

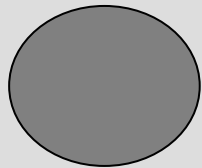


CAREL

E²V training course

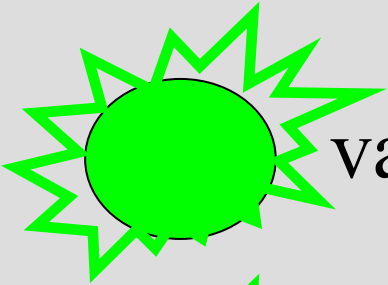
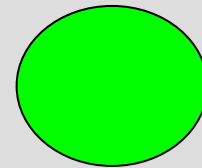
**- E²V System-
EVD200 - EVD300**

When POWERED



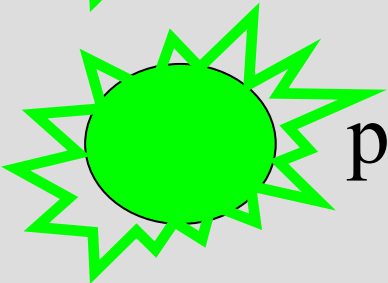
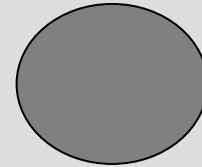
valve opening

power

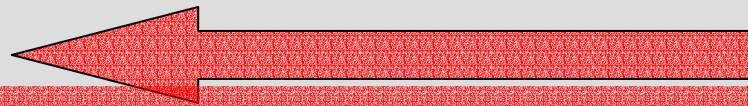


valve closing

alarm

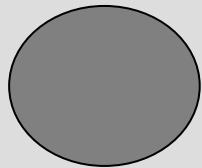


pLAN



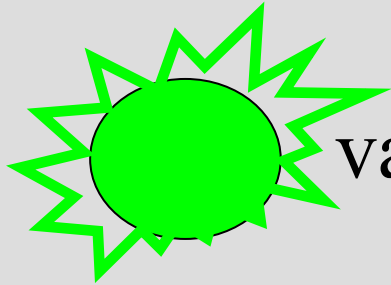
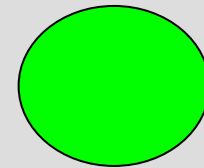
It's SEARCHING FOR the LAN

The pLAN/RS485 is ON-LINE



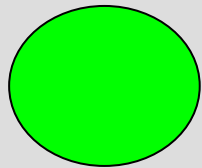
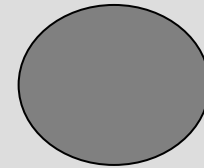
valve opening

power

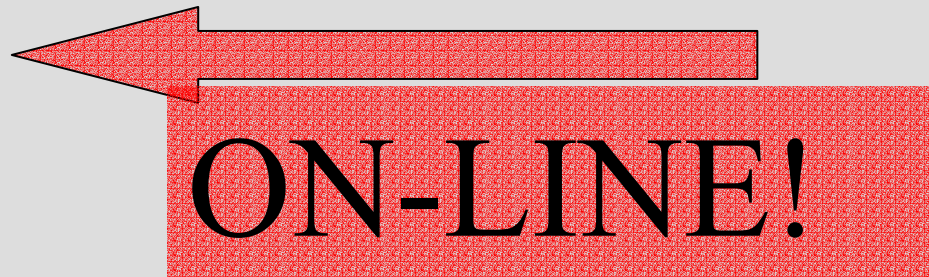


valve closing

alarm

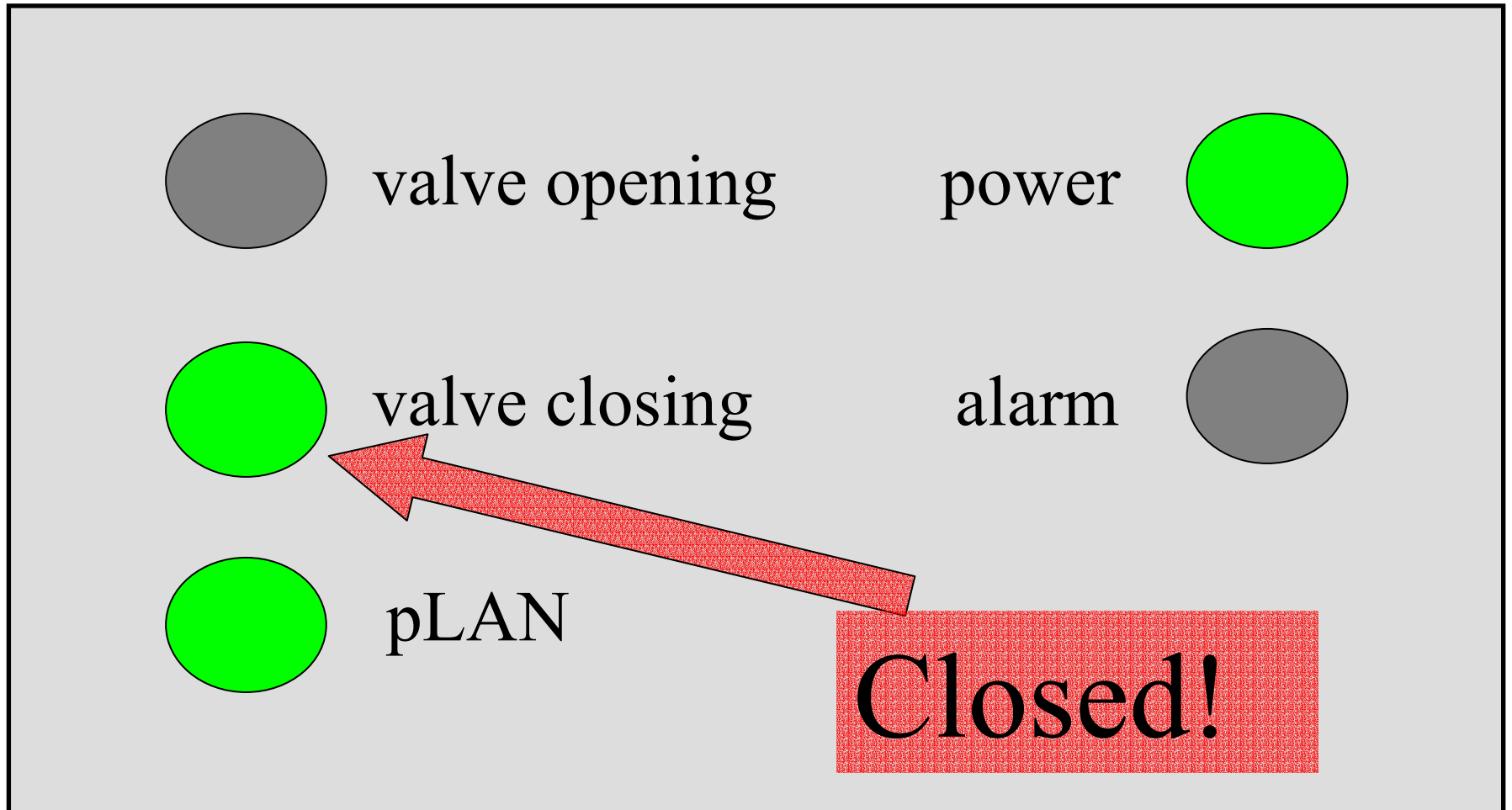


pLAN

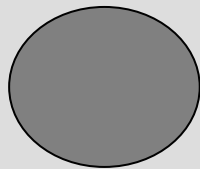


ON-LINE!

The VALVE is completely CLOSED

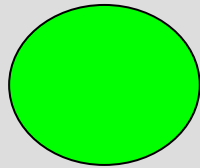
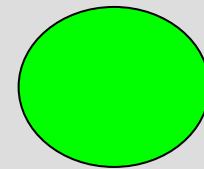


Ready to START!



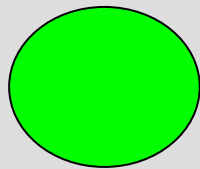
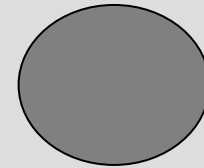
valve opening

power



valve closing

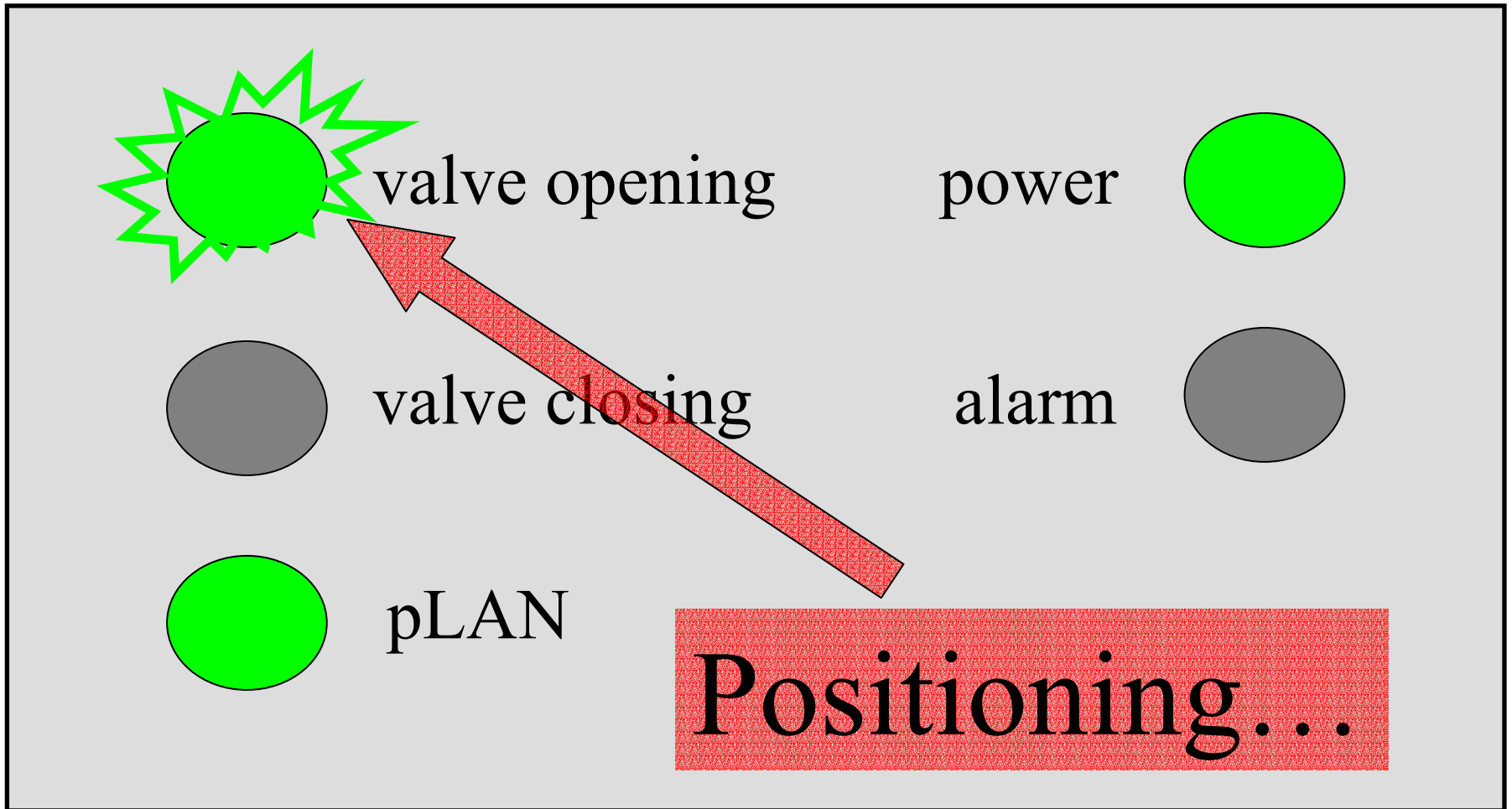
alarm



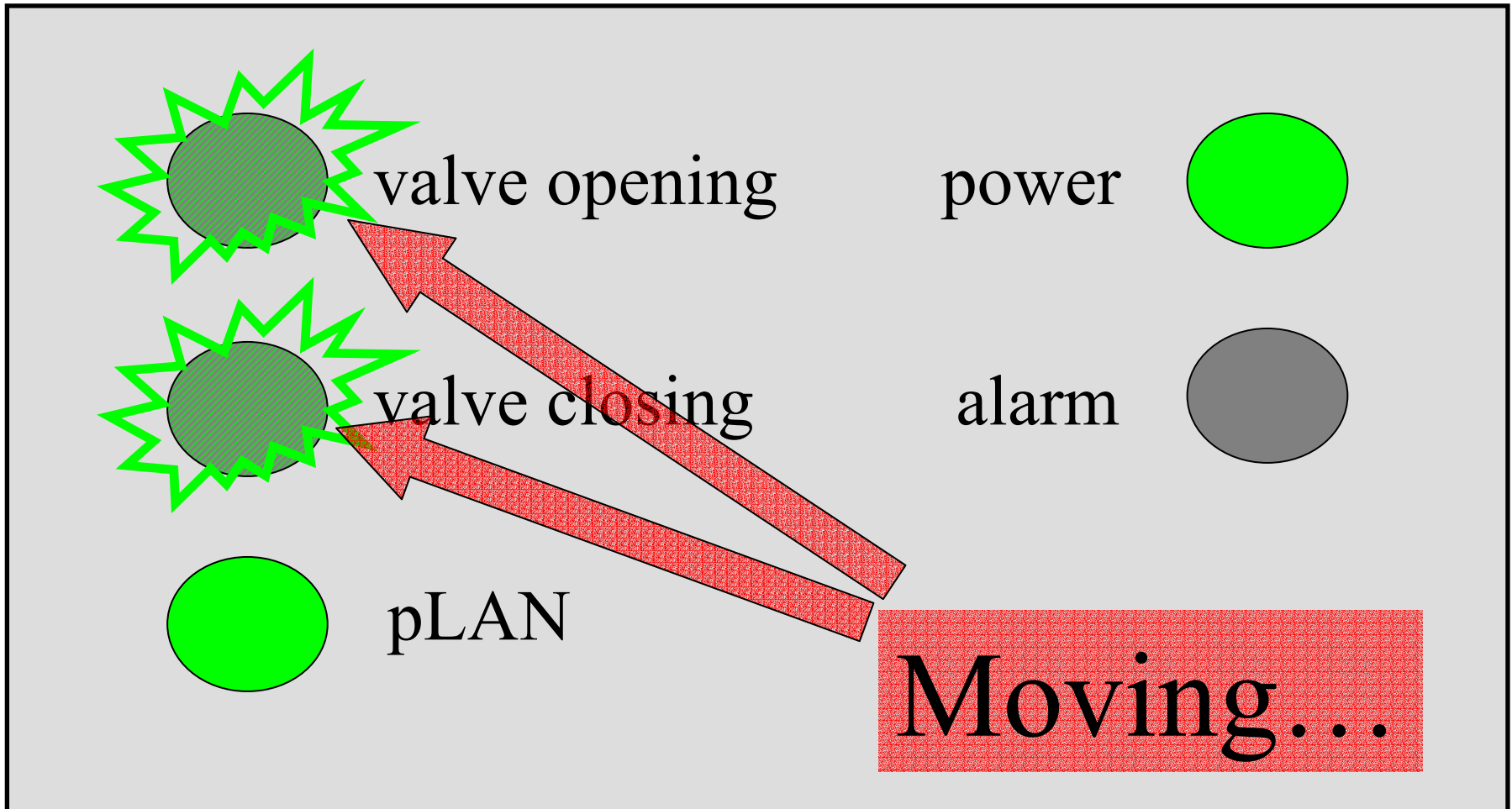
pLAN

READY!

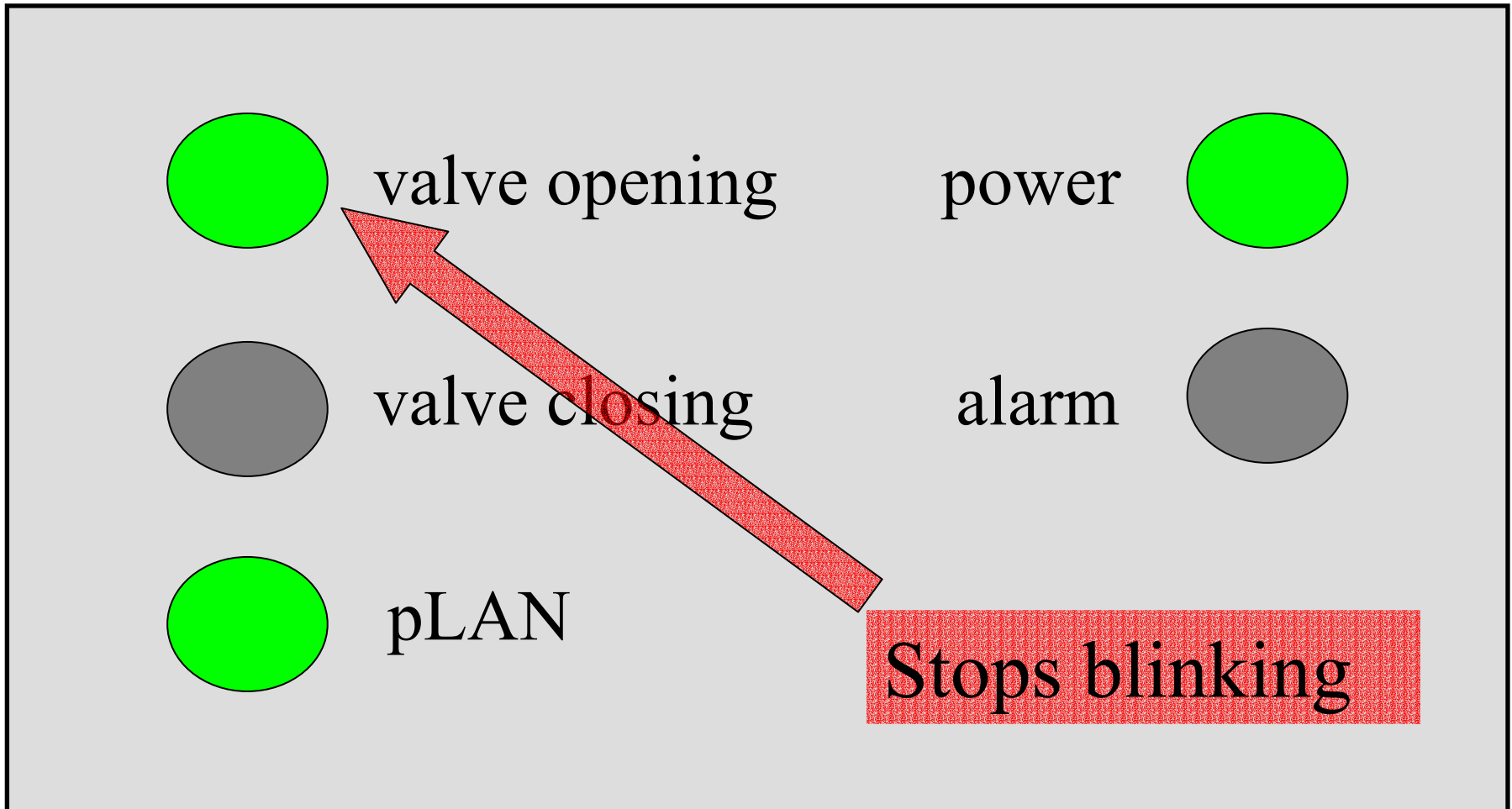
The unit STARTS!



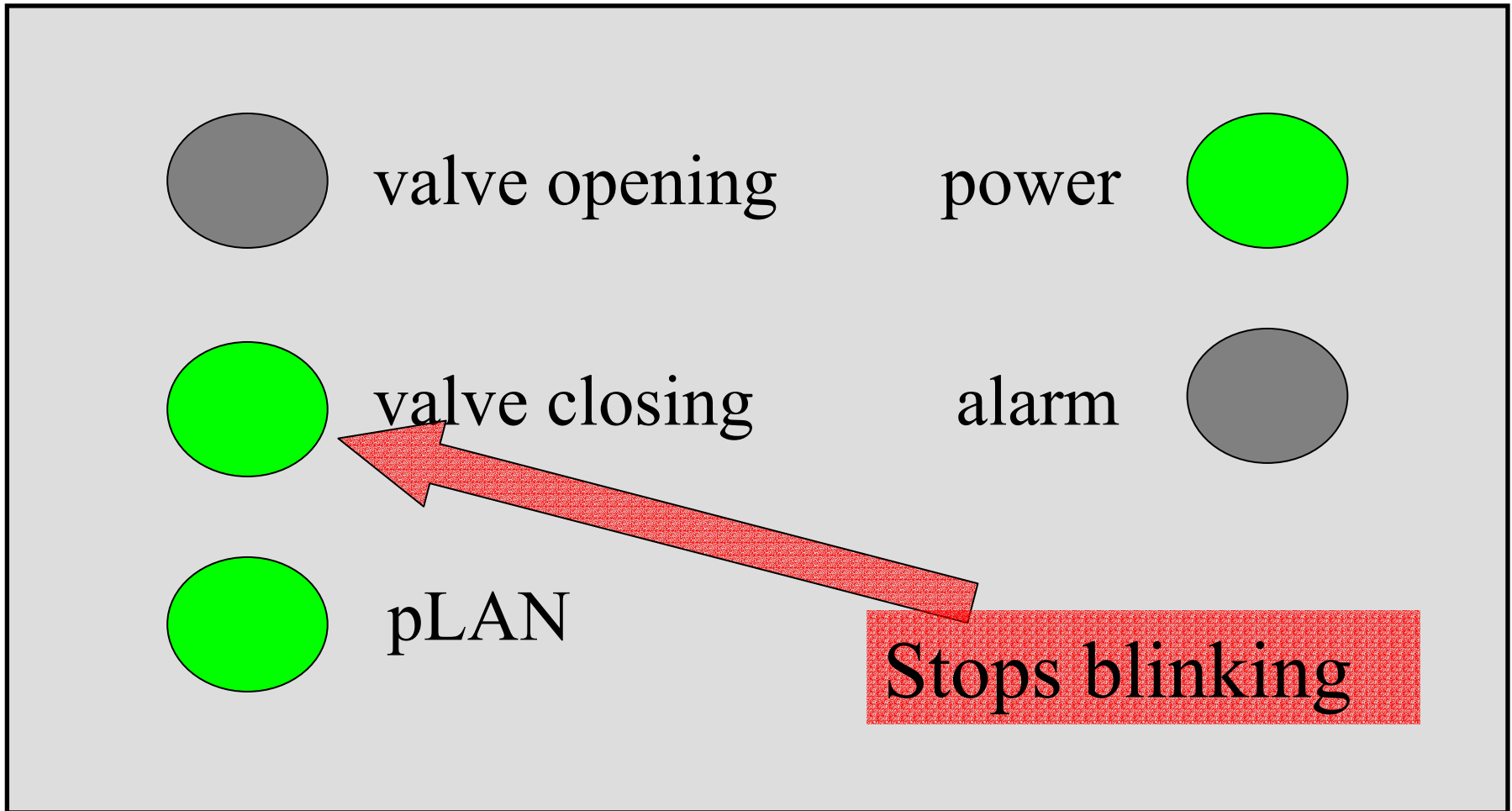
Moving and regulating...



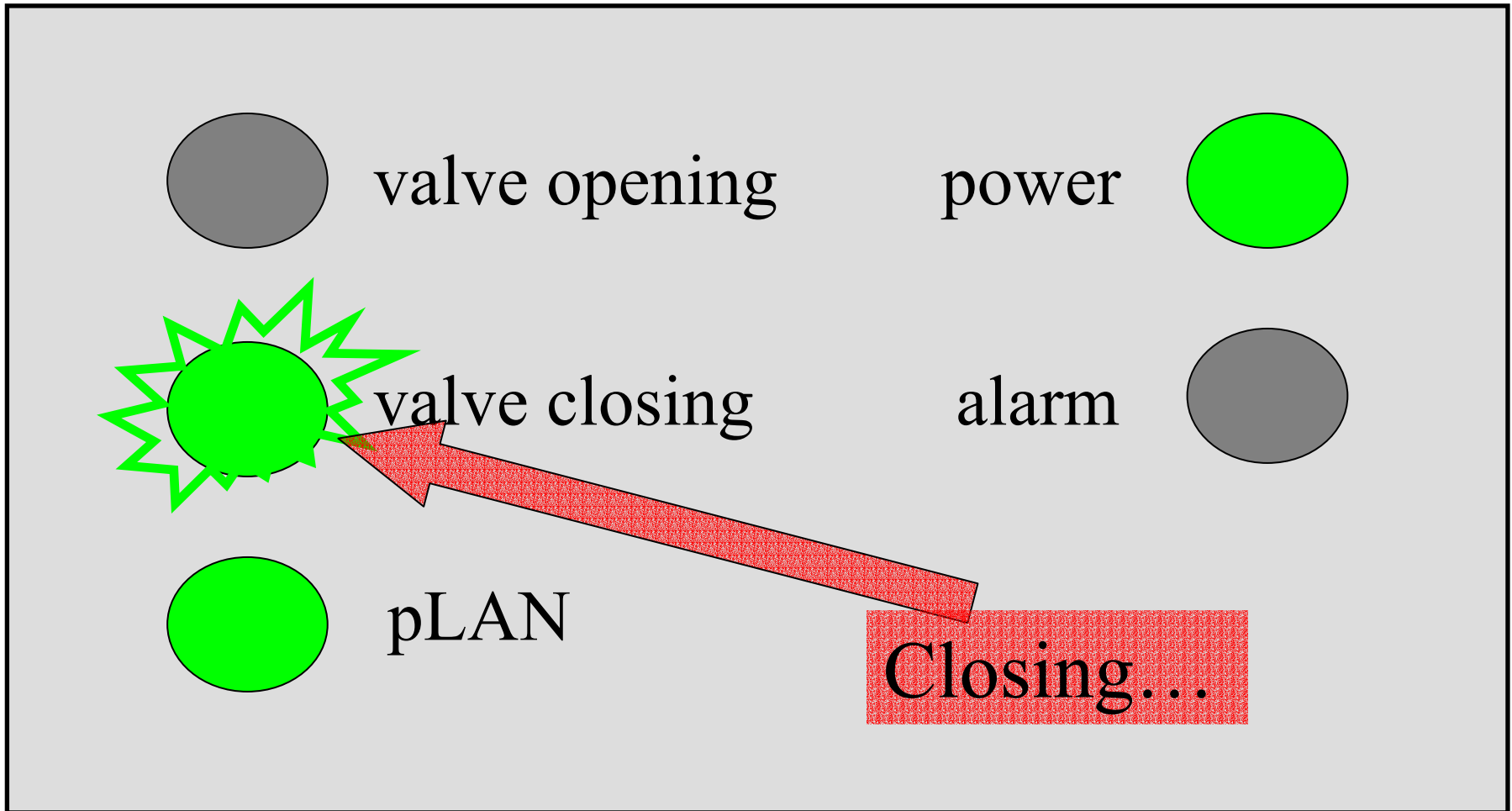
If the valve reaches the MAXIMUM POSITION...



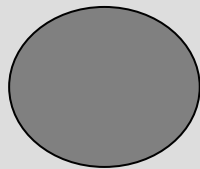
If the valve reaches the MINIMUM POSITION...



The unit **STOPS!**

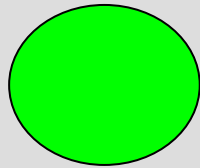
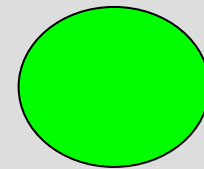


ready to START again!



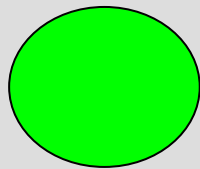
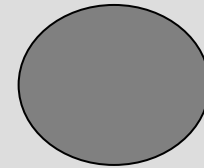
valve opening

power



valve closing

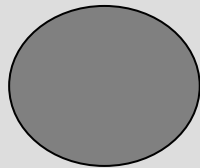
alarm



pLAN

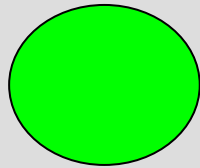
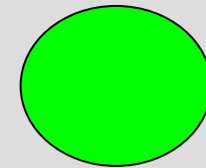
READY!

Problem 1: The pLAN/RS485 led never stops BLINKING?



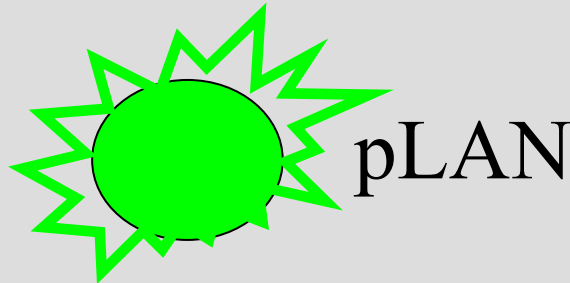
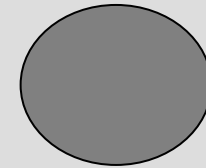
valve opening

power



valve closing

alarm



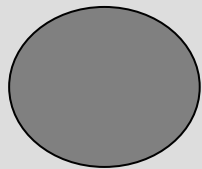
pLAN

The pLAN is wrongly connected

Wrong pLAN addresses (pCO/DRIVER)

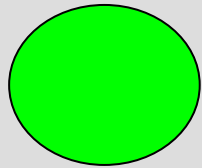
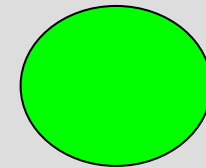
Problems with pLAN in the pCO software

Problem 2: The pLAN/RS485 led is permanently OFF



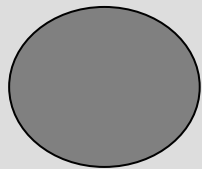
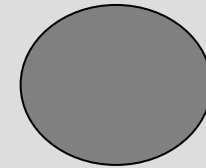
valve opening

power



valve closing

alarm



pLAN

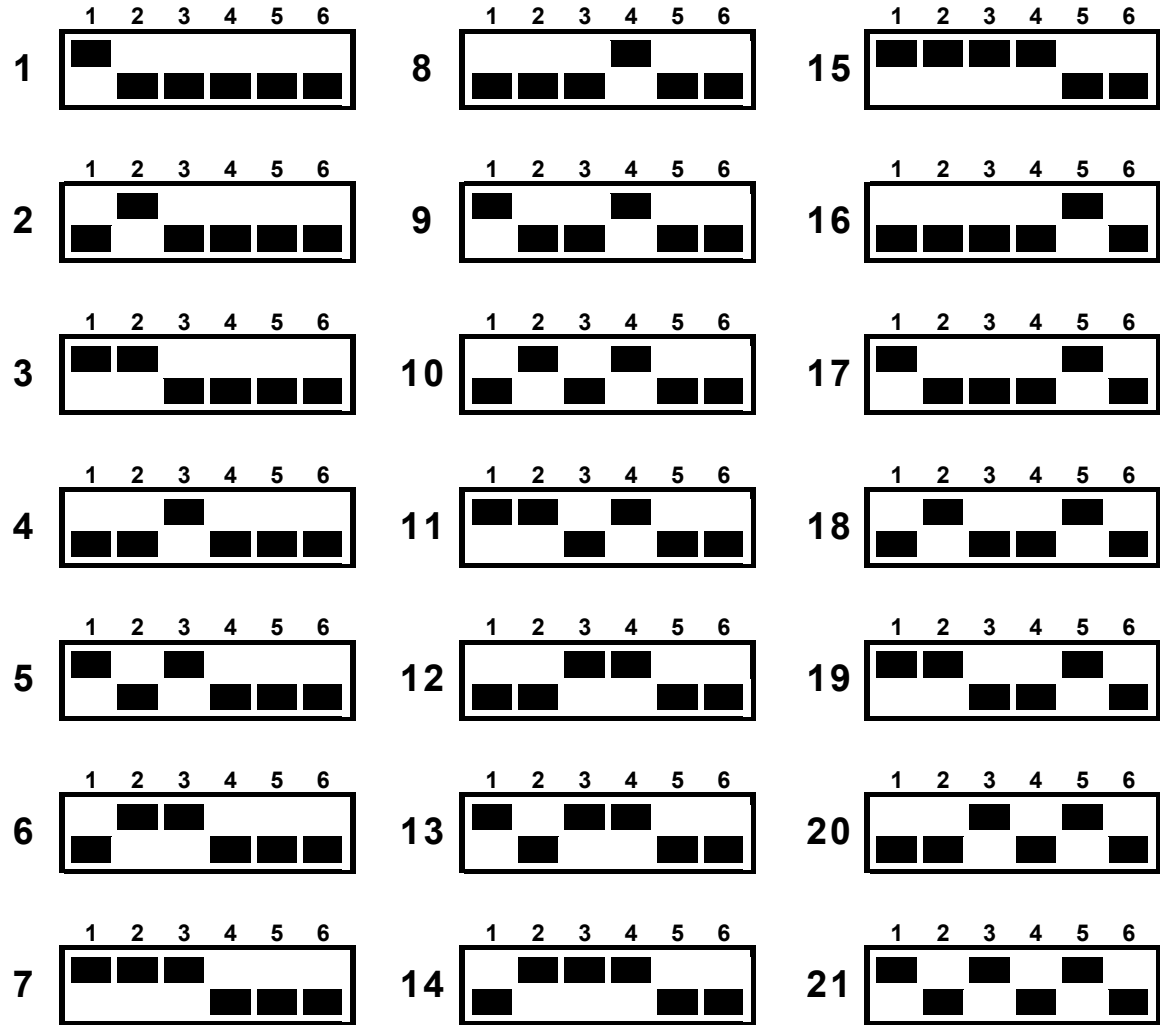
It's **WRONGLY/NOT**
CONNECTED!

Problems 1&2: pLAN/RS485 does not work

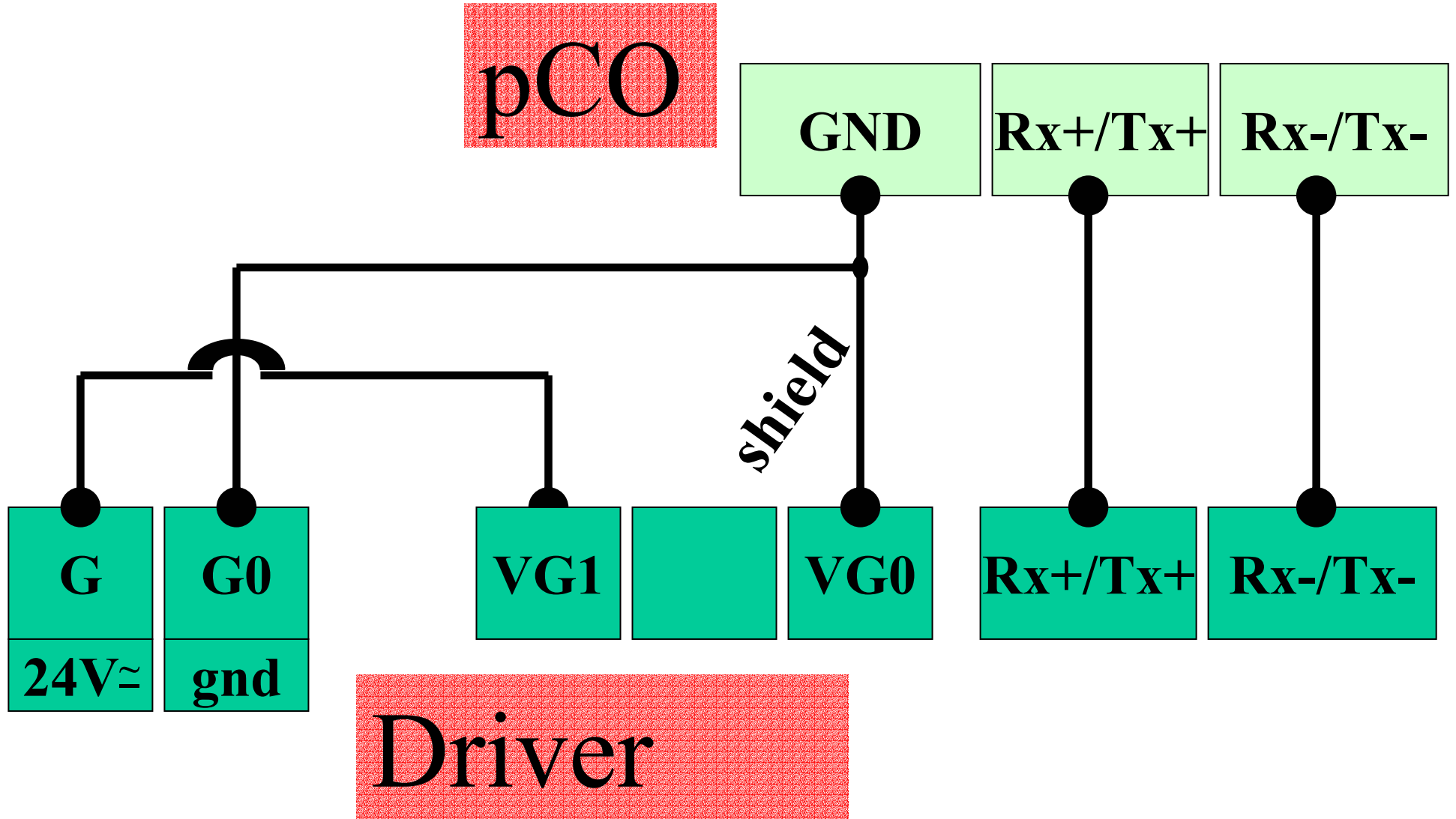
PROBLEM	CONDITIONS	REASONS	ACTION
The pLAN led does not works as usual...	The pLAN led never stops blinking...	the pLAN is wrongly connected	check pLAN connections
		the pLAN ADDRESSES are wrong (in the driver, in the pCO or in both of them)	check pLAN addresses
		the pLAN management in the pCO software has problems	check pCO software
...or the driver does not communicate with pCO terminal	The pLAN led is fixed OFF	the pLAN is wrongly/not connected	check pLAN connections
	The driver I/O on the terminal are all at 0 (zero) value	the pLAN is wrongly connected	check pLAN connections
		the pLAN management in the pCO software has problems	check pCO software

Problems 1&2: pLAN/RS485 addresses

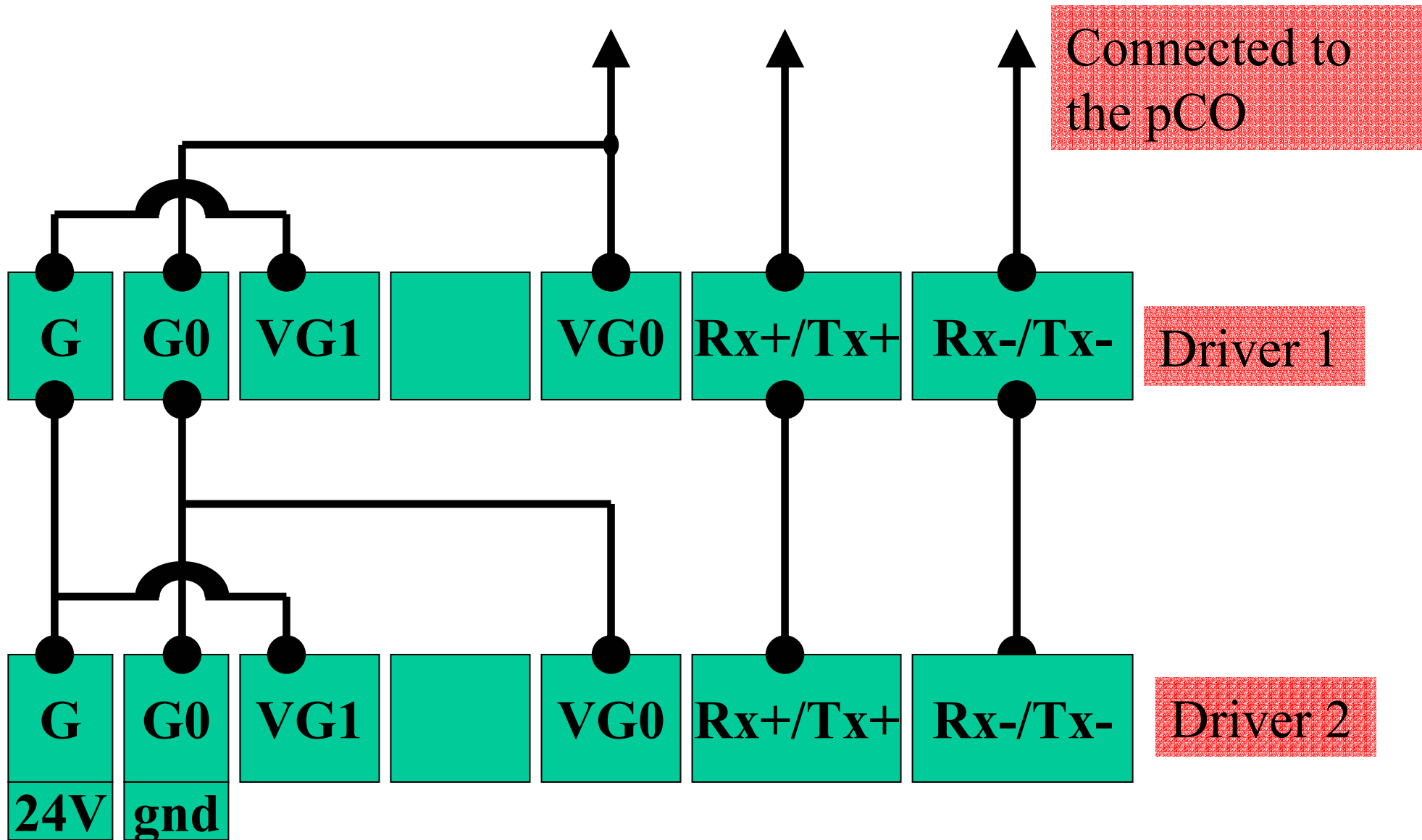
pLAN addresses



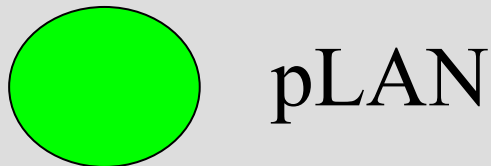
Problems 1&2: pLAN/RS485 connections



Problems 1&2: pLAN/RS485 connections



Problem 3: Step motor ERROR



Valve **WRONGLY/NOT CONNECTED**

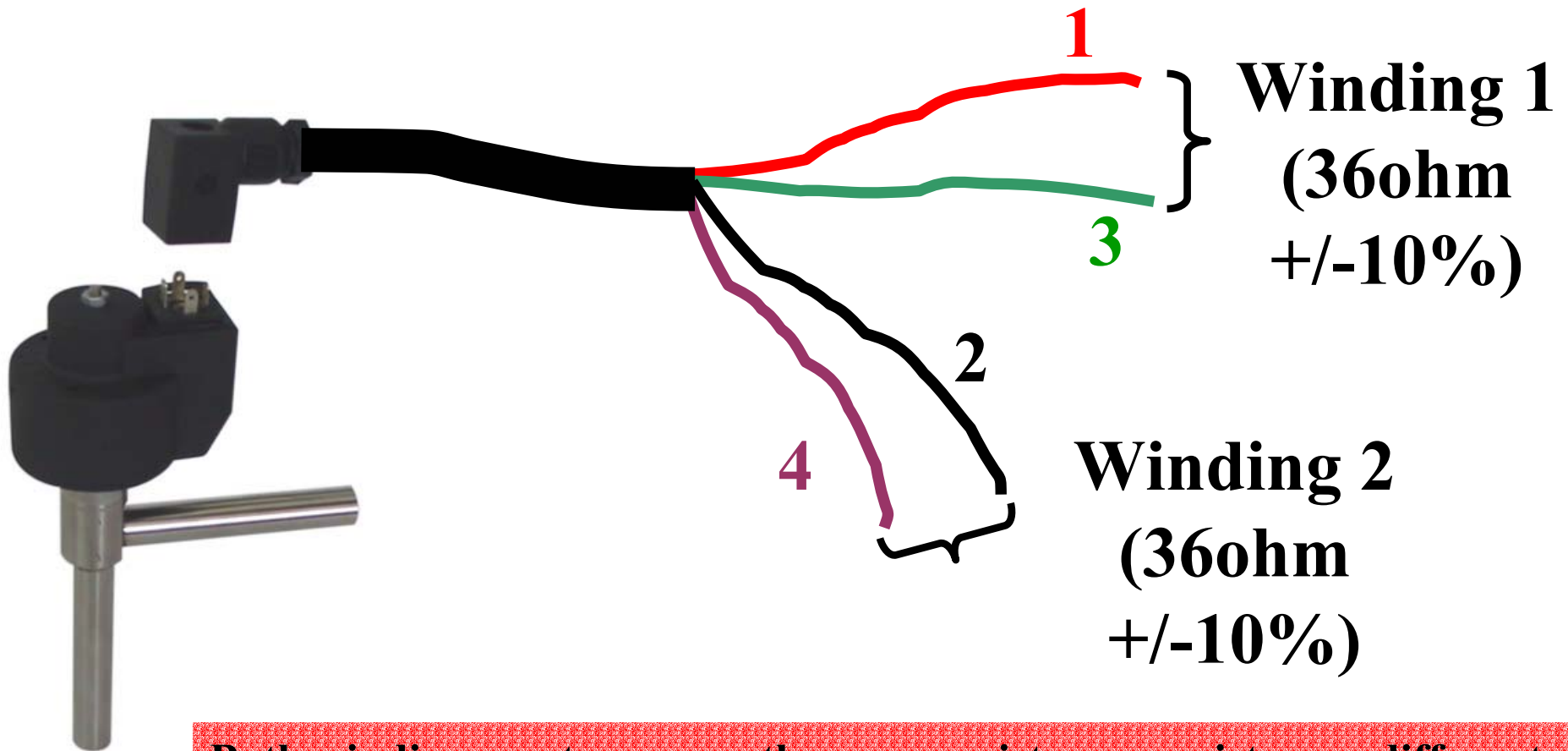
Valve motor **DAMAGED**

Valve type **PARAMETER INCORRECT**

Problem 3: Step motor ERROR

PROBLEM	CONDITIONS	REASONS	ACTION
The driver LEDS indicate a STEP MOTOR ERROR	There are problems with the valve MOTOR	The valve is wrongly/not connected	check valve connections (1)
		The VALVE TYPE parameter is wrong	check VALVE TYPE parameter according to the valve connected
		The VALVE CURRENT parameter is wrong (in case of CUSTOM VALVE selected)	check VALVE CURRENT parameter according to the valve specification (ie. Carel E2V has 450mA)
		The valve MOTOR could be damaged	check windings resistance (2)
replace valve MOTOR (for Carel E2V)			
			replace valve

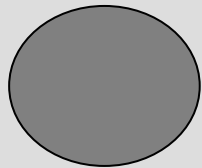
Problem 3: Step motor connections



Both winding must measure the same resistance; resistances different from the specific value means that the MOTOR is damaged!

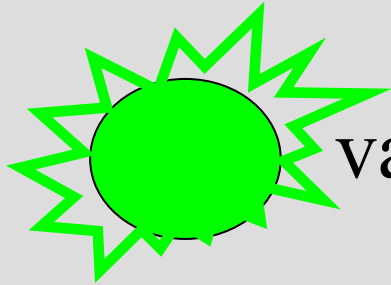
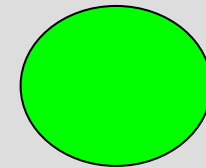
Resistances SLIGHTLY change with temperature, high temperature mean higher resistance (ie. Carel E²V has 360hm at 25°C, 320hm at 0°C)

Problem 4: Probe ERROR



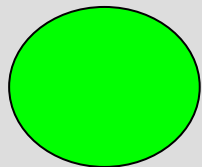
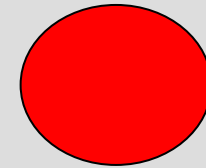
valve opening

power



valve closing

alarm



pLAN

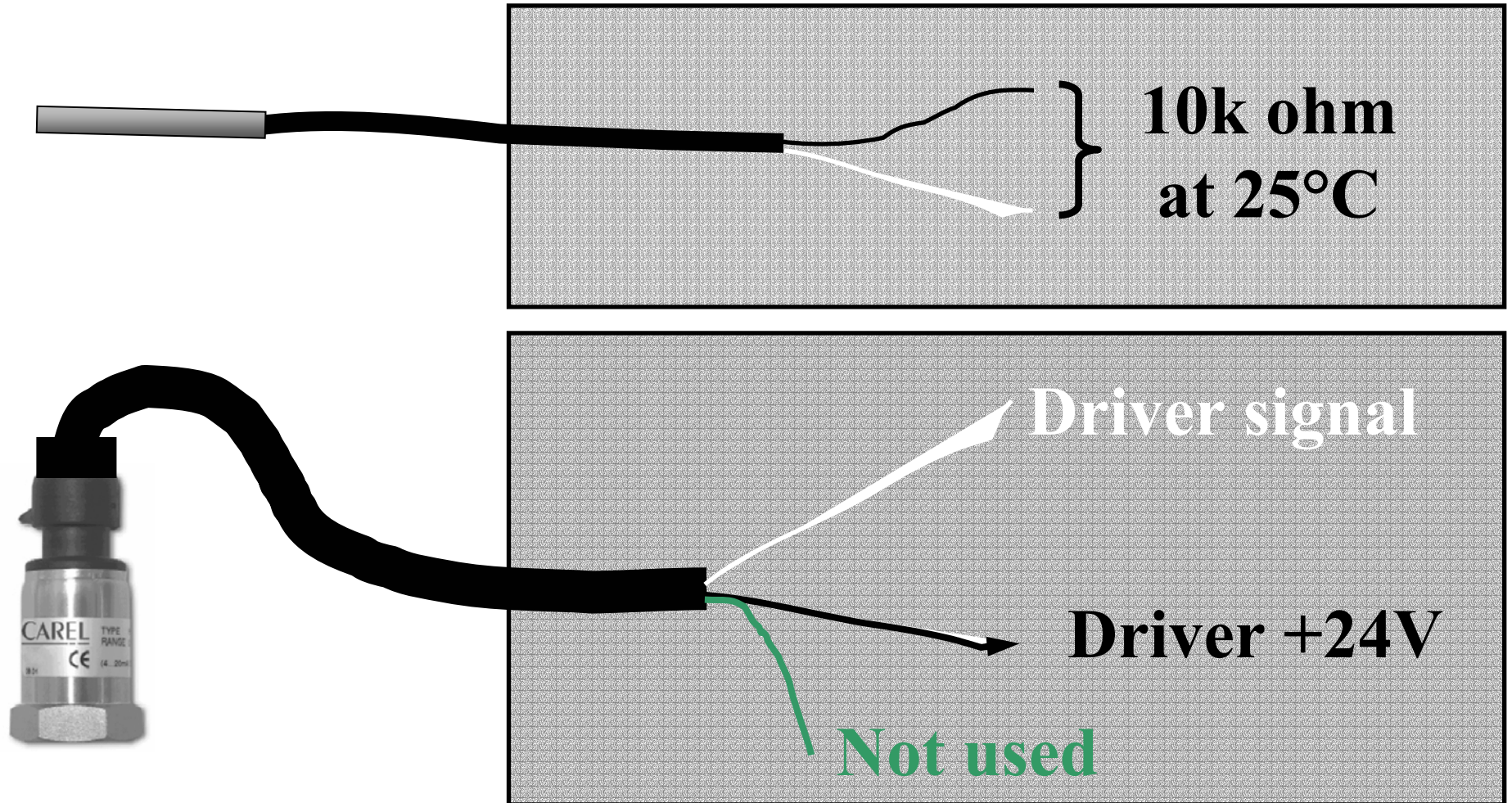
Probe **WRONGLY/NOT CONNECTED**

Probe **DAMAGED**

Problem 4: Probe ERROR

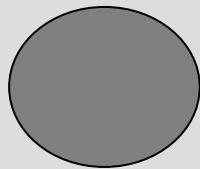
PROBLEM	CONDITIONS	REASONS	ACTION
The driver LEDS indicate a PROBE ERROR	If the driver does not read the TEMPERATURE PROBE	The temperature probe is wrongly/not connected	check temperature probe connections
		The temperature probe could be damaged	check temperature probe wires resistance, it must measure 10Kohm at 25°C
			replace temperature probe
	If the driver does not read the PRESSURE PROBE	The pressure probe is wrongly/not connected	check pressure probe connections
		The pressure probe could be damaged	replace pressure probe

Problem 4: Probes connections

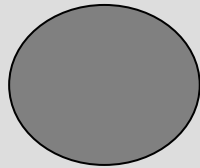


Problem 5: Eeprom ERROR

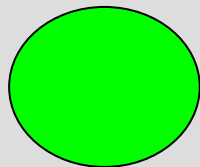
Needs a "GO AHEAD"!



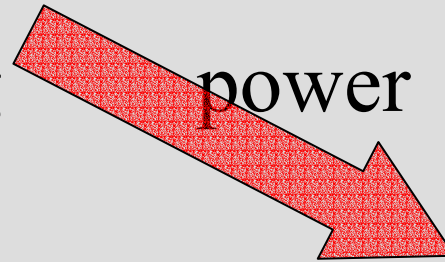
valve opening



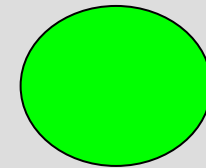
valve closing



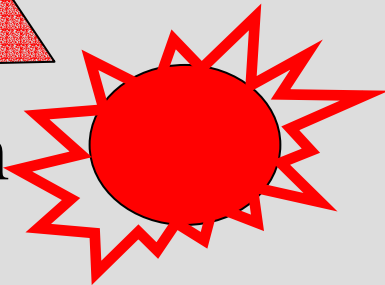
pLAN



power



alarm



Try to POWER OFF and ON the driver

If still in ERROR the driver is DAMAGED!

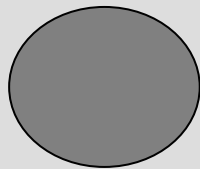
Problem 5: Eeprom ERROR

PROBLEM	CONDITIONS	REASONS	ACTION
The driver LEDS indicate an EEPROM ERROR	The error appears for the first time	There could be a temporary problem with the eeprom of the driver	POWER OFF and ON the driver
			execute the "GO AHEAD" command
	The error always appears after multiple POWER OFF and ON of the driver	The DRIVER EEPROM is damaged	Replace the driver with a new one

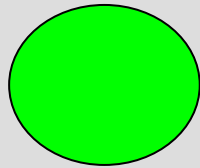
The "GO AHEAD" command is necessary when the driver needs to be sure that it can start working. This happens in case of PARTICULAR ERRORS.

Problem 6: Battery ERROR (only if enabled)

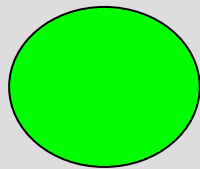
Needs a "GO AHEAD"!



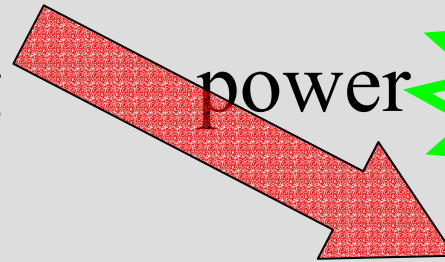
valve opening



valve closing

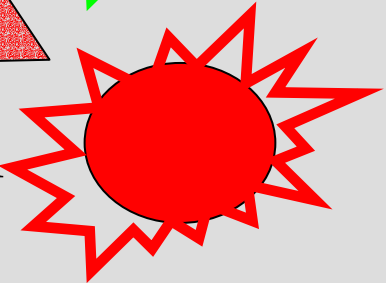
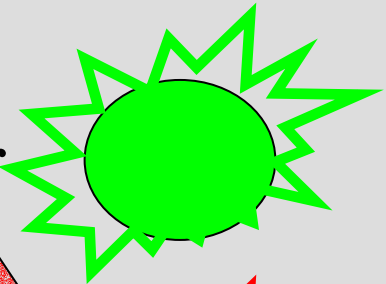


pLAN



power

alarm



The battery is wrongly/not connected

The battery is discharged

The battery is DAMAGED

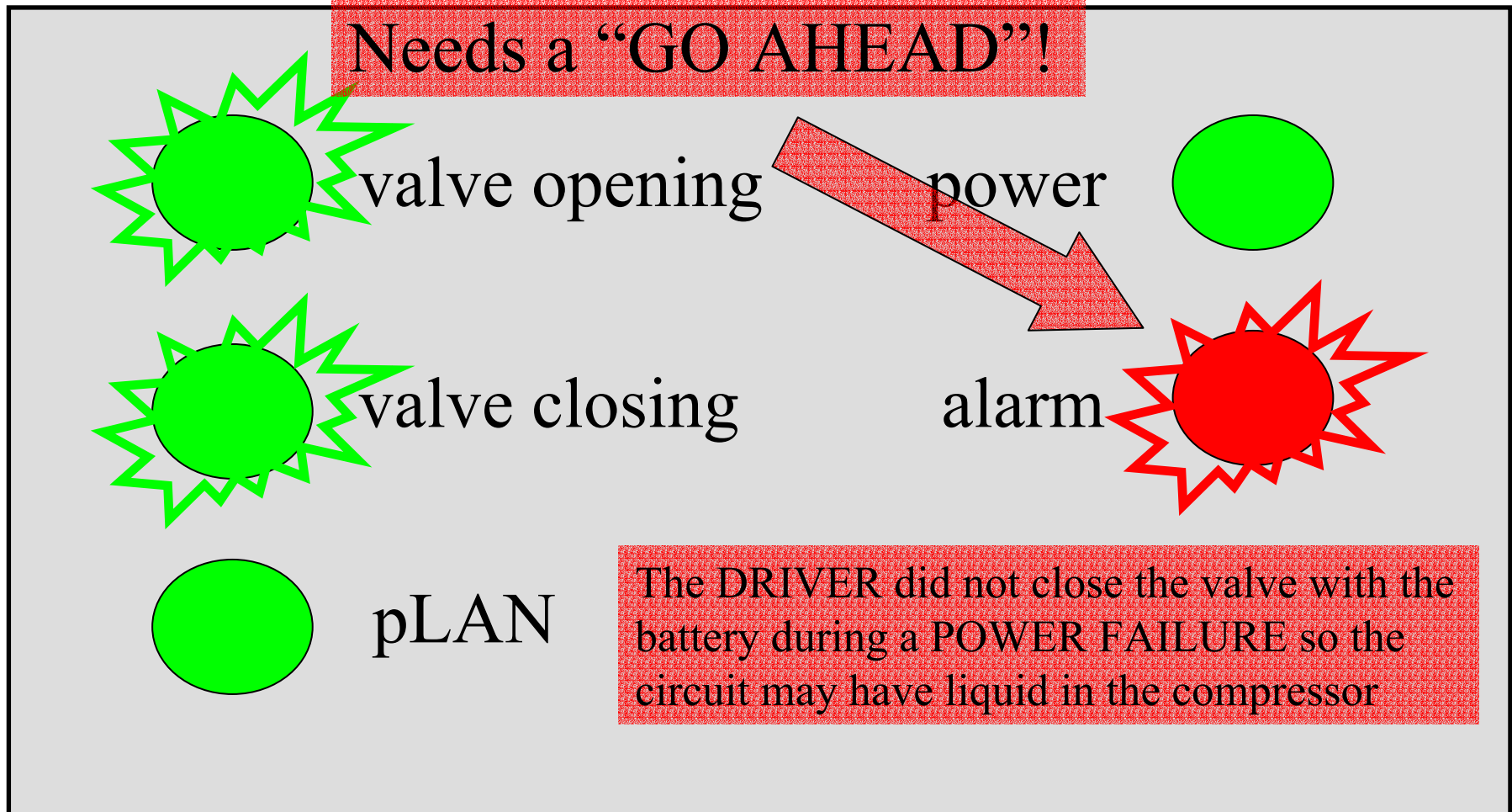
Problem 6: Battery ERROR (only if enabled)

PROBLEM	CONDITIONS	REASONS	ACTION
<p>The driver LEDS indicate a BATTERY ERROR...</p> <p>...only if the battery management is enabled</p>	<p>There is a problem in the BATTERY MENAGEMENT (1)</p>	The battery is wrongly/not connected	check battery connections
			execute the "GO AHEAD" command
		The battery is DISCHARGED (the driver will work but you have to wait for battery recharge to be sure that it will close the valve during power failures)	check if the BATTERY RESISTANCE parameter is lower than 8ohms
			check if the BATTERY VOLTAGE parameter is lower than 17volt
			execute the "GO AHEAD" command
	The battery is DAMAGED (the driver will work but it won't close the valve during power failures)	check if the BATTERY RESISTANCE parameter is higer than 8ohms	
		Replace battery pack with a new one	

Problem 6: Battery status values

<i>Battery status</i>	<i>Voltage</i>	<i>Resistance</i>
MAXIMUM CHARGE	19.5 Volts	1 ohms
GOOD AND WORKING	Higher than 18 Volts	1 to 1.5 ohms
DISCHARGED	Lower than 17 Volts	3 to 4 ohms
DAMAGED	Any	higher than 8 ohms

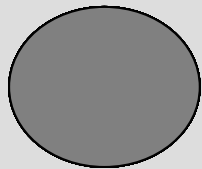
Problem 7: Valve not closed ERROR (only if enabled)



Problem 7: Valve not closed ERROR (only if enabled)

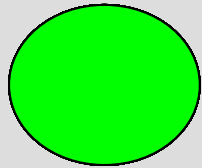
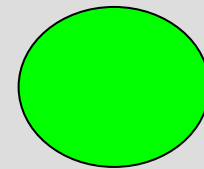
PROBLEM	CONDITIONS	REASONS	ACTION
<p>The driver LEDS indicate a VALVE NOT CLOSE ERROR...</p> <p>...only if the battery and "valve not close" error management are both enabled</p>	<p>There was a problem in the battery during the last power failure so there could be LIQUID IN THE COMPRESSOR</p>	<p>The battery could be wrongly connected and sometimes it does not work</p>	<p>check battery connections</p>
		<p>The unit will probably have difficulties in the next start up</p>	<p>execute the "GO AHEAD" command if enabled</p> <p>Follow the next start up of the unit in order to check if there is too much liquid in the compressor</p>

Example



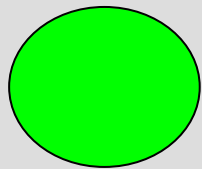
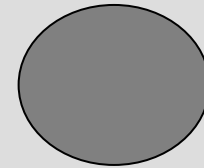
valve opening

power



valve closing

alarm



pLAN

Ready again