REPEATER

SERIE IPE 50

User manual to use these units in mode Repeater or Master
(valid from version 07.05)

INDEX

1 INTRODUCTION

The purpose of this manual is to help the user get to know the weight indicator's various functioning modes, the keys' functions and the display indications

We advise to carefully follow the instructions for programming the weight indicator; by taking actions not indicated this manual, one could cause the scale to not work properly.

In addition to having all the characteristics of a high precision scale, the indicator has the kg/lb conversion function, the gross weight / net weight conversion, set point on gross weight or net weight, in/out weigh, repeater in r.f. transmission, alibi memory, hold function, peak detector, weighs totaliser and piece counter.

The indicator adapts to normal weighing applications in either industrial settings, such as during factory production processes, or that of commerce, such as legal for trade applications, also satisfying the frequently needed ability to transmit and print the data through its two bidirectional serial ports.

This manual has been made as carefully and exactly as possible; in any case, your suggestions are always welcome.

⚠ WARNING ⚠

Any attempt to repair or alter the unit can expose the user to the danger of electric shock and it will void our warranty. This instrument is covered under warranty provided that **IT HAS NOT BEEN OPENED BY THE USER** for any reason. If any problem with the unit or system has been experienced please notify the manufacturer or the dealer from which the instrument was acquired.

Do not pour liquids on the indicator!
Do not use solvents to clean the indicator!
Do not expose instrument to either direct sun light or any heat sources!
Always mount the indicator and platform in a vibration free setting!
Read carefully & apply what described in the POWER SUPPLY & START-UP section!
Do not install in an environment with any risk of explosion!

2. MAIN TECHNICAL SPECIFICATIONS

POWER SUPPLY 12 to 24Vdc / 3.6 W max (110/220Vac for IPE50XLR)
OPERATING TEMPERATURE From -10 to +40 °C (14 to 104 °F).
DISPLAY 6 digits, 13 millimetres high
STATUS INDICATIONS 6 LEDS
KEYBOARD water resistant polycarbonate membrane keys with tactile and acoustic feedback.
SERIAL OUTPUTS (1) RS232 and (1) RS485 bi directional configurable for connection to PC/PLC, printer, repeater.
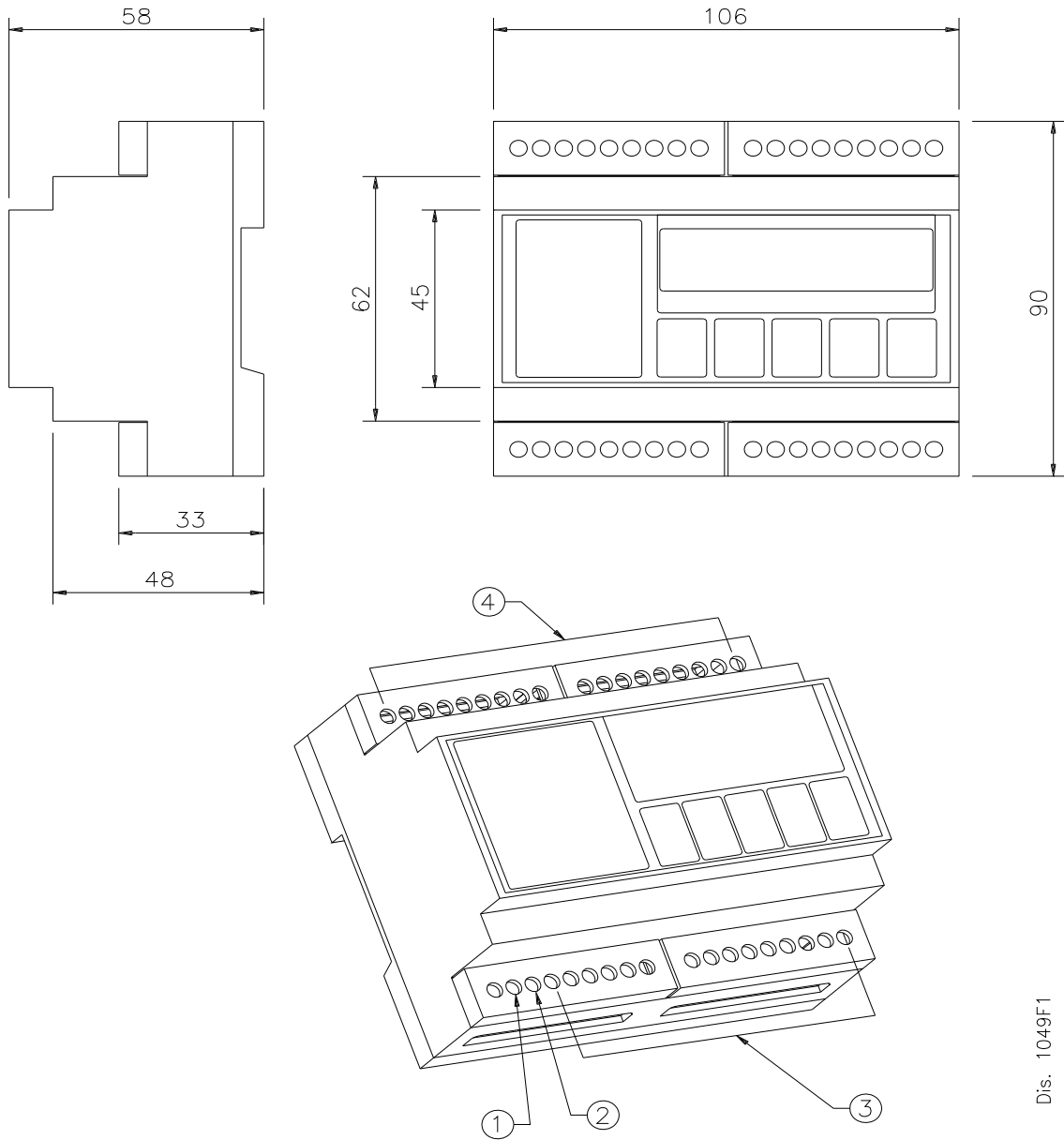
3. DIMENSIONS :

IPE50 PANEL
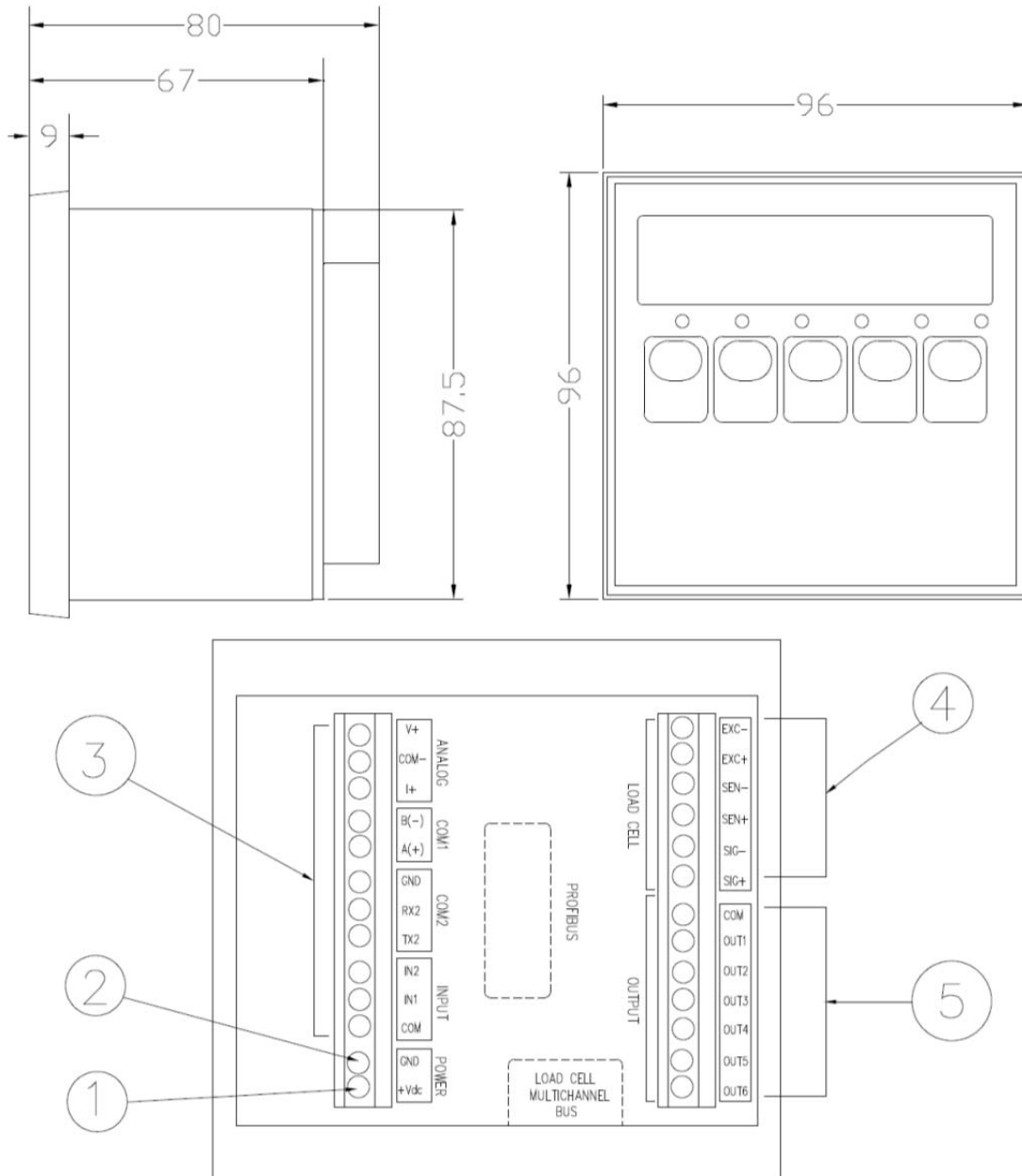
1 and 2   power supply (12 to 24Vdc)
3   connection RS232 and 485
4   NU
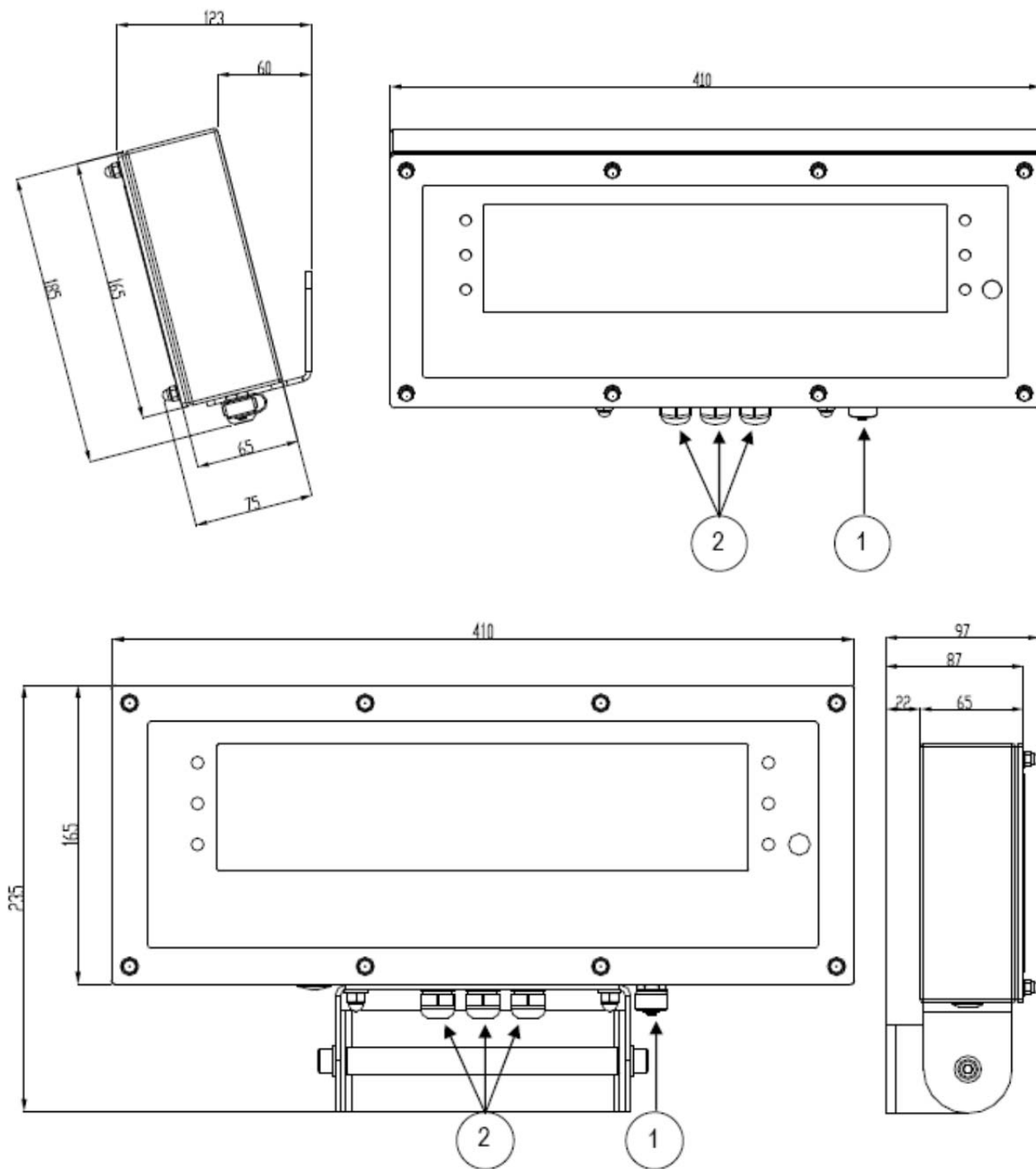5   relays output contacts (6 relays in option)

IPE 50 DIN

Dis. 1049F1

1 and 2 Power supply (12 to 25Vdc)
 3   connection of the 2 contacts of the relays and RS232 and 485
 4   NU

IPE50 XLR

1 : gland for power supply connection 110/220Vac
2 : gland for serial communication connection

4 POWER SUPPLY & START UP

Do not connect other equipment to the same socket as the one that the adapter is in.
Do not step on or crush the power supply cable

Power supply for IPE50 is from 12 to 25Vcc (except IPE50XLR)

The display shows in sequence:

|	
07.xx	indicate the version of software if you press the key ->0<-
09.01	09 indicate the type of unit, 01 indicate the metrological software version
XX.YY.ZZ	version of the installed software
DGTM	name of software

TO stand by the IPE50, keep the C key pressed until the - OFF – message appears on the display; then release the key.
Press the C key to restart the unit.
To TURN OFF the IPE50, switch off the power supply

IPE50 FRONT PANEL KEYS AND INDICATORS

The front panel of the indicator is designed for quick but simple weighing applications. It consists of an LED display with 6 digits 13 mm in height, 6 LED indicators and a keyboard 5 function keys.
.
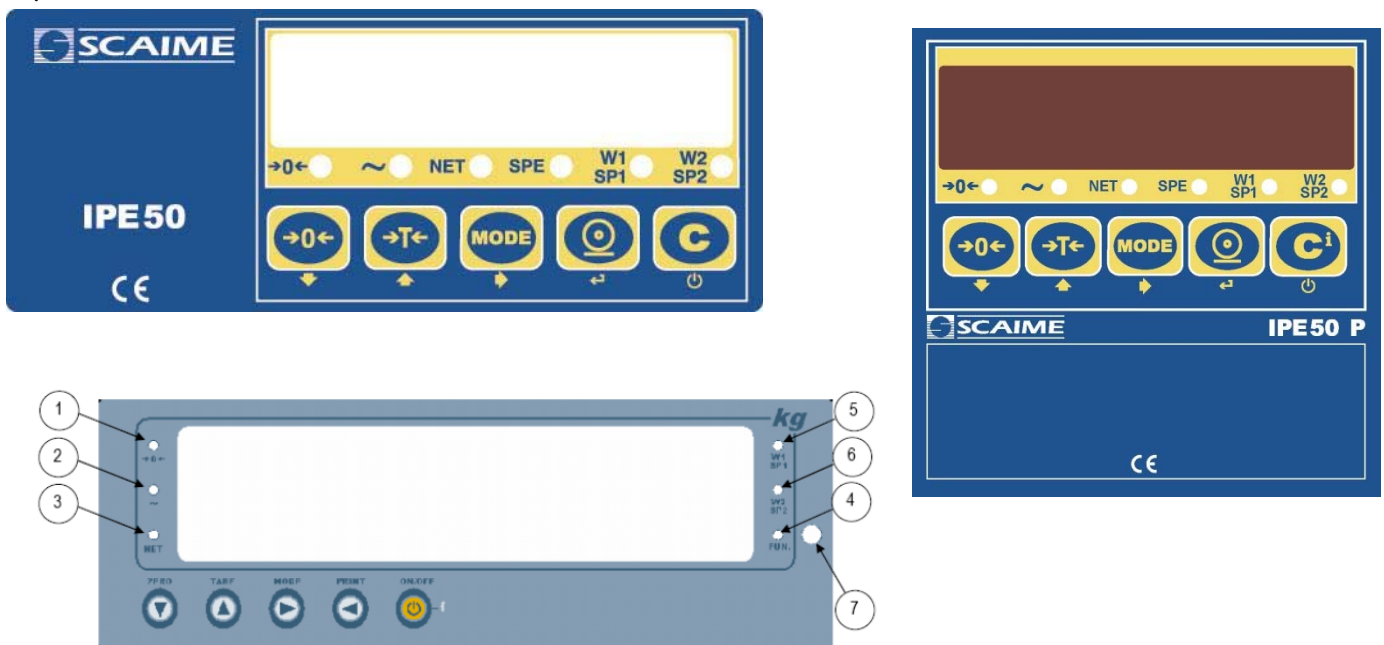
LED	FONCTIONS
->0<-	Indicates that the weight detected on the weighing system is near zero, within the interval of –1/4 to +1/4 of the division.
~	Indicates that the weight is unstable.
NET	Indicates that the displayed weight is a net weight.
SPE	Indique que l'IPE50P est dans un mode de fonctionnement particulier
W1/ SP1 ou W2 / SP2	W1 or W2 show the functioning with 2 weighing ranges SP1 or SP2 Indicates that the relay 1 or 2 has been enabled.

Available in mode Master only

SCALE KEY	FUNCTION
→0←	- Zeros the displayed gross weight, if is within +/- 2 to 50% of the total capacity. (2% max in trade mode) - Cancels the negative tare value.
→T←	- If pressed for an instant it carries out the semiautomatic tare. - If pressed at length it allows entering the manual tare from keyboard. - Cancels the negative tare value. - In the numeric input phase it increases the digit to be modified.
MODE	- It carries out a specific function of the operating mode set in the set-up environment. - In the numeric input phase it selects the digit to be modified, from left to right.
◎	- It carries out a specific function of the operating mode set in the set-up environment. - In the numeric input phase, it confirms the entry made. - In the SET-UP, it allows to enter a step or to confirm a parameter within a step. - It transmits the data from the serial port dedicated to the printer.
C	- It turns the instrument in the mode stand by. - In the numeric input phase, it quickly zeros the present value. - In the set-up environment, it allows to exit a step without confirming the change made. - Cancel a tare

5 FUNCTIONS

Nota :
To enter the SET-UP environment of the scale, switch on the unit and press the ->T<- key for an instant during the countdown.
To leave the setup environment, press the C key many times until the indicator shows "SAVE? on the display, confirm with ↵ to memorize and return to display mode.

    ->0<-   Decreases the selected digit (blinking) or go down.
    ->T<-   Increases the selected digit (blinking) or go up.
    MODE   Selects the digit to be modified (blinking), from left to right.
     C   Quickly zeros the displayed value or comes back on the step before.
    Valid the new value by pressing the key ↵.

Repeater mode (F.ModE -> FunCT. -> REPE)
This unit will be used to show the display of another IPE or IPC50.
It shows the same display and information (LED) than other unit.
Menu:
F.MoDE -> FunCT. -> REPE
PC SEL ->   CoM1 / 485 (RS485 transmission) ou CoM2 / 232 (RS232 transmission)

CoM.PC ->   PCModE   rEPE.6
                    bAud   4800

bit	n-8-1	
	RS232	RS485
Add.En	no	no
Ad485	/	/
t.out	00.5	00.5

Setup of the l'IPE50 or IPC50 which is the weighing indicator.

menu SEtuP -> SEriAL

PC SEL -> if RS232 transmission, choose CoM1or RS485   if RS485 transmission, choose CoM2 or RS232

CoM.Prn ->	Pr.ModE	rEPE.6		Pr.ModE	rEPE.6
	bAud .Pr	4800		bAud .Pr	4800
	bit.Pr	n-8-1		bit.Pr	n-8-1

Master mode (F.ModE -> FunCT. -> MAStr)

This unit connected to a network with another IPE50 (4 units max), will be the master. It will be possible to read the display of each slave IPE50 and the sum of the slaves (key MODE to select the unit to read, 1 clic to select the IPE to read (ex:SCA 1) and a long press to read the sum (SuM).

The keys will have the same function and the LED will run as the slave (not if sum if displayed).

It is possible to use the 2 outputs (setpoints). To change the value of the setpoint, press twice quickly on the key MODE. SLAVE is displayed, press ↓ to select SET.Pnt, press PRINT/ENTER -> S1.0n, press ENTER and modify the value of the setpoint, press ENTER (S2.on is displayed if you use 2 setpoints).

Press key C to display the weight.

Menu :

F.MoDE -> FunCT. -> MAStr

numSL -> enter the number of slaves IPE50 connected to the network (1 to 32) confirm with ↵

LiStenc-> yes or no, select no for the master, another IPE50 unit could be connected to this network and will be used in repeater, select for these ones no, confirm with ↵

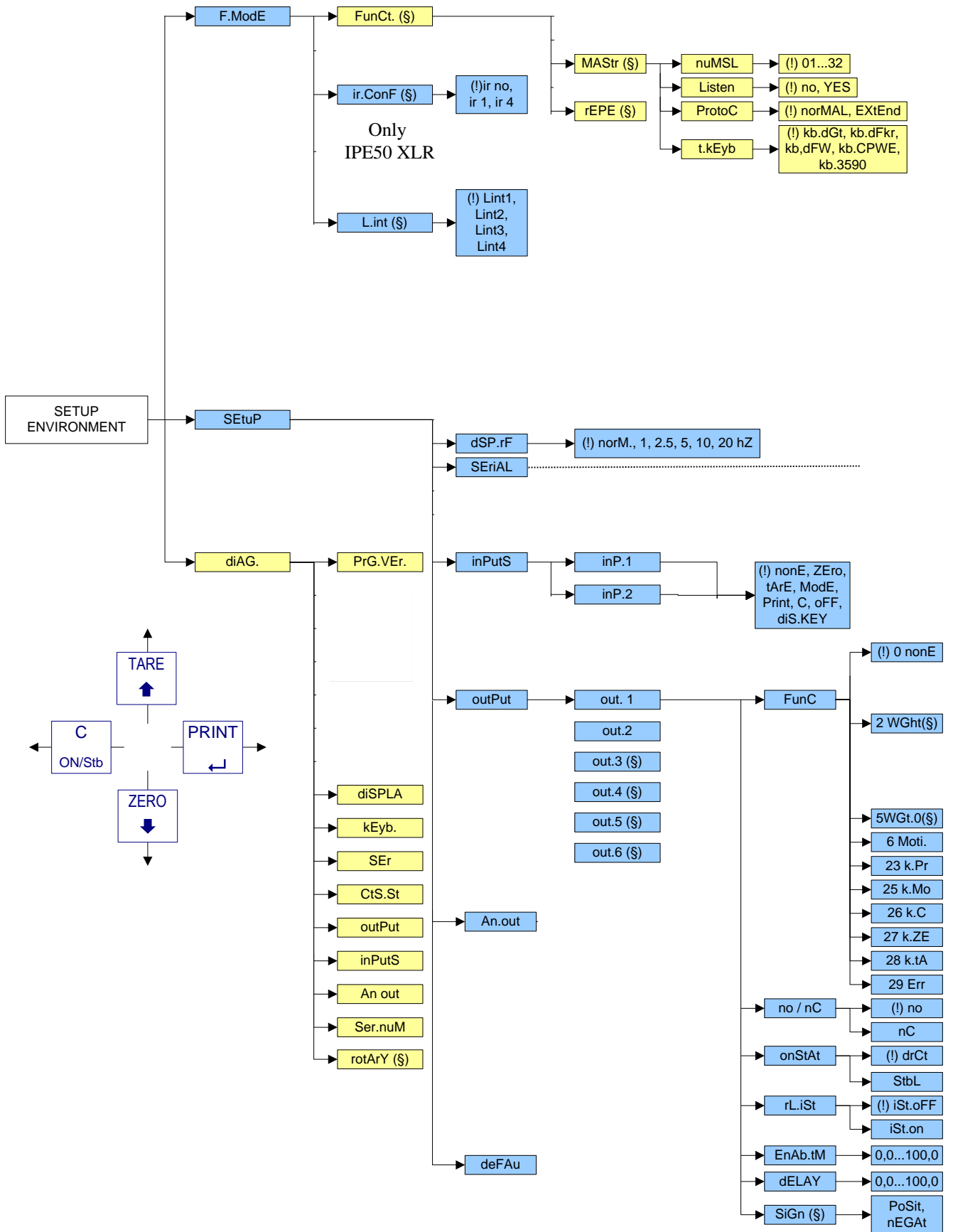ProtocoL -> select : EHtEnd, confirm with ↵

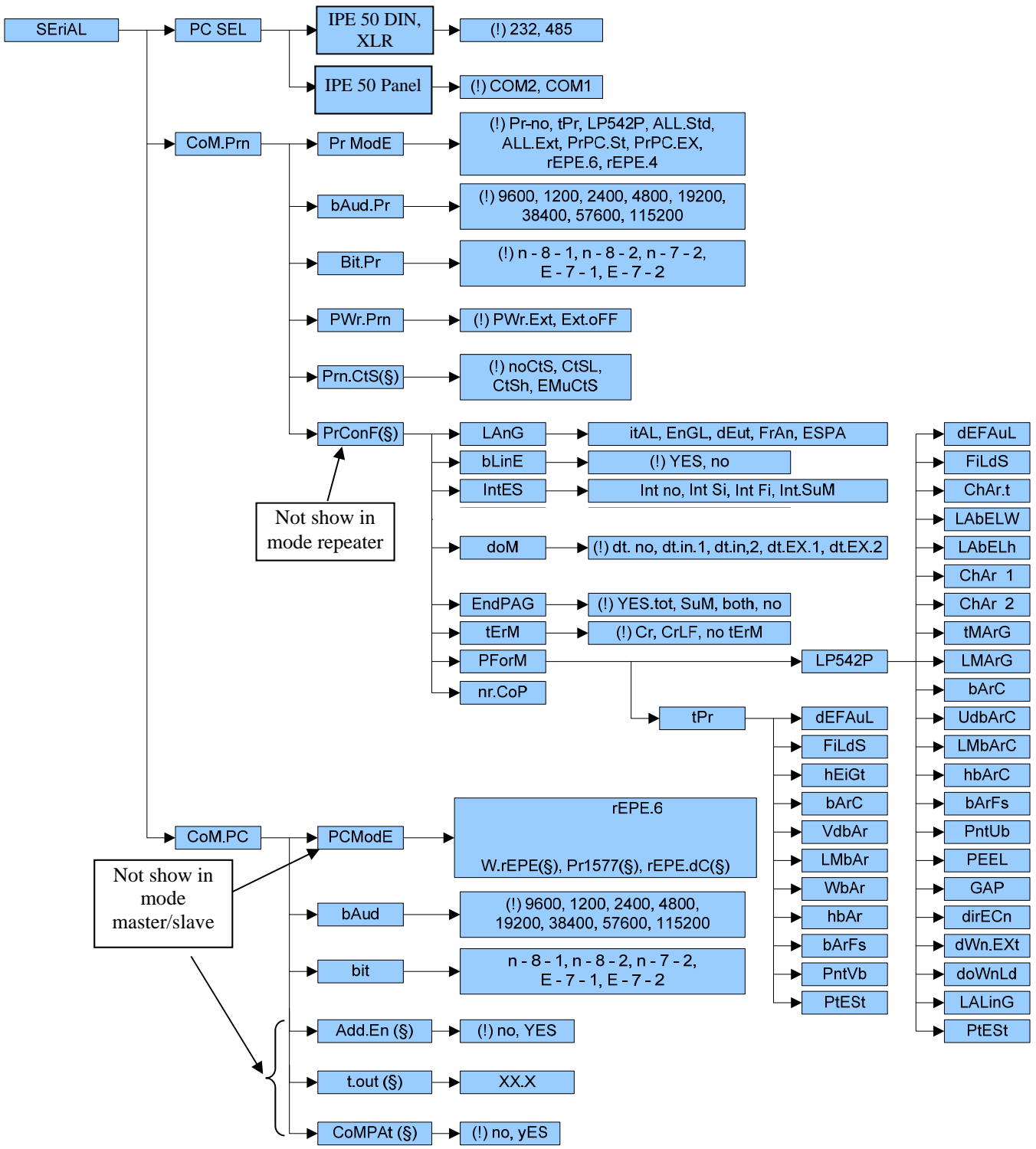t.KEYB -> select :   Kb.dGt, confirm with ↵

SEtuP -> SEriAL

PC SEL -> COM1 (RS485)   IPE50 Panel

         485   IPE50 DIN or XLR

CoM.PC -> bAud   select the speed of the network (from 1200 to 115200 baud)

         Bit   n-8-1

6 BLOCK DIAGRAM

SEriAL
├─ PC SEL
│   ├─ IPE 50 DIN, XLR → (!) 232, 485
│   └─ IPE 50 Panel → (!) COM2, COM1
│
├─ CoM.Prn
│   ├─ Pr ModE → (!) Pr-no, tPr, LP542P, ALL.Std, ALL.Ext, PrPC.St, PrPC.EX, rEPE.6, rEPE.4
│   ├─ bAud.Pr → (!) 9600, 1200, 2400, 4800, 19200, 38400, 57600, 115200
│   ├─ Bit.Pr → (!) n - 8 - 1, n - 8 - 2, n - 7 - 2, E - 7 - 1, E - 7 - 2
│   ├─ PWr.Prn → (!) PWr.Ext, Ext.oFF
│   ├─ Prn.CtS(§) → (!) noCtS, CtSL, CtSh, EMuCtS
│   └─ PrConF(§)   [Not show in mode repeater]
│   ├─ LAnG → itAL, EnGL, dEut, FrAn, ESPA
│   ├─ bLinE → (!) YES, no
│   ├─ IntES → Int no, Int Si, Int Fi, Int.SuM
│   ├─ doM → (!) dt. no, dt.in.1, dt.in,2, dt.EX.1, dt.EX.2
│   ├─ EndPAG → (!) YES.tot, SuM, both, no
│   ├─ tErM → (!) Cr, CrLF, no tErM
│   ├─ PForM
│   │   ├─ LP542P → dEFAuL, FiLdS, ChAr.t, LAbELW, LAbELh, ChAr 1, ChAr 2, tMArG, LMArG, bArC, UdbArC, LMbArC, hbArC, bArFs, PntUb, PEEL, GAP, dirECn, dWn.EXt, doWnLd, LALinG, PtESt
│   │   └─ tPr → dEFAuL, FiLdS, hEiGt, bArC, VdbAr, LMbAr, WbAr, hbAr, bArFs, PntVb, PtESt
│   └─ nr.CoP
│
└─ CoM.PC   [Not show in mode master/slave]
    ├─ PCModE → rEPE.6, W.rEPE(§), Pr1577(§), rEPE.dC(§)
    ├─ bAud → (!) 9600, 1200, 2400, 4800, 19200, 38400, 57600, 115200
    ├─ bit → n - 8 - 1, n - 8 - 2, n - 7 - 2, E - 7 - 1, E - 7 - 2
    ├─ Add.En (§) → (!) no, YES
    ├─ t.out (§) → XX.X
    └─ CoMPAt (§) → (!) no, yES

11

7 CONFIGURATION

F.Mode

FunCt
Functioning mode
rEPE   repeater from another IPE50 or IPC50
MAStr   Master of a network of IPE50
(!) rEPE

irConF: remote control configuration (IPE50 XLR only)
ir no   remote control disable
ir 1   all the remote control keys work as the TARE key
ir 4   the remote control keys work as ZERO, TARE, MODE and ENTER/PRINT
(!) ir no

L.int DISPLAY INTENSITY (IPE50 XLR only)
Lint 1 (minimum) to Lint 4 (maximum)
(!) Lint1

SEtuP

SEriAL
Serial port configuration (RS232 et 485)

dSP.rF
norM. (keep this value)
1 h2 , 2.5 h2, 5 h2, 10 h2, 20 h2
(!) norM.

inPutS INPUT CONFIGURATION
not available

outPut RELAY CONFIGURATION
In this step one sets the function to be linked to each relay

rEL. 1 Relay 1

FunC :   functioning mode of the 2 setpoints (available for setpoint 1 and 2)
0 nonE :   the setpoint is disable
2 WGht :   setpoint on the display
5 WGt.O :   the setpoint will be on when the display will be at 0 in net value
6 Moti. :   the setpoint will be on if the display is not stable (LED ~ on)
23 K.Pr   when you press the key "↵" the contact will be closed during approximately 2 seconds
25 K.Mod : when you press the key "MODE" the contact will be closed during approximately 2 seconds
26 K.C :   when you press the key "C" the contact will be closed during approximately 2 seconds
27 K.Zer :   when you press the key "->0<-" the contact will be closed during approximately 2 seconds
28 K.tAr :   when you press the key "->T<-" the contact will be closed during approximately 2 seconds _ _ _ _ _
29 Err :   the setpoint will be on if the display shows the message _ _ _ _ _ (overload) or
(underload)

rEL.1 to rEL.6 : selection of setpoint 1 or 6 for set the parameters (6 relays in option for IPE50 Panel only)

no/nC : no normally opened or nC normally closed

onStAt : drCt the relay could change if the display is unstable or StbL the relay could not change if the display is unstable (LED ~ off)

rL.iSt: selection without iSt.oFF or with iSt.on hysteresis

EnAb.tM : Select a time (from 0.0 to 100.0 seconds) that the relays will be on (if the display is upper than the setpoint value), after this time, the relay will switch off (even the display is upper than the setpoint value).
The value 0.0 disable this function.
(!) 0.0

DELAY : Select a time (from 0.0 to 100.0 seconds) of delay that the relays could not be on (even the display is upper than the setpoint value) after this delay, le relay could be on (if the display is upper than the setpoint value).
The value 0.0 disable this function
(!) 0.0
The same configurations are valid for:
rEL.b.2 RELAY 2

To change the value of the setpoint when you have choosen 2 WGht, press the key MODE trice, S1-0n is displayed, press Enter to change the value with the keys ↑↓->, valid with Enter and exit the menu with C.

dEFAu INITIALIZATION OF THE UNIT
Through this step one can initialize the instrument with the subsequent activation of the default parameters.
By pressing ↵, a confirmation message ("dFLt?") will appear: confirm again with ↵ or exit with any other key.

DiAG (DIAGNOSICS MENU)
It is a submenu inside which it is possible to check the software components and the scale hardware.

PrG.Uer CHECKING THE SOFTWARE VERSION
By pressing ↵ the instrument shows the software version in the XX.YY.ZZ. format.

diSPLA DISPLAY TEST
By pressing ↵ the instrument turns on all the display segments one at a time, after which it exits automatically from the step.

KEYb. KEYBOARD TEST
By pressing ↵ the instrument displays 0000; by pressing the keys one at a time, the relative codes are displayed. One exits pressing the same key three times.

SEr SERIALS TEST
By pressing ↵ the instrument displays "   S   xy" in which x indicates the status of the printer serial port while y indicates the status of the PC serial port. Both can take on two values:
    0   Serial port does not work
    1   Serial port works
    During the test one should short-circuit T/+ with R/- (in the PC terminal board) and TXD with RXD (in the PRN). Works only in RS232.
    Furthermore the ASCII "TEST"<CRLF> string is continuously transmitted on both the serial lines.

CtS.St TEST OF THE CTS STATUS
By pressing ↵ one views the status/level of the CTS signal of the printer (on) connected to the PRT serial port.

outPut TEST OF THE I/O EXPANSION BOARD RELAYS

By pressing ↵ the instrument displays "rEL.1" and enables relay 1 of the expansion board; press the ->0<- or ->T<- key to enable this other relay of the connected expansion boards.
Press "C" to exit this step

InPutS TEST OF THE I/O EXPANSION BOARD INPUTS

By pressing ↵ the instrument displays " i.bx-y" in which x, y indicate:

x – the input which is controlling 1, 2; to change the input which one wants to control press the ZERO or TARE keys.
y - the input status:
0   Disabled input
1   Enabled input
-   communication error with I/O expansion board or board not present.
Press "C" to exit this step

Anout : not used

SEr.nuM : not used

8 CONNECTION

POWER SUPPLY 24 Vdc
1 +24Vdc   + 12 to 25Vdc / 3.6 W max
2 GND   - 0 Vdc

Repeater mode
RS232

Weighing indicator	Repeater
IPE50 / IPC50	IPE50
GND	GND
Tx	Rx

RS485

Weighing indicator	Repeater
IPE50 / IPC50	IPE50
UX+ / A+	UX+ / A+
UX- / A-	UX- / A-

Master/slave mode
RS485:

Weighing indicator (slave)	Master
IPE50	IPE50
UX+ / A+	UX+ / A+
UX- / A-	UX- / A-
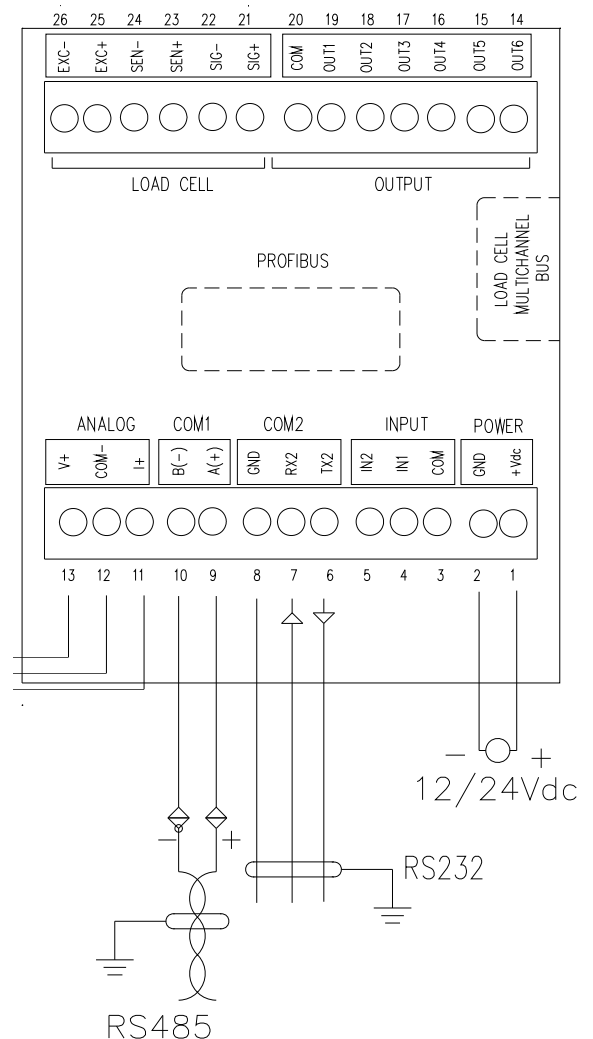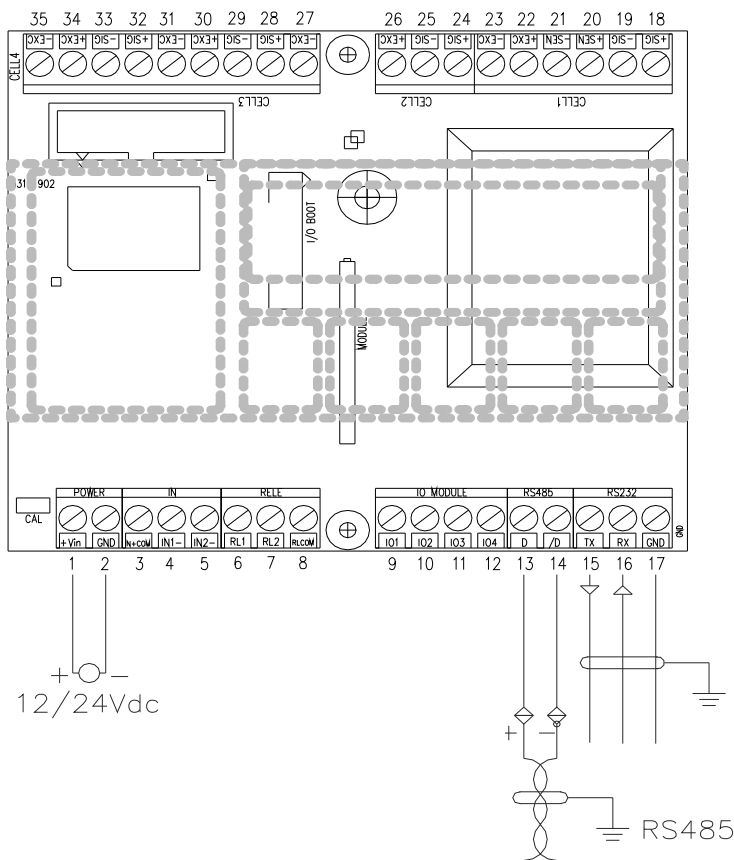
RS 485 SERIAL PORT

On the same RS485 network, it is possible to connect up to 32 units
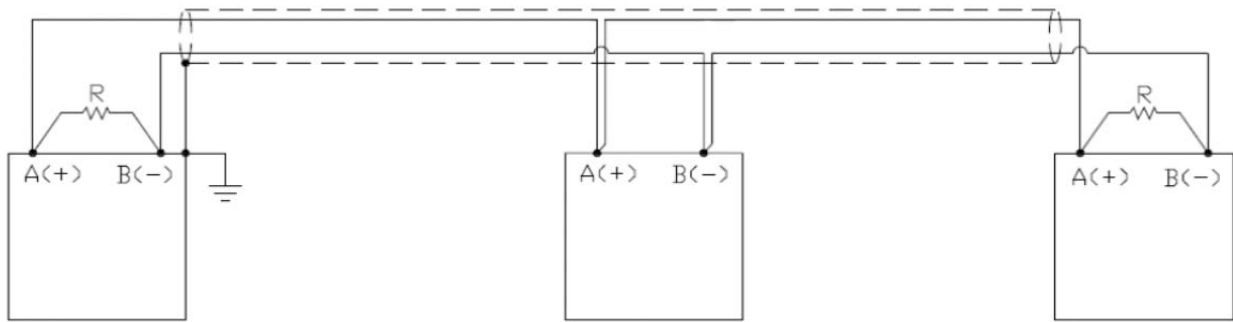
On the RS485 network normally one connects 2 termination resistors of 120 Ohm (shown with "R" in figure). Only on the 2 devices which are at the end of the network.
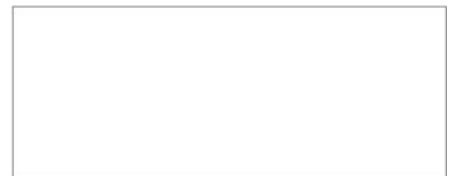Use an appropriate cable for RS485 connections, the twisted 2x24 AWG duplex cable, shielded with an external sheathing + aluminium band. The length of the cable should not exceed 1200m.
If there is a transmission problem (long cable) connect a bias resistor of 390 Ohm between B (-) and GND.

If there is still a problem, put a 2 kOhm resistance between terminal A (+) and + supply (+ Vdc).

NU-IPE50-repeater-E-1214