Communication frame parity
NO	Without parity
Even	Even parity
Odd	Odd parity
STOP	Frame-stop beep
1	1 stop bit
2	2 stop bits

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