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How to manage UL Power Supply for Lumberg Active Components

Carmine D'Errico - 2019-08-22 - How-to articles

Affected Modules	0980 ESL 390-1x1
Network type	Profinet
PLC	Siemens

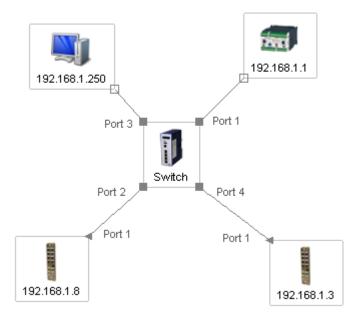
Problem Description

Current behaviour: After switching of the U_L power supply from the system chain, an error in the PLC-system status is received.

Expected behaviour: After switching off the U_L power supply from the system chain, PLC "Diagnostic" error should not be displayed on the PLC error LED

Configuration: Network Topology

Device Description	IP Adress
Laptop	192.168.1.250
Siemens PLC	192.168.1.1
Belden Industrial Switch	192.168.1.20
0980 ESL 700	192.168.1.8
0980 ESL 390-1x1	192.168.1.3



Please find in the following section the system setup from the Lion-P web page:

System			
Connection Stat	us	General Information	
Network		System	
Port 0	100 MBit/s FULL	Time Since Startup	10333 s
Port 1	No Link	System Message	ОК
Phy MAC	3C:B9:A6:00:F5:3E	Restarts of IO-System	0
Address	JC.DB.A0.00.1 J.JL	Firmware	
IP Address	192.168.1.3	Name	Belden - PROFINET RT
Subnetmask	255.255.255.0	Version	V2.1.0.9-2.2 (F10017)
Gateway	192.168.1.3	Date	23.5.2018
Profinet		Device	
State	Connected	Name	0980 ESL 390-121
Name of Station	digitalio1	Ordering Number	934879007
		Hardware	V7.01
		Serial Number	00416
		Production Date	45 / 2018

Lion-M device:

Status	
Ethernet Status	General Information
Port Current Status	System
0 100 MBit/s FULL	Time Since Startup 10408 s
1 No Link	System Message OK
	Restarts of IO-System 0
MAC Address: 3C:B9:A6:00:08:5E	Firmware
	Name BELDEN - PROFINET RT
EIP Status	Version V1.1.7.2
Assembly Size Direction	Date 7.9.2018
(none) (none)	Device
(none) (none) (none)	Article Number 000109628000401188
, , , , , , , , , , , , , , , , , , , ,	Production Week 13
Current State: Connected	Production Year 8

Project simulation in TIA portal

When you choose to deactivate the UL source, it will affect all actors in the downstream of the network.

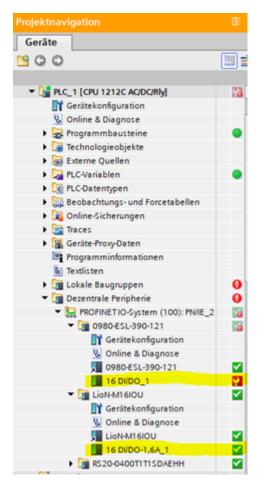
Therefore it is important to divide the sources of errors into two types: the error due to the absence of the UL source and the error due to the absence of the UL source at the

peripheral points of the automation infrastructure.

Here we build up a network with all the U_L power supply. NO ERROR APPEARS.

		USA 🕨 Geräte & Netze										
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900	🔟 📸	💕 Vernetzen 📱 Verbindungen	HMI-Verbindung	▼ 30Hi 2€ ¹	🗏 🔛 🔍 ±			Netzübersicht	Verbindunge	en E/A-Kommuni	kation VPN	N
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USA USA	× ^	2				M		S7-1200-	Station_1	S7-1200-Station		
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derâte & Netze						PLC_1		GSD-Ger	et_2	GSD-Geraet		
 Diamondary Content PLC_1 [CPU 1212C AC/DC/Rly] 								RS20-	0400T1T1SDAEHH	mit I/O-Daten		
📑 Gerätekonfiguration				PLC 1.PF	OFINET IO-Syste			GSD-Gen	iet 1	GSD-Geraet		
Q Online & Diagnose								LioN-	AT 6IOU	0980ESL700		
🕨 🙀 Programmbausteine	•							PN	40	LioN-M16IOU	192,168,1,8	P
🕨 🚂 Technologieobjekte	=							GSD-Gera	et 3	GSD-Geraet		
 Externe Quellen 			9900-ESL-390-1	·	5 20-0400T1T1				ESL-390-121	0980 ESL 390-121		
PLC-Variablen	•		0980 ESL 390-1	THE OWNER OF TAXABLE PARTY.	mit VO-Daten	6		- 🔽 👻 PN	10	0980-ESL-390-121	192.168.1.3	P
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RS20-0400T1T1SDAEHH							~					
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Now we switch off the UL Power Supply for both the modules



We notice that module 0980 ESL 390-1x1 shows an error. These are the reasons:

- The module provides an option to manage the error propagation for **UL upstream power supply**
- The module provides the option to manage the propagation **UL Power Supply** error for downstream components

Possible workaround description for 0980 ESL 390-1x1

For this module, you have these two options which you can check:

Baugruppenparameter			-
General Parameters			
Report Alarms:	Enabled		
Report Alarms:	Enabled	· · ·	
Report UL Supply Voltage Fault:	Disabled		
Report DO Fault without UL:	Disabled	<u> </u>	
Force Mode:	Enabled	•	2
Web Interface:	Enabled	•	
Digital-Out Restart Mode:	Automatic Restart after Failure	•	

The option 1 deactivates the error propagation for UL Power Supply in upstream.

The option 2 deactivates the error propagation for UL Power Supply in the downstream

This could probably be a workaround for your problem.

Projektnavigation		USA > PLC_1 [CPU 1212	CAC/DC/Rly] > Dezentrale Peripherie	PROFINET IO-System (10	0): PN/IE_2 → 0980	-ESL-390-1	21			-	_ @ =>
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RS20-0400T1T1SDAEHH	V	Baugruppenparameter									
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			Report DO Fault without UL:	Disabled							
Name			Force Mode:	Enabled							
Neues Gerät hinzufügen											
Geräte & Netze			Web Interface:								
PLC_1			Digital-Out Restart Mode:	Automatic Restart after Failure							
🙀 Gemeinsame Daten											

Other suggested setting configurations with relative tested behaviour

	Value
🗆 🔄 Parameters	
🛱 🔄 General Parameters	
—Ⅲ Report Alarms	Enabled
—Ⅲ Report UL Supply Voltage Fault	Disabled
— Report DO Fault without UL	Disabled
—I Force Mode	Enabled
—	Enabled
□ Digital-Out Restart Mode	Automatic Restart after Failure
🕁 🧰 Fail Safe Configuration	
🖶 🧰 Surveillance Timeout Configuratio	
🗄 🧰 IO Mapping Configuration	

No Diagnosis without UL and activated Output

Value	
Enabled	
Automatic Restart after Pallure	
	Disabled Enabled Enabled Enabled Automatic Restart after Failure

Diagnosis without UL only for activated Output

eneral Addresses Parameters		
	Value	
🖃 🔄 Parameters		
🛱 🚔 General Parameters		
—	Enabled	
- Report UL Supply Voltage Fault	Enabled	
Report DO Fault without UL	Disabled	
- Force Mode	Enabled	
—	Enabled	
□ Digital-Out Restart Mode	Automatic Restart after Failure	
🕂 🧰 Fail Safe Configuration		
Surveillance Timeout Configuratio		
🗄 🧰 IO Mapping Configuration		

UL diagnosis when off or below $18 \mathrm{V}$