RESOLUTION

How to make a diagnostic and start on LULC07 ?

I- Type of publication

☐ **Typical application**

☐ **Best know Method (BKM)**

☑ **Troubleshooting guide**

☐ **Level 2 use**

☐ **Internal use**

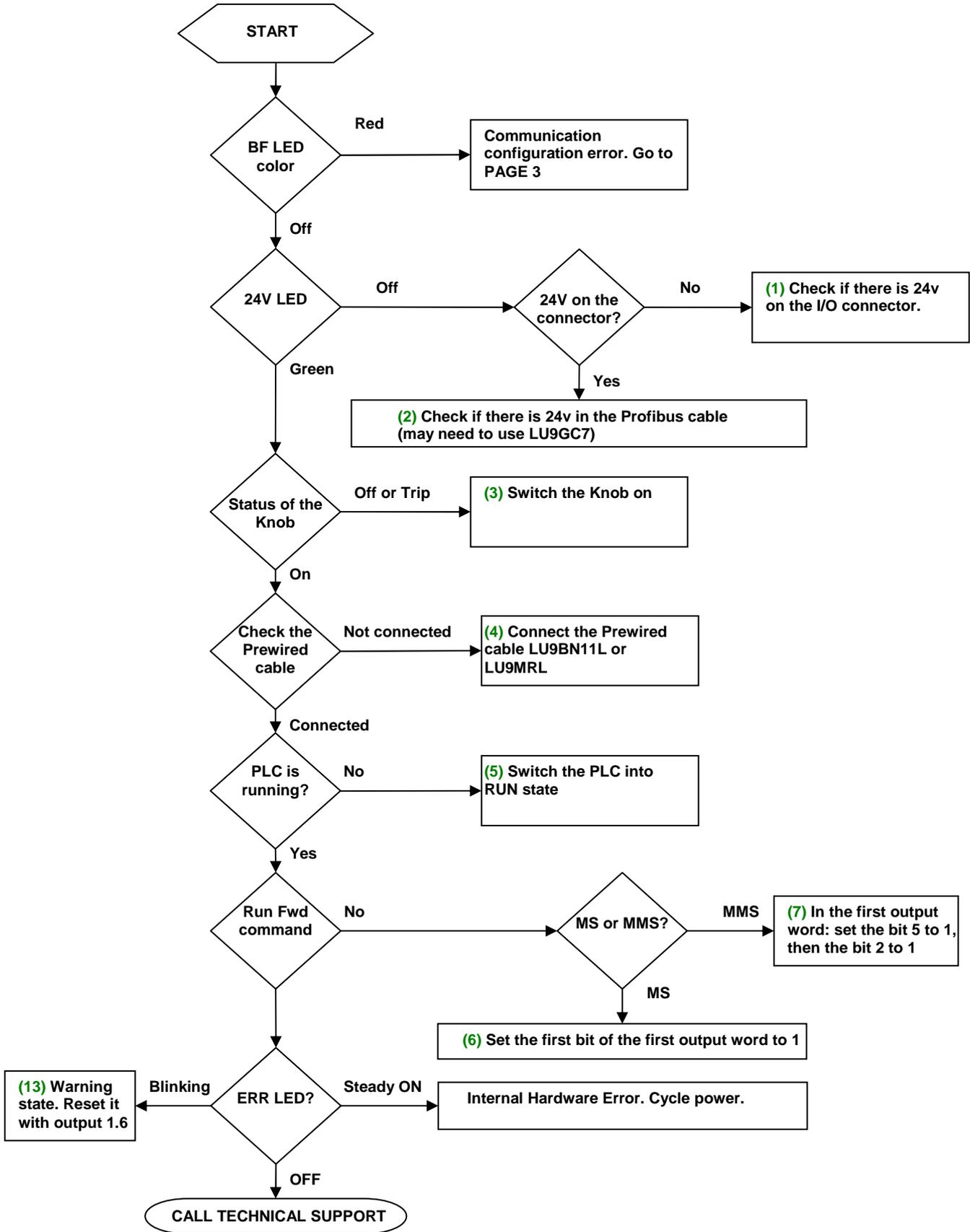☑ **Customer**

II- Product

- Product range :
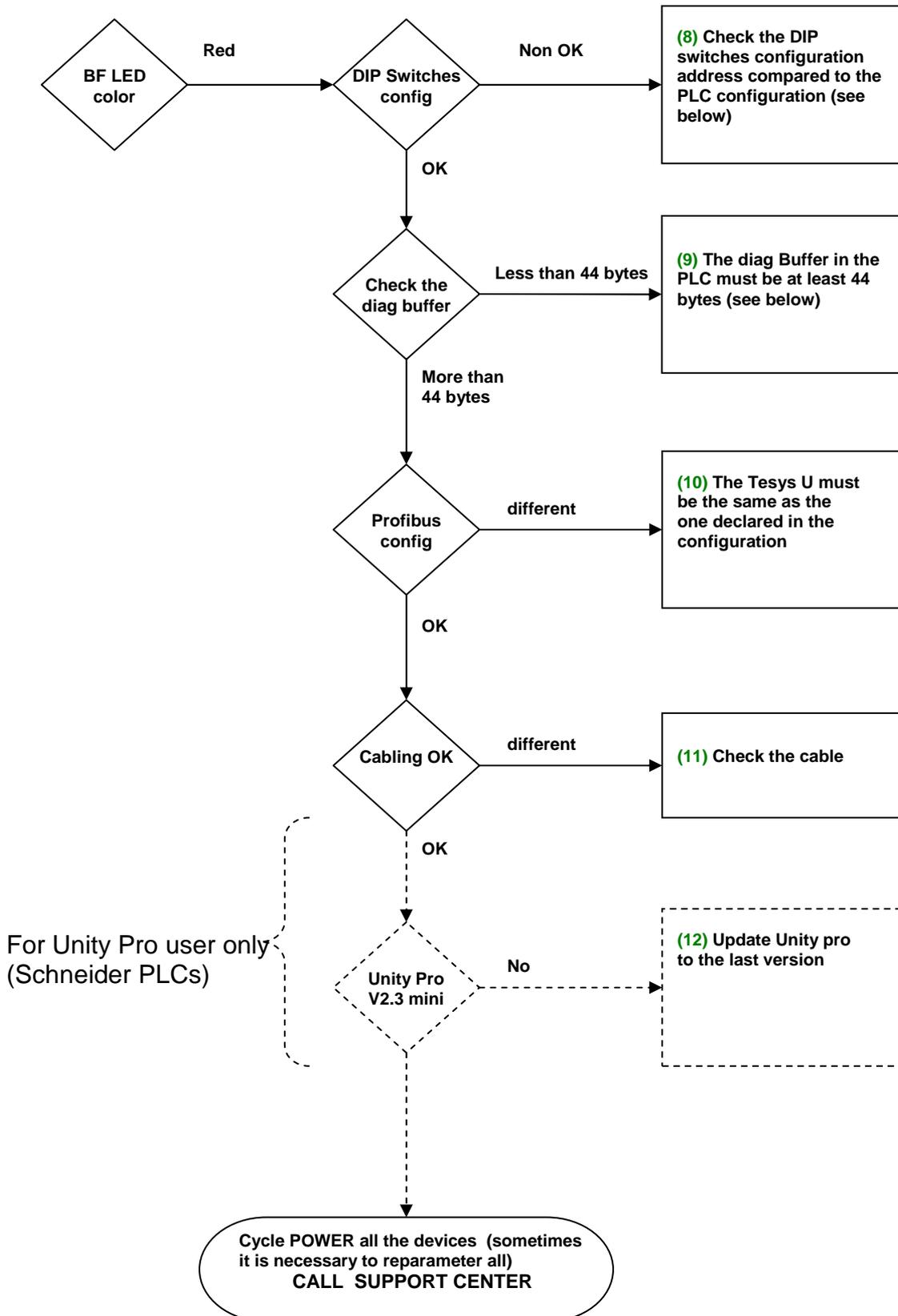
TesysU

- Product family :

LULC07

III- Introduction

This document describes how to make a diagnostic on LULC07 for a communication loss or if you cannot establish the communication between PLC and LULC07. This is a step by step procedure to start your network module. The two first pages show a block diagram and each box of this block diagram refers to detailed information.
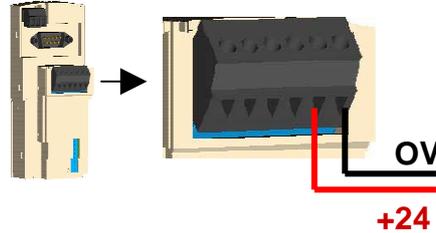
IV- Description

```
                    START

                    │
                    ▼
              ┌──────────┐   Red    ┌─────────────────────────┐
              │ BF LED   │────────▶ │ Communication           │
              │ color    │          │ configuration error. Go │
              └──────────┘          │ to PAGE 3               │
                    │               └─────────────────────────┘
                   Off
                    │
                    ▼
              ┌──────────┐   Off    ┌──────────┐   No    ┌─────────────────────────┐
              │ 24V LED  │────────▶ │ 24V on   │───────▶ │ (1) Check if there is   │
              │          │          │ the      │         │ 24v on the I/O          │
              └──────────┘          │connector?│         │ connector.              │
                    │               └──────────┘         └─────────────────────────┘
                  Green                  │
                    │                   Yes
                    │                    ▼
                    │          ┌─────────────────────────────────────┐
                    │          │ (2) Check if there is 24v in the    │
                    │          │ Profibus cable (may need to use     │
                    │          │ LU9GC7)                             │
                    │          └─────────────────────────────────────┘
                    ▼
              ┌──────────┐ Off or Trip ┌─────────────────────────┐
              │Status of │────────────▶│ (3) Switch the Knob on  │
              │the Knob  │             │                         │
              └──────────┘             └─────────────────────────┘
                    │
                   On
                    │
                    ▼
              ┌──────────┐ Not connected ┌─────────────────────────┐
              │Check the │──────────────▶│ (4) Connect the Prewired│
              │Prewired  │               │ cable LU9BN11L or       │
              │cable     │               │ LU9MRL                  │
              └──────────┘               └─────────────────────────┘
                    │
                Connected
                    │
                    ▼
              ┌──────────┐   No     ┌─────────────────────────┐
              │PLC is    │────────▶ │ (5) Switch the PLC into │
              │running?  │          │ RUN state               │
              └──────────┘          └─────────────────────────┘
                    │
                   Yes
                    │
                    ▼
              ┌──────────┐  No   ┌──────────┐  MMS   ┌─────────────────────────┐
              │Run Fwd   │─────▶ │ MS or    │──────▶ │ (7) In the first output │
              │command   │       │ MMS?     │        │ word: set the bit 5 to  │
              └──────────┘       └──────────┘        │ 1, then the bit 2 to 1  │
                    │                 │              └─────────────────────────┘
                    │                 MS
                    │                 ▼
                    │      ┌─────────────────────────────────────┐
                    │      │ (6) Set the first bit of the first  │
                    │      │ output word to 1                    │
                    │      └─────────────────────────────────────┘
                    ▼
 ┌──────────────┐ Blinking ┌──────────┐ Steady ON ┌─────────────────────────┐
 │(13) Warning  │◀─────────│ ERR LED? │──────────▶│ Internal Hardware Error.│
 │state. Reset  │          │          │           │ Cycle power.            │
 │it with       │          └──────────┘           └─────────────────────────┘
 │output 1.6    │               │
 └──────────────┘              OFF
                                │
                                ▼
                    ( CALL TECHNICAL SUPPORT )
```

BF LED color

Red

DIP Switches config

Non OK

(8) Check the DIP switches configuration address compared to the PLC configuration (see below)

OK

Check the diag buffer

Less than 44 bytes

(9) The diag Buffer in the PLC must be at least 44 bytes (see below)

More than 44 bytes

Profibus config

different

(10) The Tesys U must be the same as the one declared in the configuration

OK

Cabling OK

different

(11) Check the cable

OK

For Unity Pro user only (Schneider PLCs)

Unity Pro V2.3 mini

No

(12) Update Unity pro to the last version

Cycle POWER all the devices (sometimes it is necessary to reparameter all)
CALL SUPPORT CENTER

(1) 24Vdc on the I/O connector

24V must be provided to the logic **IO connector** for the COIL.

OV

+24

(2) 24Vdc in the Profibus cable

24V must be provided into the Profibus cable (so you must use 4wire cable, and you may need the Profibus TAP LU9GC7)

LU9RPBxxx
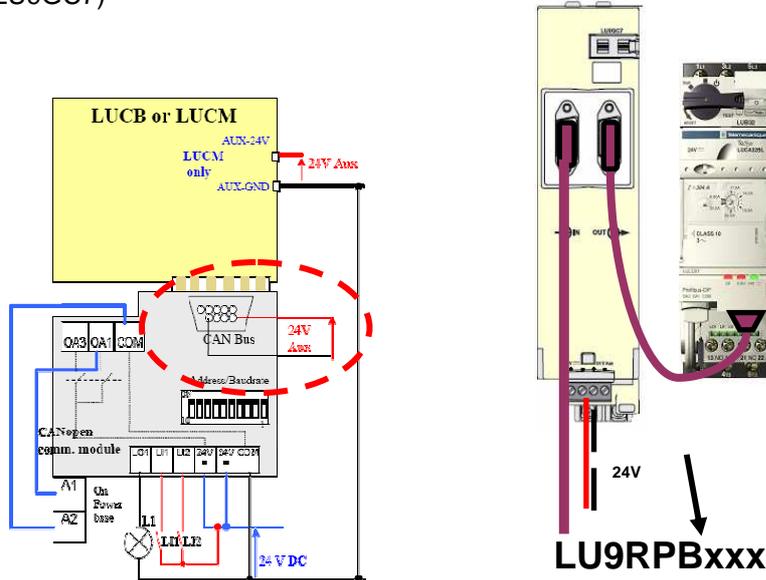
(3) Switch the knob on

If the **KNOB** is OFF or Trip, switch it ON
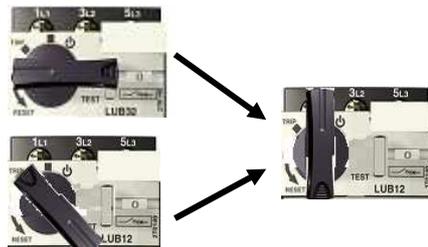
(4) Connect the pre-wired cable

Check if **the prewired** connection cable LU9BN11L is connected
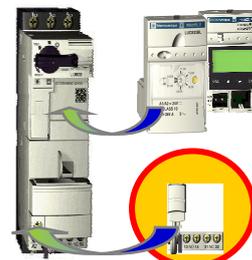
(5) Set PLC to RUN mode

(6) Set the first bit of the first output word to 1

If the MS profile is selected for the Tesys U (for example Sc_Ad_MS_R) the RUN_FORWARD command is located to **Output 0.0** (see documentation)

(7) In the first output word: set the bit 5 to 1, then the bit 2 to 1

If you have selected MMS Profile (Tesys U with Multifunction control Unit only) the Profibus standard demands to switch the bit 5 of the first word to 1 (called "Auto mode"): **Output 0.5=1**
Then you can set the RUN forward function to 1. In this MMS profile, it's coded on bit 2 of the first word: **Output 0.2 =1.** (See the USER MANUAL for more detailed information)

(8) Check the DIP switch

Check the address: the address coded by the DIP switches must be the same as the one configured in the PLC. For the DIP switches, the address code is in binary, the least significant bit is on the right.,
Example: **Tesys U address 3:**
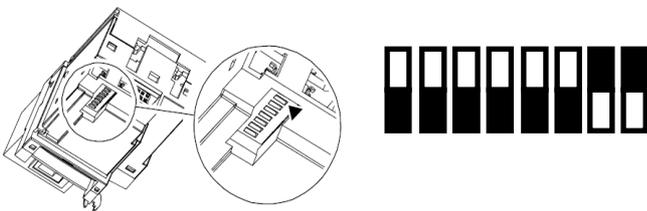
This screenshot is taken from Sycon software
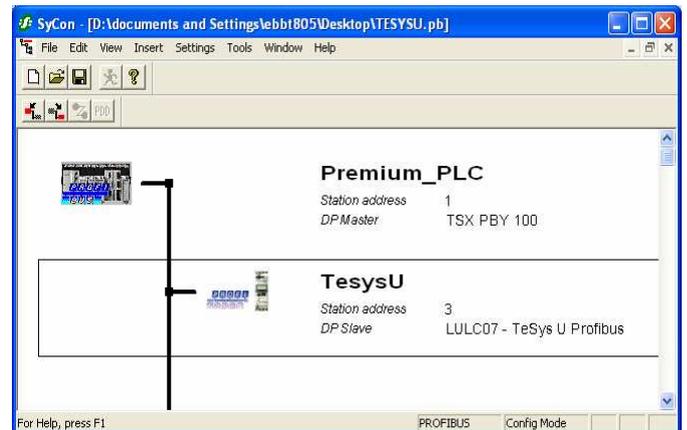
(9) The diagnostic (diag) bugger size

Check the diagnostic buffer size configured in the PLC. The LULC07 needs at least 44 bytes length for diagnostic. Some PLCs (like Premium) set the diag by default at 32 bytes. You must put more than 44. (64 bytes is recommended)
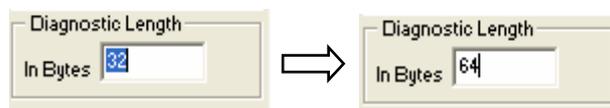
Those screenshots are taken from UnityPro software
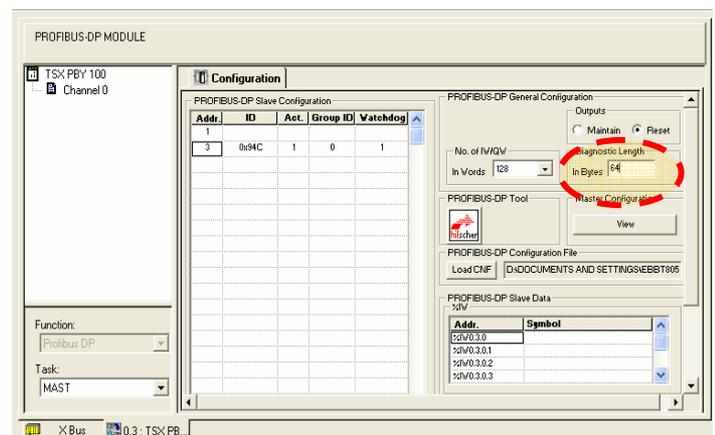
(10) The TeSys U must be the same as the one declared in the configuration

Check the Profibus configuration. The Control Unit plugged into the Tesys U must be the same as the one declared in the configuration.
Example: Sycon configuration is Sc_Ad_MS_R match with a Tesys U with Advanced Control Unit.

This screenshot is taken from Sycon software

Important Note: In case of using Multifunction control Unit, you have the choice between "R" remote configuration mode or "L" local configuration mode (for more details see the training documentation or the User manual page 42)
Do not forget to configure the Multifunction control unit by the push buttons in front of the product. The default configuration is Remote mode "R".

(11) Check the cable

Check the Profibus cable. The best way is to take the cable and to plug it into a device already working on the Profibus fieldbus. (ex: a drive)
If it is not possible, take an ohmmeter and test each pin of the cable. Check first if there is no connection between the shield and the ground.
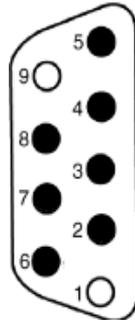
In GREEN: pins used by the LULC07

Number	Signal	Description
1	(Shield):	not used
2	M24	24 V output voltage ground
3	RxD/TxD-P	positive data transmission (RD+ / TD+)
4	CNTR-P	positive repeater monitoring signal (direction monitoring)
5	DGND	data transmission ground
6	VP	line termination bias voltage
7	P24	input voltage 24 V, power supply circuit of the communication module
8	RxD/TxD-N	negative data transmission (RD- / TD-)
9	CNTR-N	(negative repeater monitoring signal, direction monitoring) not used

(12) Update Unity Pro to last version

Check the Unity Pro version. If you use Unity Pro software and a Premium PLC, check the version. You must have at least V2.3, otherwise the PBY100 module may go into a internal error state. (all LEDs off !)

(13) ERR LED

If the ERR LED is blinking, reset the warning by setting output 1.6 to 1 (means bit 14 of the first output word).

Note: After reset, set the bit to 0 again, otherwise you will never see a warning again! It's better to use Rising Edge.

%QW0.3.0 | 2#0100_0000_0000_0001

This screenshot is taken from Unity Pro software

V- Limitation

This document was written regarding Unity/PL7 software. Some parts of this document can be used for other PLC but not all the document. We recommend to refer to the user manual for LULC07 to follow this document and to have more information about LULC07. We have the main information in this document to help you but you can find other information to enhance your diagnostic of the application.