Irrigation System for Greenhouse

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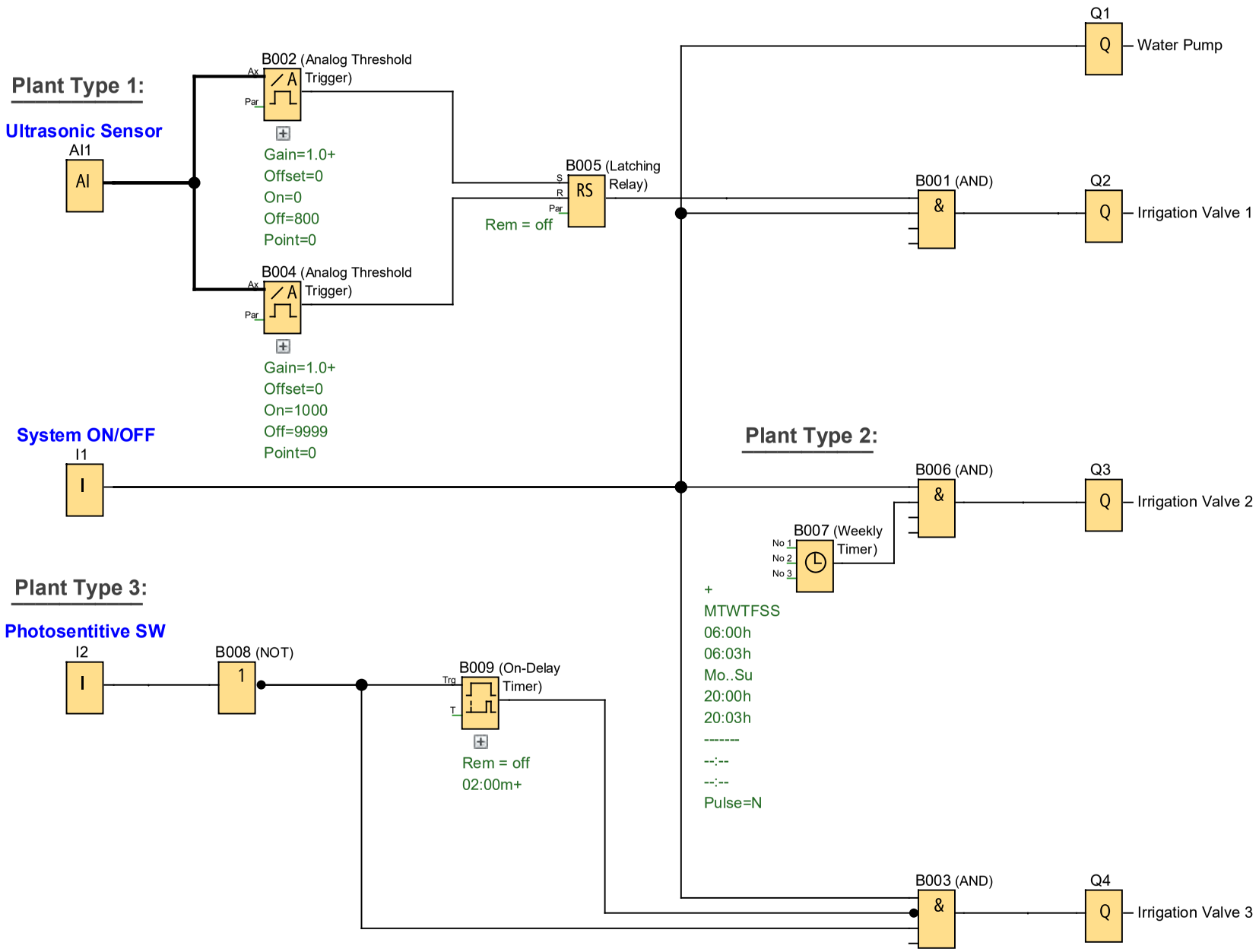

Creator:	adbejo0		Project:	Bewässerung von Gewächshauspflanzen	Customer:	SIEMENS AG
Checked:	Beyer	C:\Program Files\Siemens\LOGOComfort_V5\Samples\Siemens.gif	Beispiel 01		Diagram No.:	13001
Date:	7/9/08 3:31 PM/8/28/25 1:49 PM		File:	irrigation_system_for_greenhouse_plants_FBD.lsc	Page:	1 / 4

Requirements:

Automatically control the irrigation of different plant types in a greenhouse.
- Type 1 are aquatic plants in a pool where the water level must be kept within a certain range.
- Type 2 are to be irrigated each morning and evening for 3 minutes .
- Type 3 are to be irrigated every evening for 2 minutes.
The irrigation system should be able to be switched ON/OFF.

LOGO! Solution:

The water pump is enabled while the system is switched ON.
Irrigation routes are controlled via valves that allow water to flow to the different plant types when opened.

Irrigation of type 1:
The water level in the pond is always kept within a set range via an analog ultrasonic level sensor.
2 threshold triggers are used to turn the water pump ON if the level reaches a certain level & OFF when full.

Irrigation of type 2:
Via the time switch the irrigation pump is switched ON for three minutes (daily) from 6:00 to 6:03 in the morning and from 18:00 to 18:03 in the evening.

Irrigation of type 3:
A photo-sensitive switch turns ON & OFF at a set thresholds in the mornings & evenings, irrigating only in the evenings for 2 minutes when the photo-sensitive switch at I3 turns OFF.

Components used:

- LOGO! 230RC
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- AI1 Ultrasonic Sensor (0-10V)
- I1 Switch to enable automatically controlled watering (NO contact)
- I2 Photo-sensitive switch (NO contact)
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- Q1 Relay for Water Pump 1 (Plant Type 1)
- Q2 Relay for Water Pump 2 (Plant Type 2)
- Q3 Relay for Water Pump 3 (Plant Type 3)

Advantages:

- Pond water level range can be easily asjusted if needed,
- The irrigation time can be changed in the mornings and evenings.

Block Number (Type)	Parameter
B001(AND) : (AND)	
B002(Analog threshold trigger) : (Analog Threshold Trigger)	Gain=1.0+ Offset=0 On=0 Off=800 Point=0
B003(AND) : (AND)	
B004(Analog threshold trigger) : (Analog Threshold Trigger)	Gain=1.0+ Offset=0 On=1000 Off=9999 Point=0
B005(Latching Relay) : (Latching Relay)	Rem = off
B006(AND) : (AND)	
B007(Weekly Timer) : (Weekly Timer)	+ MTWTFSS 06:00h 06:03h Mo..Su 20:00h 20:03h ------- --:-- --:-- Pulse=N
B008(NOT) : (NOT)	
B009(On-Delay) : (On-Delay Timer)	Rem = off 02:00m+
Q1(Output) : Water Pump	
Q2(Output) : Irrigation Valve 1	
Q3(Output) : Irrigation Valve 2	
Q4(Output) : Irrigation Valve 3	

Connection	Label
AI1	
I1	
I2	
Q1	
Q2	
Q3	
Q4	