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CALIBRATION MANUAL OF THE INDICATOR IDÉ 500-I



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IDé V4	IDE_Gb_Reglage 500I_rev02.docx	02

CALIBRATION MANUAL OF THE INDICATOR IDÉ 500-I

Date	Edition number	Object of the modification
11/04/2006	00	Original.
28/03/2013	01	Update for the IDé V4 board.
22/06/2018	02	Addition of the CanMK-MES transmitters.

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1. PRESENTATION OF THE DEVICE

1.1. Technical characteristics

Maximum number of scale divisions (legal for trade)	: 6000.
Sensitivity	: 0.5 μ V.
Power supply of the load cell	: 5V square wave.
Number of measurements / second, (fast)	: 40 to 180.
Load impedance (analog load cells)	: > 50 ohms.

Zero visualized at 1/4 scale division.

Digital adjustment conversational by the front panel.

Power supply 230 V / 50 Hz or 60 Hz + earth < 5 ohms.

DC power supply 12V_{DC}. (Or 24V_{DC} in option)

Power consumption: 15 to 25VA max, according to the configuration.

Internal clock and memory backed up by a battery.

LCD screen 240 pixels by 128 pixels.

Keypad: - 4 metrological Keys used also for the seizures,
- 4 application keys used also for the seizures.

1.2. The peripherals

In standard version the "IDé 500-I" indicator disposes of:

❖ Two serial links:

COM1 : RS232 and/or RS485 2 wires. (Short distances link: 10 meters max.)

COM2 : Passive current loop, or in option: RS232, RS485, 0/10V, 4/20mA, active or passive current loop, Ethernet Modbus TCP. (Long distance link: the maximum length depends of the option board type)

❖ A slave USB interface:

USB : For a communication with a computer. (Short distance link: 3 meters max.)

❖ A parallel interface:

LPT : For the printing through a parallel printer. (Short distance link: 3 meters max.)

❖ An input for the analog load cells:

M1 : Not used.

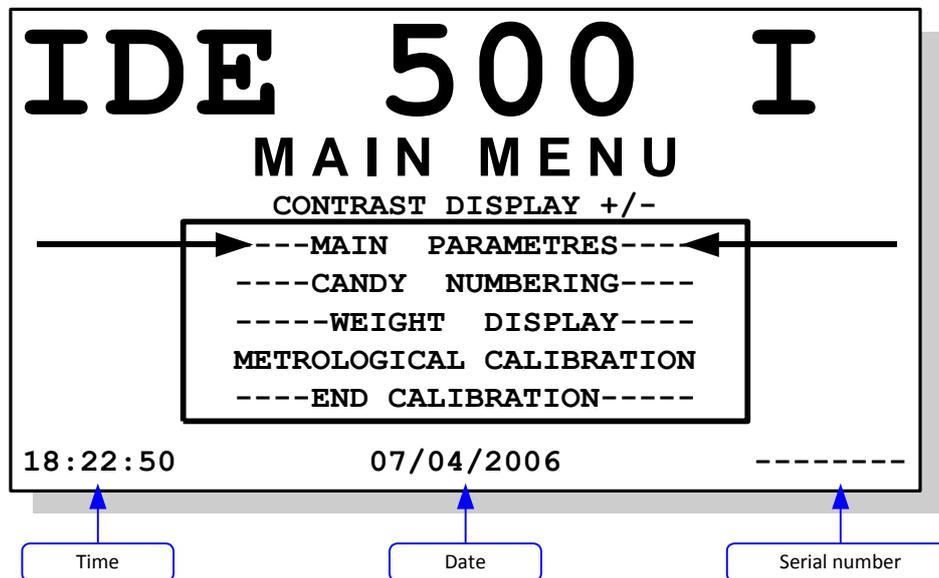
❖ A CAN bus interface:

MASTER CAN : Communication with the transmitters ("CANDY_Ex" and/or "CanMK-MES") and the remote displays. (Long distance link: 500 meters max.)

2. THE FRONT PANEL

2.1. The Displays

The "IDE 500-I" indicator disposes of a graphic LCD display that allows to the operator a great easiness of the system's use.



Example of a display: (the calibration menu)

2.2. The keypad

The "IDE 500-I" is equipped with 8 keys (4 metrological keys and 4 application keys) used for the seizures.

	Main use.	During the seizures. (Menu)
	Implementation of the semi-automatic zero device of the selected channel. (The semi-automatic zero device cancels the tare device)	Shift of the data to be seized of one digit to the right.
	Reminds temporarily the GROSS weight value of the selected channel when a tare has been implemented.	Shift of the data to be seized of one digit to the left.
	Implementation of the tare device of the selected channel with the weight present on the scale.	Resets the value to be seized.
	According to the application.	Validates the seizure.
	Selection of the previous channel.	Returns to the previous seizure. In case of a signed value, it allows the change of the sign.
	Selection of the next channel.	Goes to the next seizure, validates the seizure.
	Increases the display contrast.	Increases the flashing digit by one.
	Decreases the display contrast.	Decreases the flashing digit by one.

3. CALIBRATION MODE



This manipulation must be done by an accredited agent.



The Mode led, which is located inside the indicator, near the buzzer, indicate the mode in progress (See 4.3. *Layout and configuration of the "IDé 500-I" board*)

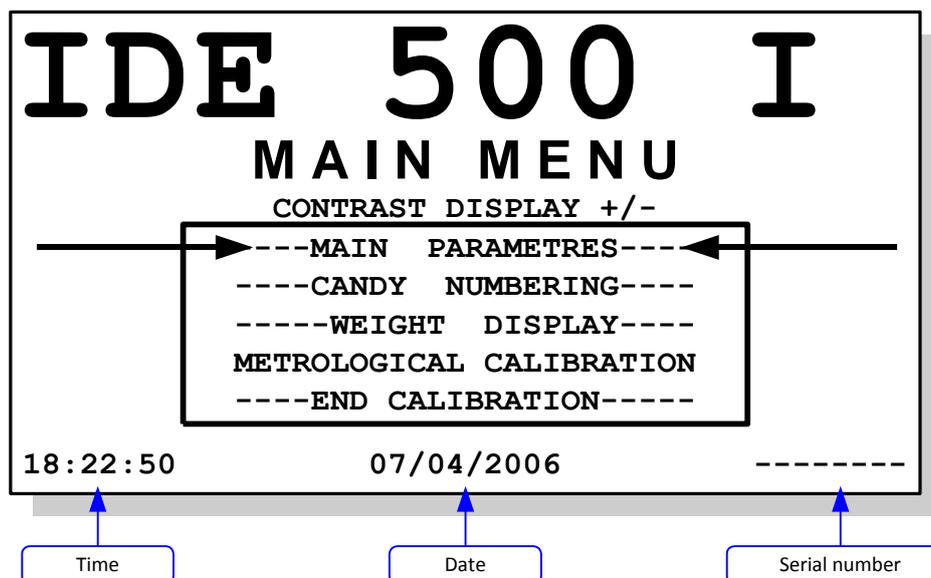
- On ⇒ Normal mode.
- Off ⇒ Calibration mode.

Passage from the normal mode to the calibration mode:

The switching from one mode to the other can be done due to the calibration switch located inside the indicator "IDé 500-I" near the battery. (See 4.3. *Layout and configuration of the "IDé 500-I" board*)

For this, you must proceed as follows:

- Turn off the indicator, then toggle the calibration switch, then turn on the indicator.
- The start-up phases will be displayed "4", "3", "2" then "1 CAL".
- The calibration menu is then displayed:



IMPORTANT: If there is a power failure during the calibration and before the saving is done, all the calibration parameters or values will be lost.



Remarks:

- Use the key  to go to the next function and the key  to return to the previous function.
- The selected function is indicated by the arrows. ( )
- To enter inside the selected function, you must press on the key .
- During the display of this menu, it is possible to adjust the contrast of the display:
 - The key  increases the contrast.
 - The key  decreases the contrast.

3.1. Main parameters

Enter the parameter value of each data and validate with  or . The key  allows returning to the previous seizure, and once you are in the seizure of the first data, it allows quitting the function.

- IDE NUMBER (ARC) : XXXXXXXX** Reserved field for ARPEGE MASTER-K.

- LANGUAGE (0=FR 1=GB) : X** Choose the operating language of the indicator. (Language for calibration mode and for normal mode)
0 = French.
1 = English.

- LEGAL FOR TRADE (0/1) : X** Choose if you want to operate in a legal for trade mode. (Security of 6000 scale divisions and of the zone of the semi-automatic zero activated in the legal for trade mode)
0 = No.
1 = Yes.

- CHANNELS NUMBER (CANDY) : XX** Enter the number of channels (number of "CANDY_Ex" and/or "CanMK-MES" transmitters) required, from 1 to 12.

- NET WEIGHT (0/1) : X** Choose and validate if you want the NET weighing or no.
0 = The NET weighing is not authorized. (Always in GROSS)
1 = The NET weighing is authorized.

- DAY : XX** Enter the day for the date's update. (07 for the 7th of April 2006)
- MONTH : XX** Enter the month for the date's update. (04 for the 7th of April 2006)
- YEAR : XXXX** Enter the year for the date's update. (2006 for the 7th of April 2006)

- TIME : XX** Enter the hours for the time's update. (18 for 18h22min50s)
- MINUTE : XX** Enter the minutes for the time's update. (22 for 18h22min50s)

3.2. CANDY Ex (CanMK-MES) Numbering

Serial No	Cha .	Gross W .
0 5 1 0 0 0 3 3	0 1	4 8 2 . 4 0 k g
0 5 1 0 0 0 3 4	0 2	0 . 0 k g
0 5 1 0 0 0 3 5	0 3	0 . 0 k g
0 5 1 0 0 0 3 6	0 4	1 . 0 0 0 k g
0 5 1 0 0 0 3 7	0 5	7 0 . 0 0 k g
0 5 1 0 0 0 3 8	0 6	5 0 . 0 0 k g
0 5 1 0 0 0 3 9	0 7	1 5 . 0 0 k g
0 5 1 0 0 0 4 0	0 8	6 0 0 0 k g
0 5 1 0 0 0 4 1	0 9	8 . 0 k g
0 5 1 0 0 0 4 2	1 0	7 . 0 k g
0 5 1 0 0 0 4 3	1 1	9 . 0 k g
0 5 1 0 0 0 4 4	1 2	1 . 0 k g

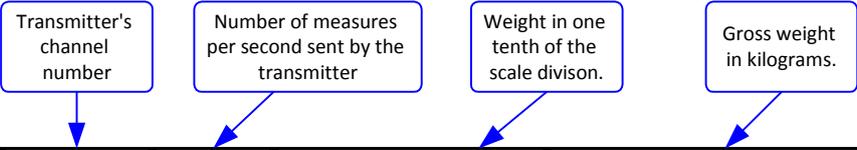
Example of a display with 12 channels:

This function allows changing the number of a channel. For this, you must:

- Choose the channel to be modified and validate with , (Displacement due to the keys  and , the selected channel is indicated by the arrows   .
- The message "NEW ADDRESS : XX (01...12)" will be displayed at the bottom of the screen display, enter the new number to be assigned to the channel (from 01 to 12) and validate.
- The chart is updated.
- To quit this function, you must press on the key .

Remark: PAY ATTENTION not to keep two channels with the same number, this will cause operating problems.

3.3. Display of the weights



Cha .	m / s	Pts	Gross W .
1	62	3410.8	341.1 kg
2	62	- 168.6	- 3.38 kg
3	0		Err
4	0		Err
5	0		Err
6	0		Err
7	0		Err
8	0		Err
9	0		Err
10	0		Err
11	0		Err
12	0		Err

Example of a display with two channels:

This function allows visualizing the weight (Gross weight, weight in 1/10th scale division and the number of measurements per second) for each channel. It is possible to execute the three operations cited above on the selected channel:

Keys	Operations.
	Implementation of the semi-automatic zero device of the selected channel. (The semi-automatic zero device cancels the tare device)
	Reminds temporarily the GROSS weight value of the selected channel when a tare has been implemented.
	Implementation of the tare device of the selected channel with the weight present on the scale.

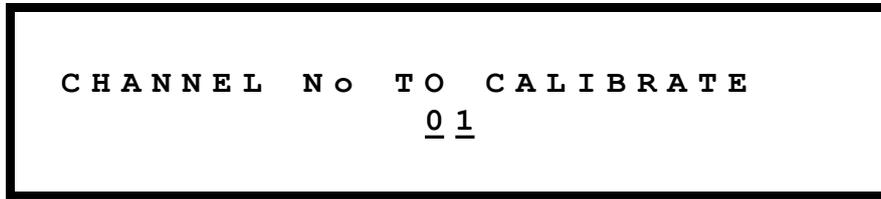
Remarks:

- Displacement due to the keys  and , the selected channel is indicated by the arrows  .
- To quit this function, you must press on the key .

3.4. Metrological calibration

This function allows accessing to the calibration menu of one of the channels. (Access to the calibration menu of a "CANDY_Ex"/"CanMK-MES" transmitter)

Once this function is validated, the following message will be displayed:



Enter the number of the channel to be calibrated and validate with . The message "READING EEPROM : XXX" with "XXX" that gets incremented will be displayed during the reading of the transmitter's parameters by the "IDé 500-I" indicator, then you will get the following display:

Weight on 6 digits of 15mm height.

Indicates that the weight displayed is stable : ~ or a center of zero at 1/4 scale division : →0←

Indicates the weight unit: kg or t

Indicates the type of the displayed weight : gross (B) or net (N)

Indicates that the data displayed is a DATA.

Channel number under calibration.

Calibration menu of the channel.



IMPORTANT: If there is a power failure during the calibration mode before the saving is done, all the calibration parameters and values will be lost.



Remarks:

- Use the key to go to the next function and the key to return to the previous function.
- The selected function is indicated by the arrows. ()
- To enter inside the selected function, you must press on the key .
- Use the key to get the weight display in 1/10th scale divisions.
- Use the key to get the weight display in kilograms.

3.4.1. Parameters

Enter the value of the parameters for each data and validate with  or . The key  allows returning to the previous seizure, and once you are in the seizure of the first data, it allows quitting the function.

RANGE	(kg) : XXXXXXX	Enter the value of the required range.
DIVISION	(kg) : XXX.XXX	Enter the required value of the scale division. (Multiple of 1, 2, 5)
IMMOBILITY	X.Xe : X.X	Adjust the immobility zone. (According to the installation conditions of the scale)
No IMMOB. MEASURES	: XX	Determine the speed to obtain the immobility.
TRACKING ZERO	0/1 : X	Choose if you want the zero tracking yes or no. 0 = No. 1 = Yes.
FILTER	(0..9) : X	Adjust the value of the measurement filtering. (A filter set to zero means that the measure is not filtered and a filter set to 9 means that the filter is set to its maximum.)
No MEASURES/SECOND	: XX0	Enter the required number of measurements per second, from 10 m/s (010) to 180 m/s (180).
INPUT RANGE	1/2 : X	Enter the required input range value of the analog to digital converter. 0 = Range by default. (20 mV) 1 = 10 mV range. 2 = 20 mV range.

When you leave this function, the message "**WRITING EEPROM : XXX**" with "XXX" that gets incremented will be displayed during the saving of the transmitter's parameters on the "IDé 500-I" indicator.

3.4.2. Zero calibration

Before validating this function, verify the load cells connection, the state of the load receptor. (Scale, weighbridge, hopper...)

The load receptor being empty and clean, you may validate the zero calibration operation.

During this operation, the message "**ZERO IN PROG.**" will be displayed.

The period of time needed for this operation depends of the period of time necessary to obtain a stable measure, so no vibration is allowed... or a calm weather is required for the outdoor scales.

3.4.3. Gain calibration

Before validation this function, you must have already done a zero calibration.

Put the standard masses on the load receptor then validate the gain calibration operation. The following message will be displayed:

S T D . M A S S V A L U E : 0 0 0 0 0 . 0 k g

Enter the value of the sum of the standard masses then validate.

During this operation, the message "**GAIN IN PROG.**" will be displayed.

The period of time needed for this operation depends of the period of time necessary to obtain a stable measure, so no vibration is allowed... or a calm weather is required for the outdoor scales.

Remarks:

- A high quality calibration requires having the standard masses values close to the maximum range value of the scale.
- This operation can be repeated as many times as you want without unloading the masses.

3.4.4. End of Span correction

This function allows realizing a slight correction on the span. (Gain of the system)

It allows compensating the variation of the « g » factor (gravity) according to the utilization site of the complete instrument.

During the control of the scale, you may remark a slight delay or advance at the maximum load, so you may correct this error due to this function.

Validate the function, the following message will be displayed:

CORRECTION VALUE : - 0 0 . 0 P t s

Enter the value of the correction, validate again.

Verify the result of the correction by visualizing the weight display.

Remark: If the minus sign is displayed in front of the data, the correction will be a negative one. There will be no sign for a positive correction. (You may change the sign due to the key )

3.4.5. End of the calibration of the channel

Once the function of the end of the calibration of a channel is validated, the system asks if you want yes or no to save the parameters already entered:

CONFIRM THE SAVING
Key VAL = YES
Key EFF = NO

To start the saving, you must press on the key  and to quit without saving you must press on the key . The messages "SAVING IN PROGRESS" and "WRITING EEPROM : XXX" with "XXX" getting incremented will be displayed during the time of the saving (around 5 seconds) and then you will get a summary of the parameters of the channel.

To return to the calibration menu, you must press on any key.

3.5. End of calibration

Once the function of end of calibration is validated, the system asks if you want yes or no to save the parameters already entered:

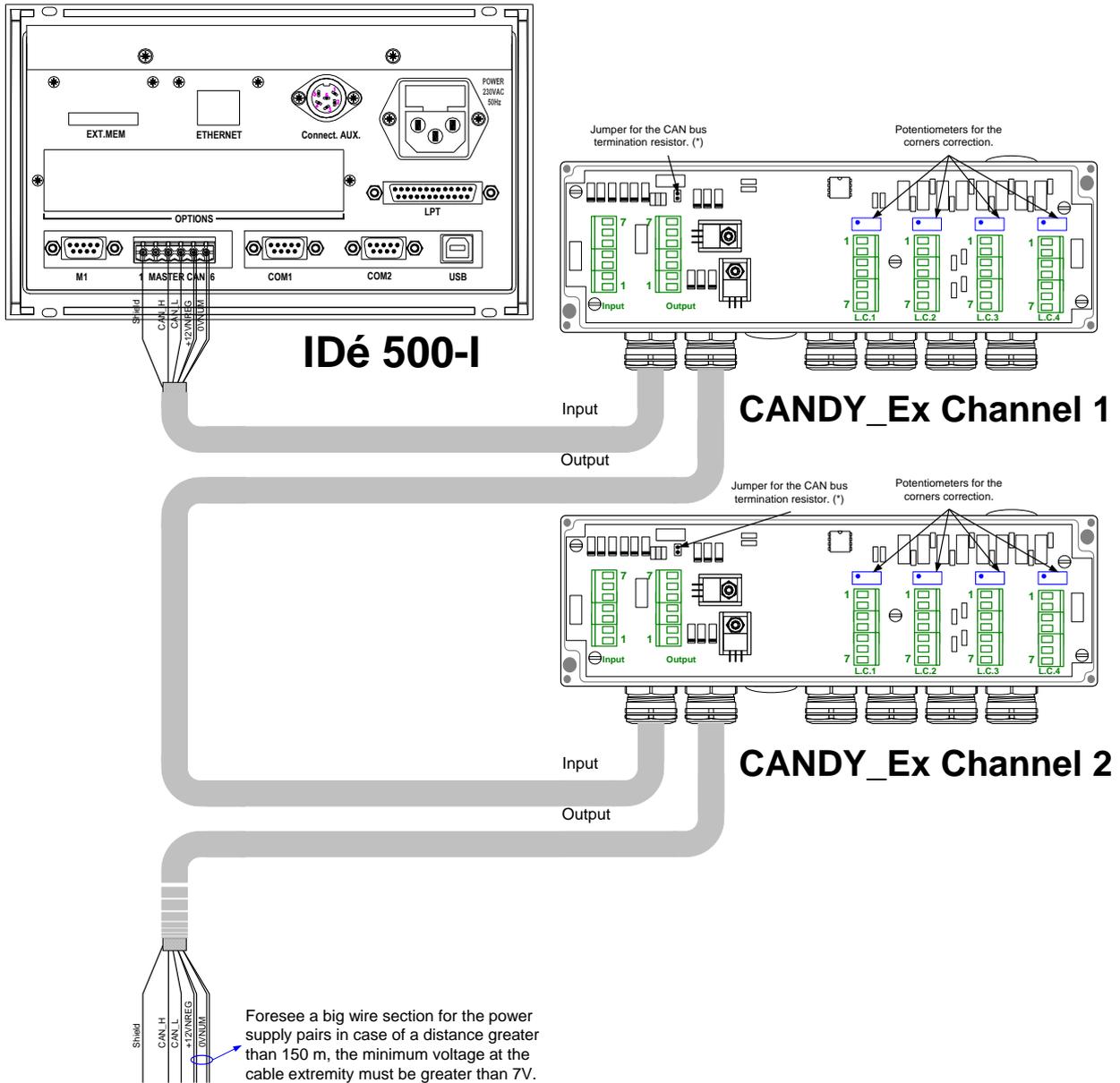
CONFIRM THE SAVING
Key VAL = YES
Key EFF = NO

To start the saving, you must press on the key  and to quit without saving you must press on the key . The message "SAVING IN PROGRESS" will be displayed during the time of the saving (around 5 seconds) and then the message "STRAP I1 OFF" will be displayed requiring that you must return the calibration switch to its initial position. (Normal mode position)

Once the switch is returned to its initial position, the indicator restarts in the application mode.

4. APPENDICES

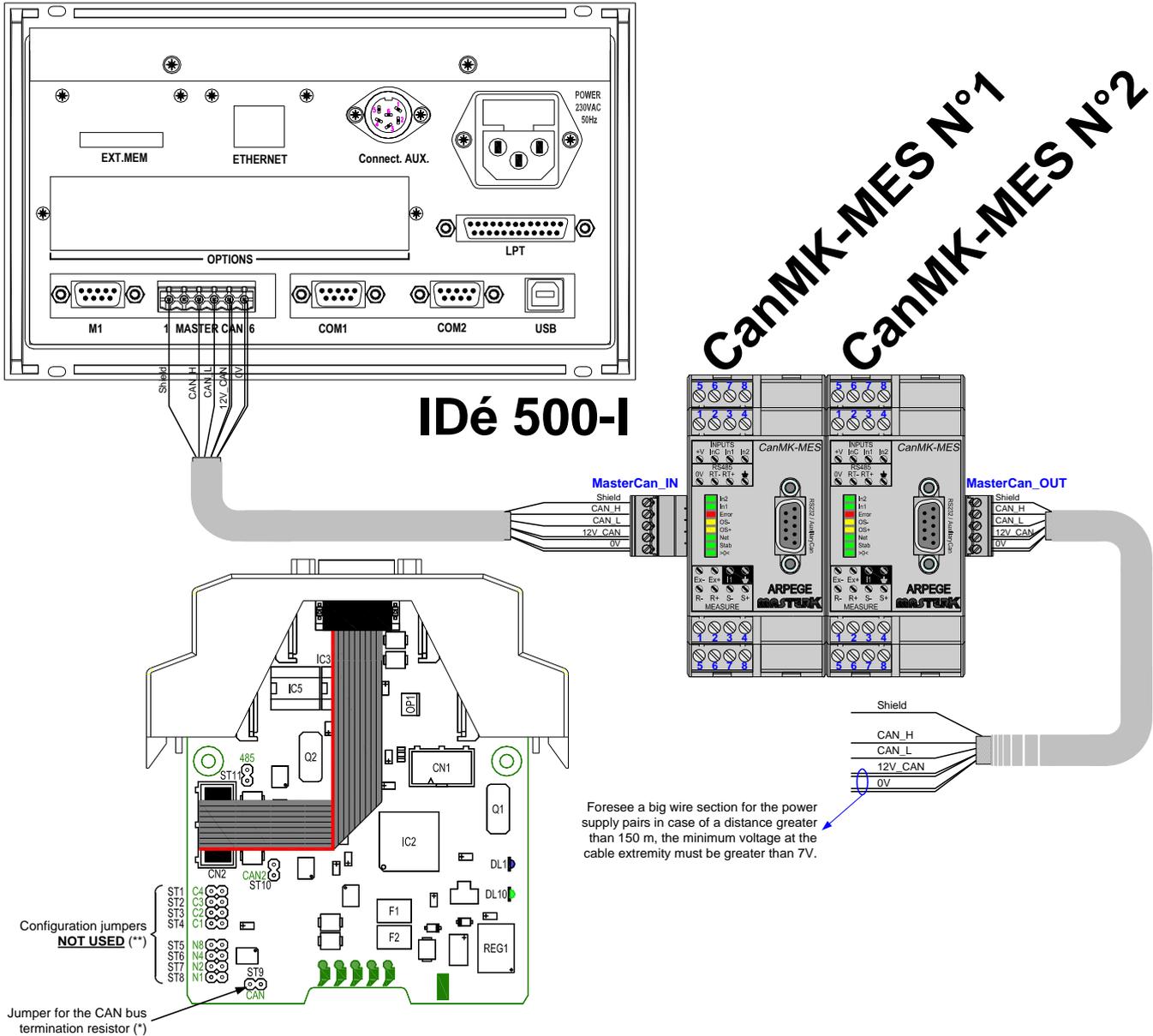
4.1. Bus Connection "IDé 500-I"/"CANDY Ex"



(*): You must put a termination resistor on the last "CANDY_Ex" (ST1) to polarize the Can bus properly.

Marks of the Sockets		IDE 500-I Connector	CANDY_Ex Connectors					
			Input	Output	Load cell N°1	Load cell N°2	Load cell N°3	Load cell N°4
N° of the pin	1	⏏	⏏	⏏	A+	A+	A+	A+
	2	N.C.	+12VNREG	+12VNREG	R+	R+	R+	R+
	3	CAN_H	0VNUM	0VNUM	A-	A-	A-	A-
	4	CAN_L	CAN_H	CAN_H	R-	R-	R-	R-
	5	+12VNREG	CAN_L	CAN_L	M+	M+	M+	M+
	6	0VNUM	+12VNREG	+12VNREG	M-	M-	M-	M-
	7		0VNUM	0VNUM	⏏	⏏	⏏	⏏

4.2. Bus Connection "IDé 500-I"/"CanMK-MES"

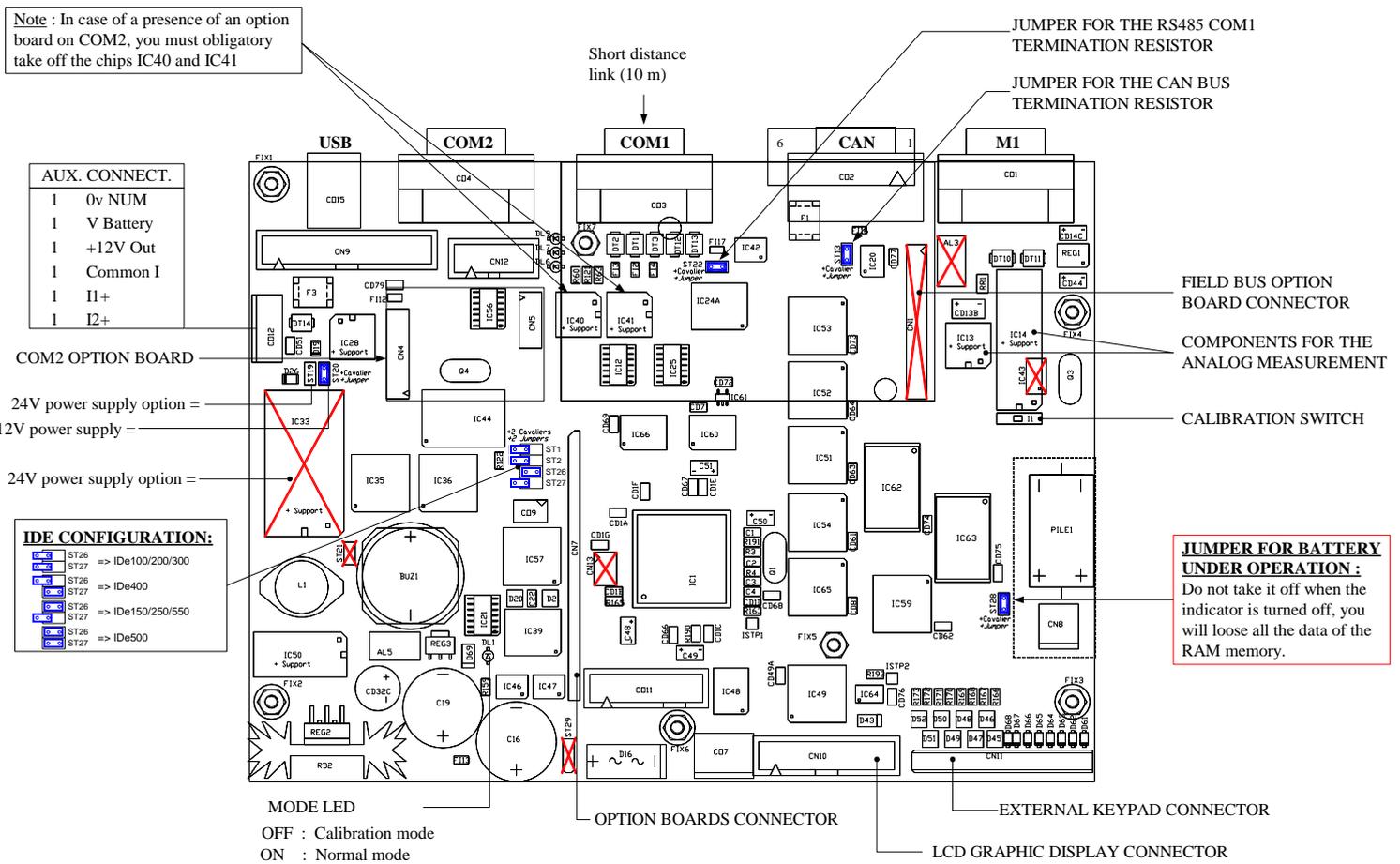


(*): You must put a termination resistor on the last "CanMK-MES" (ST9) to polarize the Can bus properly.

(**): You must **REMOVE ALL configuration jumpers** to operate with the IDé 500-I indicator.

Marks of the Sockets		IDE 500-I Connector	CanMK-MES Connectors			
		MASTER CAN	MasterCan_IN	MasterCan_OUT	INPUTS / RS485	MEASURE
N° of the pin	1	⏏	⏏	⏏	0V	Ex-
	2	N.C.	CAN_H	CAN_H	RxTx- (RS485)	Ex+
	3	CAN_H	CAN_L	CAN_L	RxTx+ (RS485)	N.C.
	4	CAN_L	+V	+V	⏏	⏏
	5	+12VNREG	0V	0V	+V	R-
	6	0VNUM			InC (inputs common)	R+
				Input In1	S-	
				Input In2	S+	

4.3. Layout and configuration of the "IDé 500-I" board



4.4. Error messages

Message : **Designation :**

SUPL Power supply problem.

SERI N Problem with the serial number of the transmitter.

COM Communication problem with the transmitter.

REF Error on the measurement input channel of the transmitter.

HE Error scale overflow.

HE- Error scale underflow.

HG Error converter range overflow.

HG- Error converter range underflow.

Actions / Solutions :

Too low or too high voltage, verify the voltages of the power supply.

You must remake a zero calibration.

You must control the cabling, the connections.

Verify that the load cell cable is connected properly.

Scale overflow on the transmitter.

Weight under zero on the transmitter.

Overflow of the converter capacity of the transmitter.

Underflow of the converter capacity of the transmitter.

