

# Monitoring and Interlock System

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# Monitoring and Interlock System

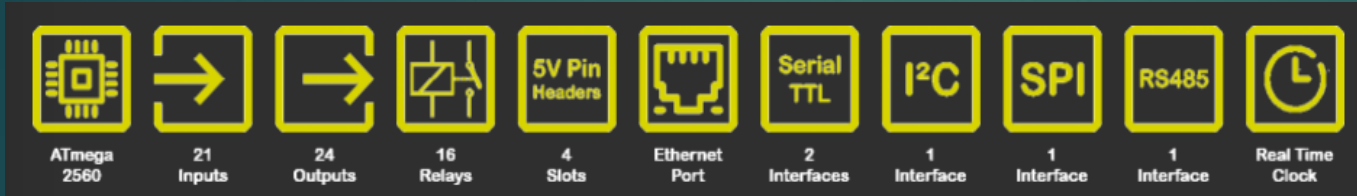
- THE INTERLOCK SYSTEM IS A SAFETY SYSTEM, WHICH ACTS AS LAST LINE OF DEFENSE, AND IT IS DESIGNED TO PROTECT THE SENSITIVE DETECTOR ELEMENTS AGAINST UPCOMING RISKS.
- THE MAIN PARAMETERS, SUCH AS THE COOLING WATER FLOW, GAS FLOW (ETC...) WILL BE READ THANKS TO SEVERAL SENSOR DISTRIBUTED AROUND THE DETECTOR.
- CURRENT PARAMETER VALUES WILL ALWAYS BE AVAILABLE TO THE USER, SO HE CAN KNOW THE STATUS OF THE DETECTOR AT ANY TIME.

# Monitoring and Interlock System - Parameters

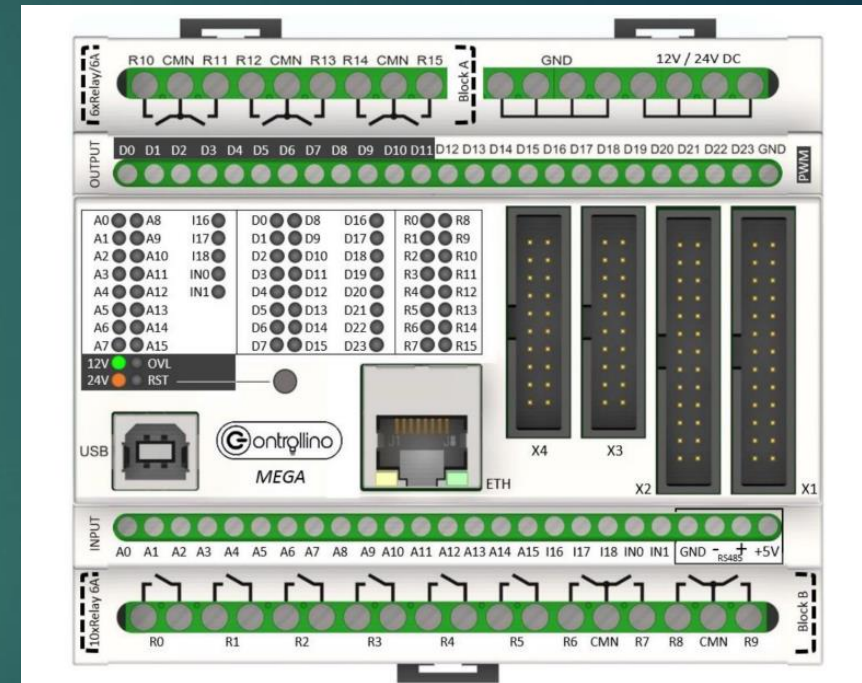
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	Parameters	Actions	Alarms
Gas	Flow	To read, To plot, To store	No Flux
	Humidity	To read, To plot, To store	High Humidity
	Pressure	To read, To plot, To store	Low Pressure
	Temperature	To read, To plot, To store	High Temperature
Cooling	Flow (level)	To read	No Flux
	Pressure	To read, To plot, To store	Low Pressure
Ambient	Temperature	To read, To plot, To store	High Temperature
	Humidity	To read, To plot, To store	High Humidity
High Voltage	Voltages	To read, To plot, To store	Power surges
	Currents	To read, To plot, To store	Over Current/Discharge
Low Voltage	Voltages	To read, To plot, To store	Low values
	Currents	To read, To plot, To store	Low/High currents
	Temperature	To read, To plot, To store	High Temperature

# Monitoring and Interlock System



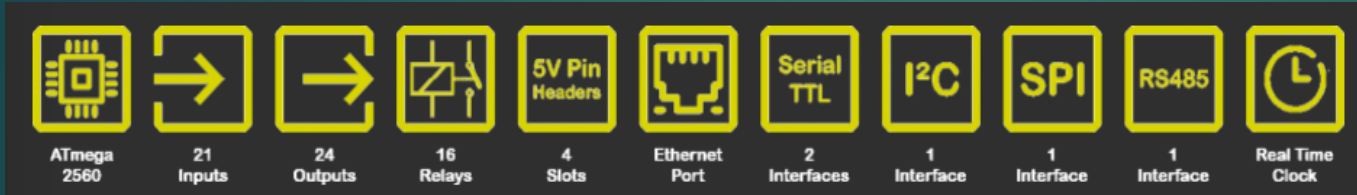
- ▶ The core of the Monitoring and Interlock is a “CONTROLLINO MEGA”.
- ▶ An appropriate logic on the “CONTROLLINO” will define the actions which should be executed in case of an error.
- ▶ Since the Interlocking system is the detector's last line of defense it will be made redundant.



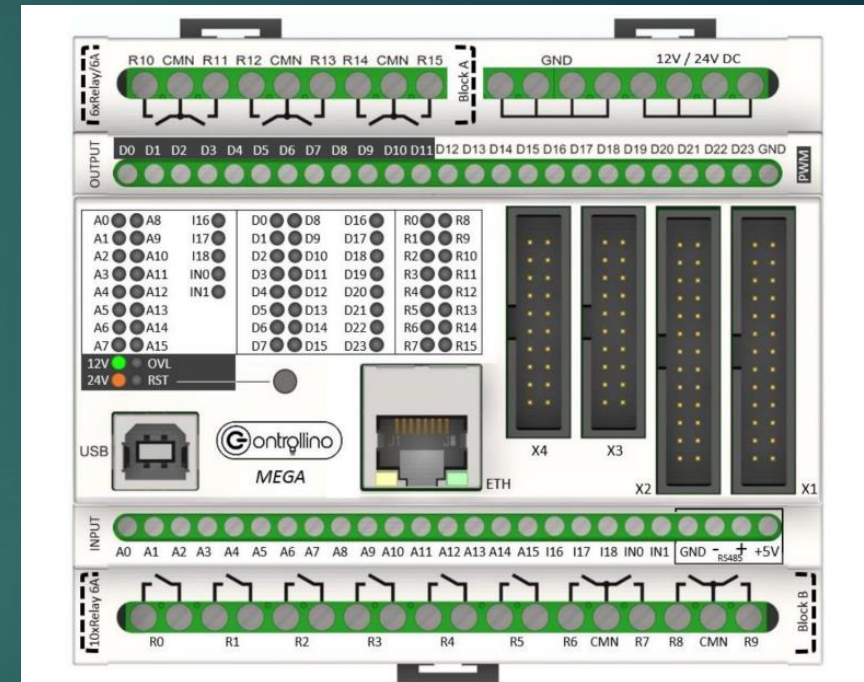
- CONTROLLINO MEGA

# Monitoring and Interlock System

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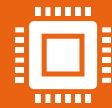


- ▶ The “CONTROLLINO MEGA” will read the values from the sensors and it will send them to a PC (where they will be stored).
- ▶ In order to transfer the data to the PC is used a UDP protocol.
- ▶ The tests are carried out with "homemade" sensors, the final choice of sensors to be used in the final version is in progress.



- CONTROLLINO MEGA

# Monitoring and Interlock System - UI



Monitor in the Lab. (the user can directly check the current value of the parameters) .



Visualization of the trend of the parameters through Grafana (or similar) .



The data will in any case be saved on a file for offline analysis.

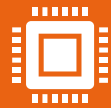


Alarm reports will be sent to the user via e-mail.



# Monitoring and Interlock System - UI

THANKS!!!



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