Countum Group
SATAM
Metering Solutions

Large Display Unit

DIR12

Installation and User Manual

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Summary

1. Presentation of SATAM DIR 12

SATAM DIR12 is a large display unit for indication of volume or mass.

It is designed for installation on aircraft refuelers, hydrant dispensers and tank truck loading stations.

DIR 12 can be connected directly to flow computer via data bus or via frequency input. It operates as a repeater of flow computer displayed volume.

With its configurable pulses input, DIR 12 can also directly display the volume or mass measured by a flow meter. Binary input of DIR 12 will be used for resetting the totalizer at the end of the batch.

2. Configuration

2.1. Introduction

2.1.1. Data format and parameters

- The format used is 32 bit integer
- It is encodes as 2 consecutive Modbus register in « Little Endian » size

2.2. Configuration

2.2.1. Communication parameters

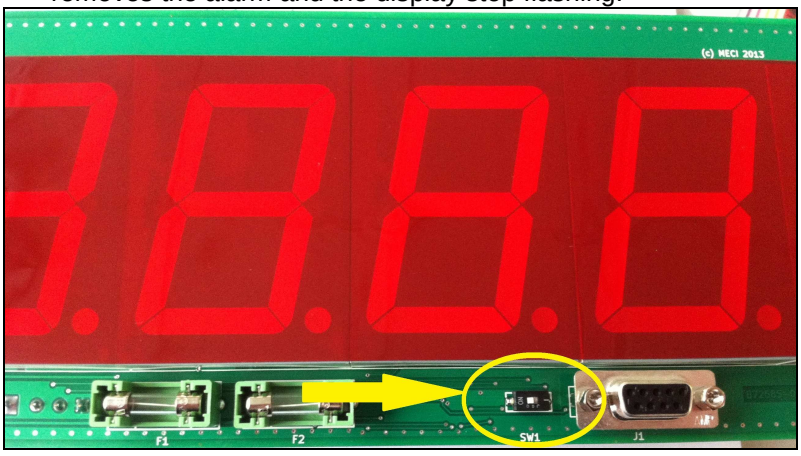
- Modbus slave number (default value : 1)
- Speed (default value : 9600 bauds)
- Parity (default value : no parity)
- RS485 / RS232 mode (default value : RS485 without resistance)

2.2.2. Display settings

- Brightness (default value : 0, corresponding to maximum brightness)
- Number of decimals (default value : 3, display unit m^3)
- K factor (default value : 1000 pulses per litter)
- Release time (default value : 60 seconds)
- Display time : DIR12 and SATAM (default value : 0)
- Time between display of DIR12 and SATAM (default value : 0)

2.2.3. Initialization mode

- A micro switch is located to the left of the SubD9 outlet (SW1). On right position, the unit is in initialization mode. The message “init” flash. The serial link is forced on :
  - Modbus Slave 1
  - RS232 mode
  - Speed 9600 bauds
  - No parity
- The configuration is done through Modbus. See Modbus Table on §2.5.
- The return to normal mode generates an alarm and flashes the display.
- The reset through digital input or the writing of a value in the counter removes the alarm and the display stop flashing.



2.3. Use with pulses input configuration

2.3.1. Pulse input

- Maximum 1kHz
- An increment of one display unit is done each time a number of pulses equal to the K factor K is received.
- If the pulse counter is equal to 0, the display will go to sleep after a decay time. It will turn on when a pulse is received.
- In case of power failure or passage into initialization mode, the display flashes until it receives a reset pulse which will also generate the totalizer reset. This means that in case of power outage, the load will have to be completes with a flashing display.

2.3.2. Reset input

- It resets the counter to zero
- It allows acknowledging a power outage alarm or an initialization alarm.

2.4. Use with Modbus link

2.4.1. Data reading :

- All data and parameters can be read.

2.4.2. Current data :

- Totalizer which corresponds to what is displayed without the decimal point. It can be read and written.
- The flow in the same unit as the totalizer per hour. It can only be read.
- The status of the alarm. Writing generates the alarm acknowledgment.

2.4.3. Parameters :

- All configurable parameters can be read and written through the Modbus link.

2.4.4. System variables :

- Two variables allow knowing the status of the backup of the parameters (flash memory) and the totalizer. They can not be written.

2.5. Modbus Table

Address	Tag	Direction	Type	Comment
0	Totalizer	R/W	int32	Unit that depend on the K factor and quantity of decimals
2	Flow rate	R	int32	Same unit as totalizer
4				
6				
8				
10				
12				
14				
16				
18				
20				
22				
24				
26				
28	CptFree	R	int32	Place of the current pulse counter in the flash memory
30	NbErase	R	int32	Quantity of flash memory erasures
32	NumEsclave	R/W	int32	Number of Modbus slave
34	Baud	R/W	int32	Speed of the serial link in bauds
36	Parity	R/W	int32	Parity: 0 = without, 1 = pair, 2 = odd
38	RS485	R/W	int32	0 = RS232, 1 = RS485, 2 = RS485+120 ohms
40	Brightness	R/W	int32	0 = more bright; 16 = less bright
42	NbDec	R/W	int32	Quantity of decimals
44	KF	R/W	int32	Quantity of pulses per totalizer unit
46	Extinction	R/W	int32	Time before display extinction if the counter is at 0
48	DemoOn	R/W	int32	Display time of the product name and company. 0 = no
50	DemoCpt	R/W	int32	Totalizer display time

0	SysPret	R	Bool	0 = alarm, 1 = OK
1	ModeInit	R	Bool	1 = Configuration in progress
2				
3				
4				
5				
6				
7				

3. Wiring

3.1. Power supply

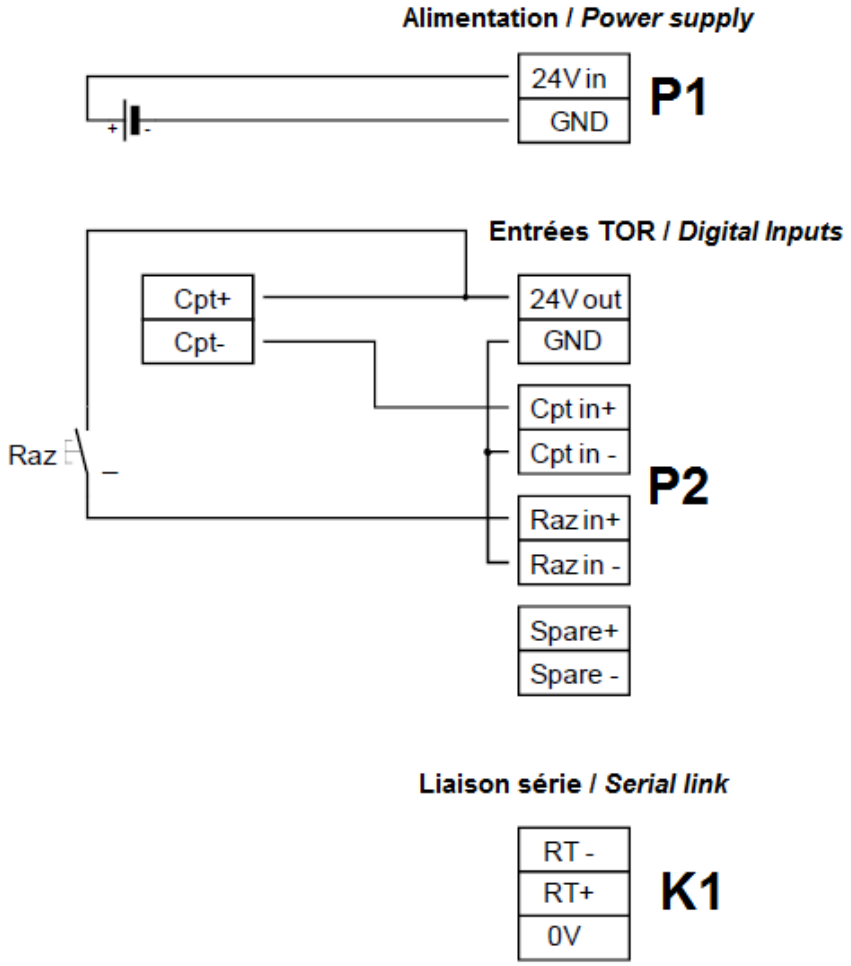
- Connector P1 (pin order from left to right 1-2)
- 1 = 0V
- 2 = +10 to 30V

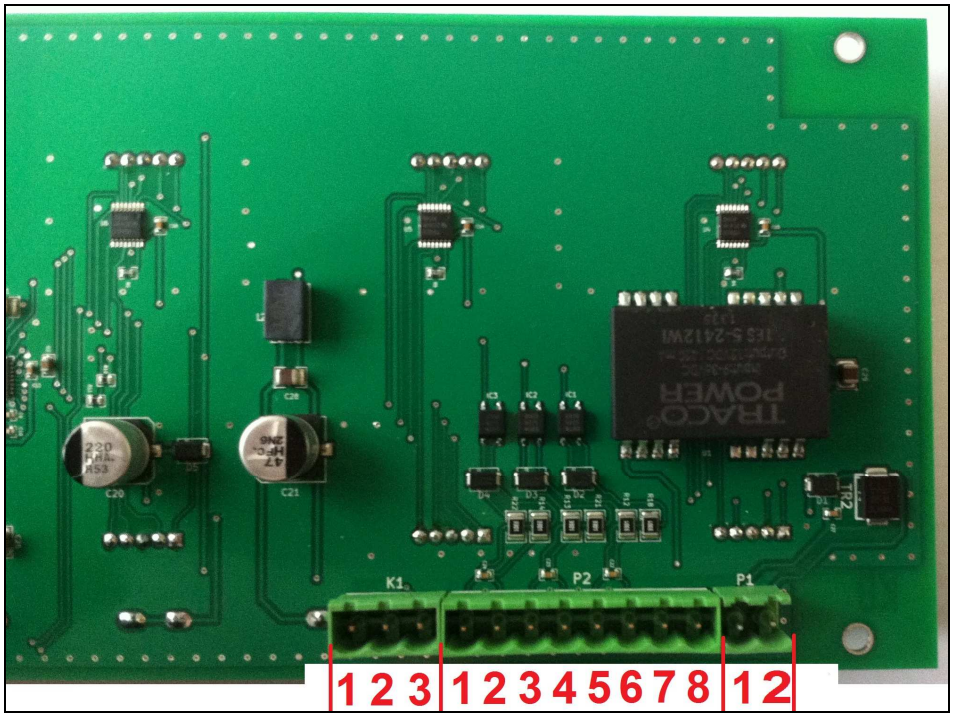
3.2. Inputs / outputs

- Connector P2 (pin order from left to right 1-2-3-4-5-6-7-8)
- 1 = DI3-
- 2 = DI3+
- 3 = Reset-
- 4 = Reset+
- 5 = Counting-
- 6 = Counting+
- 7 = 0V (connected to the 0V of the power supply)
- 8 = +10 à 30V (connected to the + of the power supply through a fuse)

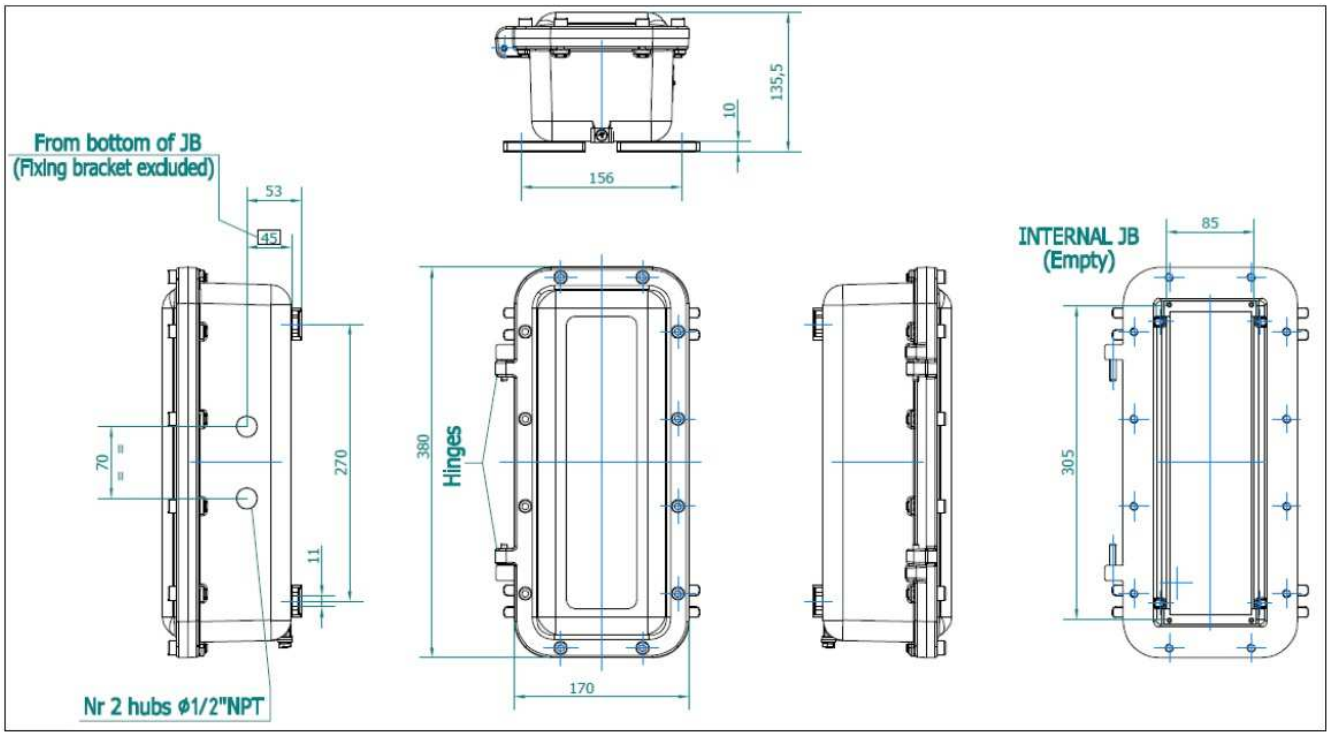
3.3. Serial link

- Connector K1 (pin order from left to right 1-2-3)
- 1 = GND (isolated from power supply)
- 2 = RX or B (according to configuration RS232/RS485)
- 3 = TX or A (according to configuration RS232/RS485)





4. Overall dimensions



Weight: 7.500 kg

5. Certification

ATEX: Flameproof box certified: CE 0722 Ex II 2 G Ex d IIB T5
-20℃ ≤ T amb. ≤ +55℃

Russia: Flameproof box certified as per GOST: -40℃ ≤ T amb. ≤ +60℃