



SPIII Manual

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General information

1 About this manual

This manual book describes the installation, functions and operation rules of our intelligent controller series for solar water heating control system. When install with other applications on this system, such as solar collector, pump station, and storage, please follow the instruction of correlative suppliers. The installation, electrical connection, adjustment and maintenance should be carried out by a qualified specialist.

2 Safety rules

- The controller can't be installed in the room where easily inflammable and explosive mixtures (e.g. gas or oil) are present or may occur.
- The controller can't be installed in the location which exceeds its allowable environment condition.
- **All operations which require opening the controller are only to be taken without the power supply. And the operation should be carried out by a qualified specialist!!!**
- Before connecting the electrical wire, make sure that the power supply matches the required parameter.
- All devices connected to the controller must match the technical parameter of the controller.
- Once the controller is damaged or failure to work, please take it out of system and inform the supplier.

3 Liability waivers



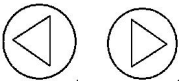

- Improper installation or operation may cause damages to the controller and personnel. As faults can never be excluded, we don't offer a guarantee for the completeness of the drawings and texts of this manual, they only represent some examples. They can only be used on your own risk. No liability is assumed for incorrect, incomplete or false information and the resulting damages.
- We preserve the right to put changes to technical date or installation and operation instructions of our products without prior notice.

4 About Sensors

- Only original equipped PT1000 temperature sensors can be matched the solar collector. It is equipped with 1.5m silicone wire and suitable for all kinds of weather conditions. They can resist the temperature up to 280 °C. There is no need to distinguish the positive and negative charges when connect them to the controller.
- Only original equipped NTC10K temperature sensors can be matched the storage and pipeline. It is equipped with 1.5m PVC wire. They can resist the temperature up to 105 °C. There is no need to distinguish the positive and negative charges when connect them to the controller.
- All sensor wires can carry low voltage. In order to avoid inductive effects, the wires must not be laid close to 230 V or 400 V cables (The min. distance should be 100mm).
- If external inductive effects exist, e.g. heavy current cables, overhead train cables, transformer substations, radio and television devices, amateur radio stations or microwave devices, then the wires for the sensors must be adequately shielded.
- Sensor wires can be extended to a maximum length of 100m. When it is extended to 50m, use 0.75mm² wire. When it is extended to 100m, use 1.5 mm² wire.
- PT1000 and NTC10k sensors are different kinds of temperature sensors, measurement fault may exist between these two at the same ambient temperature, but it doesn't effect the system operation.

Product description

1 Operation regulations

Button	Function
	Back to the system diagram
	Enter the system setting screen
	a. Check the current values of inputs, outputs, flow rate, and saved heat information b. Adjust the setting item values
	a. Enter the system setting items b. Confirm the setting c. Quick button for manual control on Auxiliary heating, Heating, Pumps operation: the default statue is off, press this button to switch on, and press again to switch off. (Note: This operation do not influence the system working statue.)

This controller is suitable for 30 solar water heating systems.

When connect to power, the default mode is the current system working mode.

2 Main technical data

Dimension: 186x140x41 mm

Input voltage: 220V ~ 240V AC or 100V ~ 120V AC

Power: 5W

Accuracy of temperature measuring: ± 1

Range of temperature measuring: PT1000: 0 ~ 199 NTC 10K: 0 ~ 99

Input signals:

2 x PT1000 sensor temperature probe 500 , silicon cable 280 ;

4 x NTC10K sensor temperature probe 135 , PVC cable 105

2 x NTC10K / 1 x Flow sensor (For Selection)

Output signals:

1 x Auxiliary heating output (Max. load current: 12 A)

4 x Relay output (Max. load current: 3A)

1 x Adjustable output (Max. load current: 1.5A)

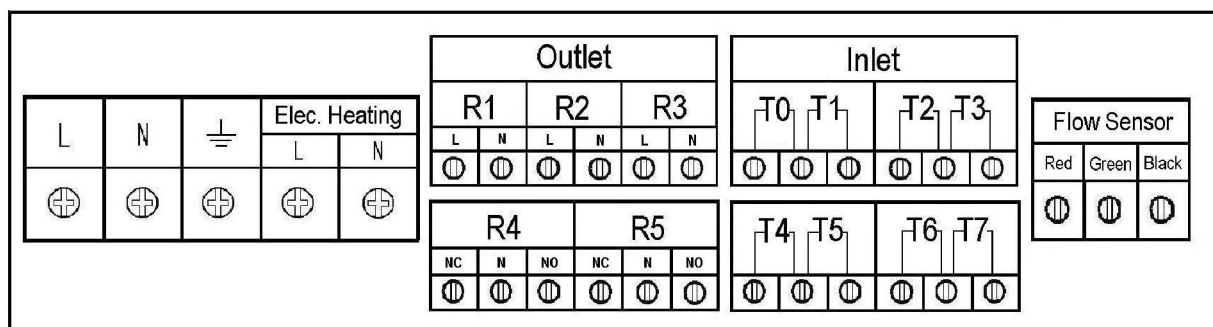
TFT-display

Communication port: 1 x RJ45

Range of environment temperature: -10 ~ 50

Water protection grade: IP40

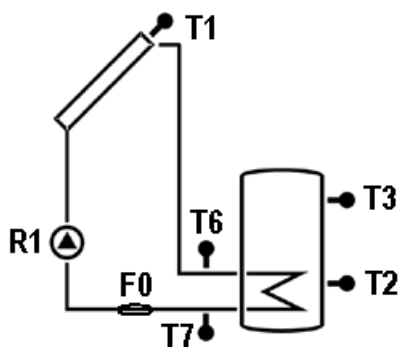
Wire connection



1. R4: the first port is R4C (Normally Close), the second port is R4N (Neutral), the third port is R4O (Normally Open). The centre of 3-port valve connects N. The route “ ” connects R4C , while the route “ \rightarrow ” connects R4O.
2. R5: the first port is R5C (Normally Close), the second port is R5N (Neutral), the third port is R5O (Normally Open). The centre of 3-port valve connects N. The route “ ” connects R5C , while the route “ \rightarrow ” connects R5O.
3. R1: With CVT (Continuously variable trans-mission) control to adjust the pump speed according to temperature
4. R2: Relay output
5. R3: Relay output
6. Elec. Heating: the electric heater on storage 1
7. T0, T1: PT1000 sensors
8. T2, T3, T4: NTC10K sensors
9. T5: NTC10K sensor, measure the environment temperature
10. Calorimetry (For selection):

This function can be selected in all the systems. It calculates four values on saved heat: the current day, the current month, the current year and the total value.

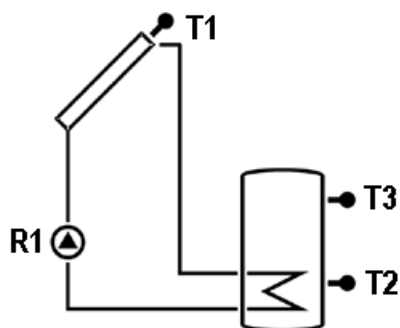
Taking system 1 as example, with two extra NTC10K sensors (T6, T7), and one flow sensor (F0), the system diagram is as following:



System description

System 1

The split pressurized solar water heating system with one collector array and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) is activated to heat up the storage.

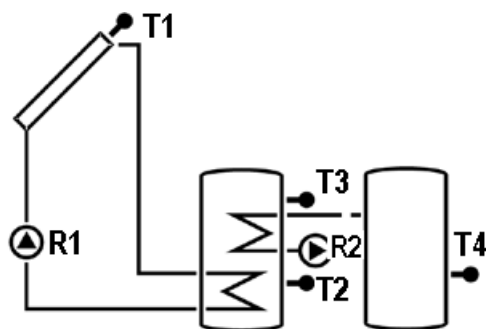


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base
T3	Temp. of Storage top

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 1
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 2

The split pressurized solar water heating system with one collector array and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) is activated to heat up the storage 1. Pump (R2) is activated to control the heat transfer to storage 2 via switch-on temp. difference 2.

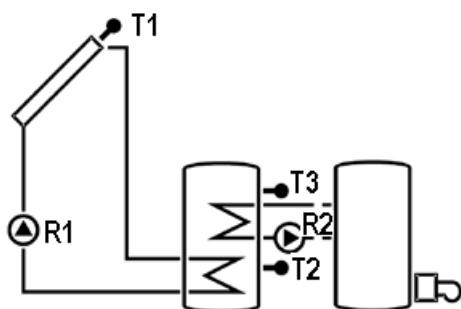


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base 1
T3	Temp. of Storage top 1
T4	Temp. of Storage 2

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 2
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Delta ON 2	8	5-20	Set the desired switch-on temp. difference 2
Delta OFF 2	4	2-12	Set the desired switch-off temp. difference 2
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 3

The split pressurized solar water heating system with one collector array and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) is activated to heat up the storage. Use one gas water heater as auxiliary heating device.

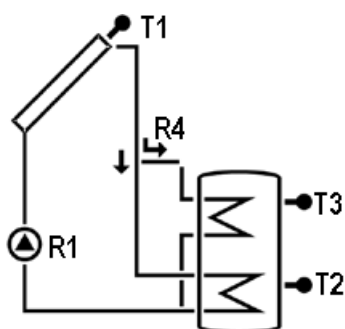


Relay output	Note
R1	Pump 1
R2	Pump 2
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base
T3	Temp. of Storage top

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 3
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 4

The split pressurized solar water heating system with one collector array and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) is activated to heat up the corresponding storage area via 3-port valve (R4). The upper storage area is priority heated.

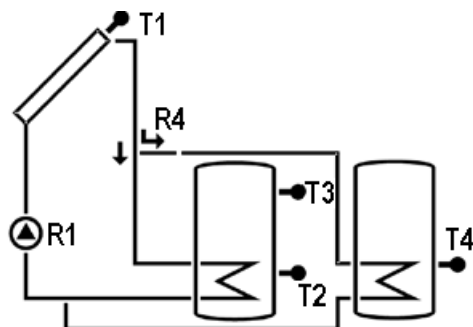


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R4	3-port valve
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base
T3	Temp. of Storage top

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 4
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 5

The split pressurized solar water heating system with one collector array and two storages. When the switch-on temp. difference 1 between collector and storages is reached, the Pump (R1) is activated to heat up the corresponding storage via 3-port valve (R4). The storage 1 is priority heated.

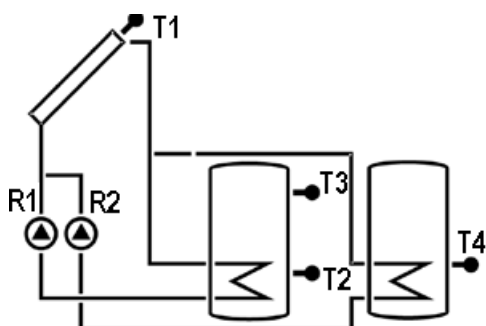


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R4	3-port valve
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base 1
T3	Temp. of Storage top 1
T4	Temp. of Storage 2

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 5
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 6

The split pressurized solar water heating system with one collector array and two storages. When the switch-on temp. difference 1 between collector and storages is reached, the Pump (R1) or Pump (R2) is activated to heat up the corresponding storage. The storage 1 is priority heated.

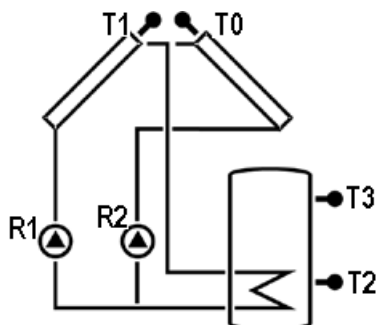


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base 1
T3	Temp. of Storage top 1
T4	Temp. of Storage 2

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 6
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 7

The split pressurized solar water heating system with two collector arrays and one storage. When the switch-on temp. difference 1 between collector 1 or 2 and storage is reached, the Pump (R1) or Pump (R2) is activated to heat up storage.

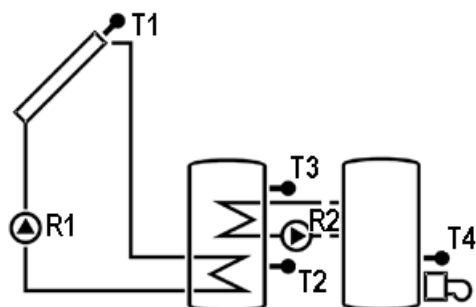


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
Sensor input	Note
T0	Temp. of Collector 2
T1	Temp. of Collector 1
T2	Temp. of Storage base
T3	Temp. of Storage top

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 7
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 8

The split pressurized solar water heating system with one collector array and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) is activated to heat up the storage. Use boiler or other heater as auxiliary heating device via the switch-on temp. difference 2 between boiler or other heater and storage.

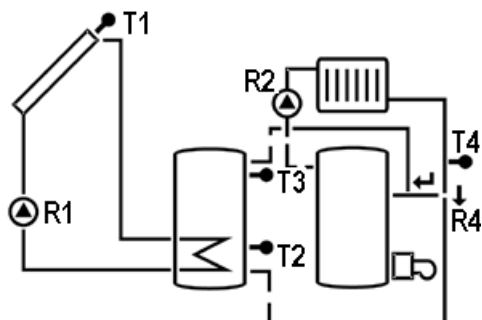


Relay output	Note
R1	Pump 1
R2	Pump 2
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base
T3	Temp. of Storage top
T4	Temp. of boiler

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 8
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Delta ON 2	8	5-20	Set the desired switch-on temp. difference 2
Delta OFF 2	4	2-12	Set the desired switch-off temp. difference 2
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 9

The split pressurized solar water heating system with one collector array and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) is activated to heat up the storage. Use gas water heater to realize the heating function via 3-port valve (R4).

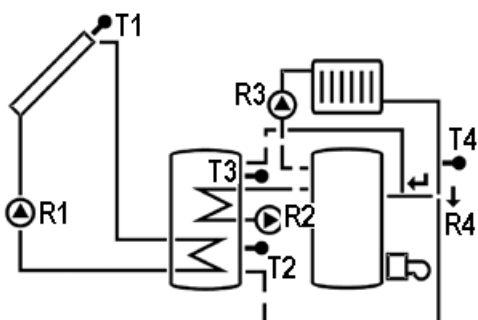


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
R4	3-port valve
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base
T3	Temp. of Storage top
T4	Heating circuit temp.

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 9
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Three time periods on heating	Whole day working	00:00-23:50	Set the auto. Working time period of heating function.
Heating Reference	25	15-65	Set the base reference temp. of heating function
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 10

The split pressurized solar water heating system with one collector array and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) is activated to heat up the storage. Use gas water heater to realize the heating function and auxiliary heating function via Pump (R3) and 3-port valve (R4).

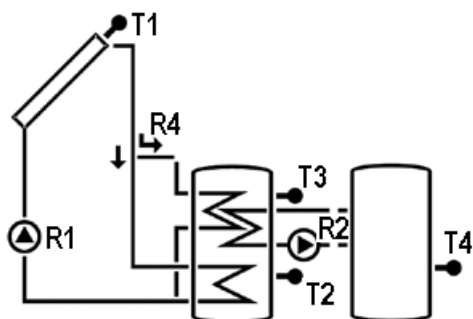


Relay output	Note
R1	Pump 1
R2	Pump 2
R3	Pump 3
R4	3-port valve
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base
T3	Temp. of Storage top
T4	Heating circuit temp.

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 10
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Three time periods on heating	Whole day working	00:00-23:50	Set the auto. Working time period of heating function.
Heating Reference	25	15-65	Set the base reference temp. of heating function
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 11

The split pressurized solar water heating system with one collector array and two storages. When the switch-on temp. difference 1 between collector and storage 1 is reached, the Pump (R1) is activated to heat up the corresponding area of storage 1 via 3-port valve (R4). The upper area of storage 1 is priority heated. Pump (R2) is activated to control the heat transfer to storage 2 via switch-on temp. difference 2.

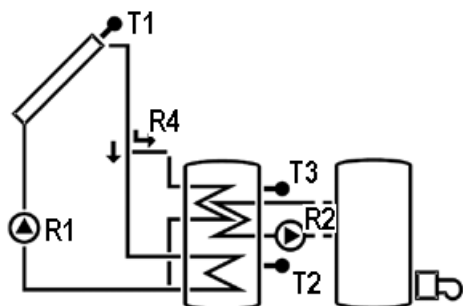


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
R4	3-port valve
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base 1
T3	Temp. of Storage top 1
T4	Temp. of Storage 2

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 11
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Delta ON 2	8	5-20	Set the desired switch-on temp. difference 2
Delta OFF 2	4	2-12	Set the desired switch-off temp. difference 2
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 12

The split pressurized solar water heating system with one collector array and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) is activated to heat up the corresponding area of storage via 3-port valve (R4). The upper area of storage is priority heated. Use one gas water heater as auxiliary heating device.

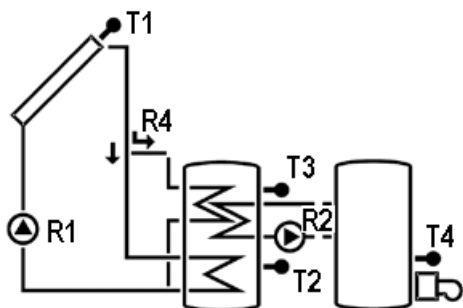


Relay output	Note
R1	Pump 1
R2	Pump 2
R4	3-port valve
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base
T3	Temp. of Storage top

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 12
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 13

The split pressurized solar water heating system with one collector array and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) is activated to heat up the corresponding area of storage via 3-port valve (R4). The upper area of storage is priority heated. Use boiler (or other heater) as auxiliary heating device via the switch-on temp. difference 2 between boiler (or other heater) and storage.

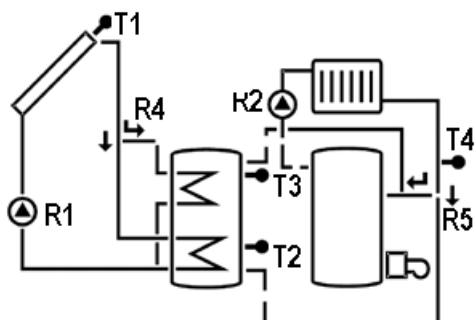


Relay output	Note
R1	Pump 1
R2	Pump 2
R4	3-port valve
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base
T3	Temp. of Storage top
T4	Temp. of Boiler

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 13
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Delta ON 2	8	5-20	Set the desired switch-on temp. difference 2
Delta OFF 2	4	2-12	Set the desired switch-off temp. difference 2
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 14

The split pressurized solar water heating system with one collector array and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) is activated to heat up the corresponding area of storage via 3-port valve (R4). The upper area of storage is priority heated. Use gas water heater to realize the heating function via 3-port valve (R5).

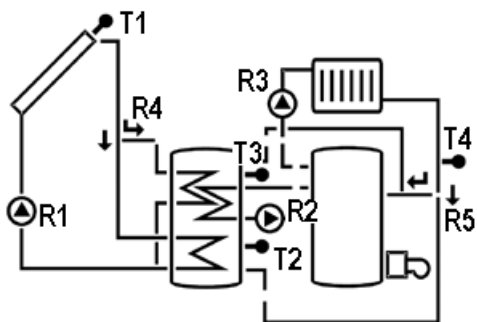


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
R4	3-port valve
R5	3-port valve
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base
T3	Temp. of Storage top
T4	Heating circuit temp.

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 14
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Three time periods on heating	Whole day working	00:00-23:50	Set the auto. Working time period of heating function.
Heating Reference	25	15-65	Set the base reference temp. of heating function
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 15

The split pressurized solar water heating system with one collector array and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) is activated to heat up the corresponding area of storage via 3-port valve (R4). The upper area of storage is priority heated. Use gas water heater to realize the heating function via 3-port valve (R5), and auxiliary heating function via Pump (R2).

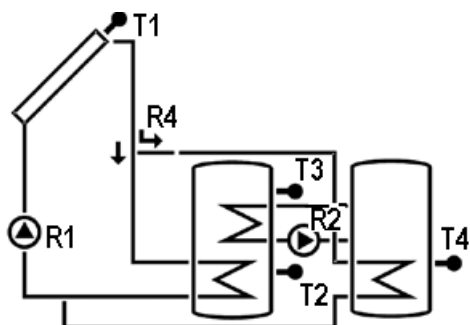


Relay output	Note
R1	Pump 1
R2	Pump 2
R3	Pump 3
R4	3-port valve
R5	3-port valve
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base
T3	Temp. of Storage top
T4	Heating circuit temp.

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 15
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Three time periods on heating	Whole day working	00:00-23:50	Set the auto. Working time period of heating function.
Heating Reference	25	15-65	Set the base reference temp. of heating function
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 16

The split pressurized solar water heating system with one collector array and two storages. When the switch-on temp. difference 1 between collector and storage 1 or 2 is reached, the Pump (R1) is activated to heat up the corresponding area of storage via 3-port valve (R4). The storage 1 is priority heated. Pump (R2) is activated to control the heat transfer to storage 2 via switch-on temp. difference 2.

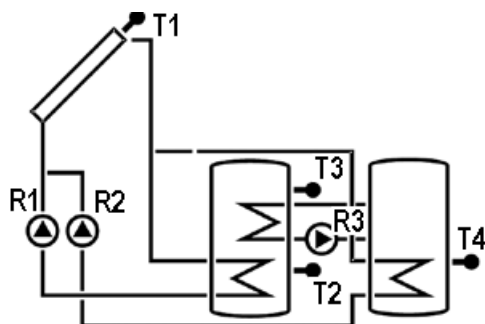


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
R4	3-port valve
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base 1
T3	Temp. of Storage top 1
T4	Temp. of Storage 2

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 16
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Delta ON 2	8	5-20	Set the desired switch-on temp. difference 2
Delta OFF 2	4	2-12	Set the desired switch-off temp. difference 2
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 17

The split pressurized solar water heating system with one collector array and two storages. When the switch-on temp. difference 1 between collector and storage 1 or 2 is reached, the Pump (R1) or Pump (R2) is activated to heat up the corresponding storage. Pump (R3) is activated to control the heat transfer to storage 2 via switch-on temp. difference 2.

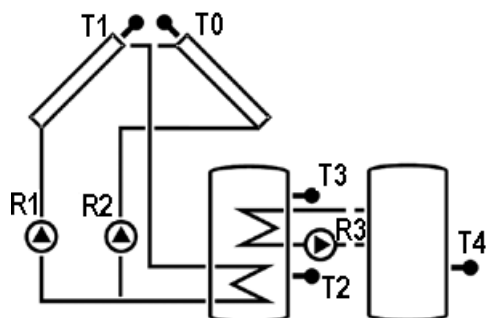


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
R3	Pump 3
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Storage base 1
T3	Temp. of Storage top 1
T4	Temp. of Storage 2

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 17
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Delta ON 2	8	5-20	Set the desired switch-on temp. difference 2
Delta OFF 2	4	2-12	Set the desired switch-off temp. difference 2
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 18

The split pressurized solar water heating system with two collector arrays and two storages. When the switch-on temp. difference 1 between collector (1 or 2) and storage is reached, the Pump (R1) or Pump (R2) is activated to heat up the corresponding area of storage. Pump (R3) is activated to control the heat transfer to storage 2 via switch-on temp. difference 2.

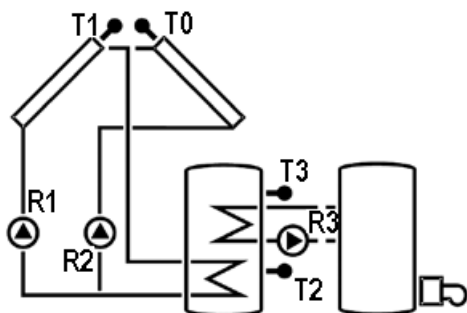


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
R3	Pump 3
Sensor input	Note
T0	Temp. of Collector 2
T1	Temp. of Collector 1
T2	Temp. of Storage base 1
T3	Temp. of Storage top 1
T4	Temp. of Storage 2

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 18
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Delta ON 2	8	5-20	Set the desired switch-on temp. difference 2
Delta OFF 2	4	2-12	Set the desired switch-off temp. difference 2
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 19

The split pressurized solar water heating system with two collector arrays and one storage. When the switch-on temp. difference 1 between collector (1 or 2) and storage is reached, the Pump (R1) or Pump (R2) is activated to heat up the corresponding area of storage. Use one gas water heater as auxiliary heating device.

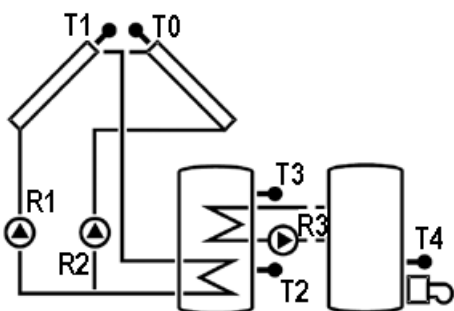


Relay output	Note
R1	Pump 1
R2	Pump 2
R3	Pump 3
Sensor input	Note
T0	Temp. of Collector 2
T1	Temp. of Collector 1
T2	Temp. of Storage base
T3	Temp. of Storage top

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 19
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 20

The split pressurized solar water heating system with two collector arrays and one storage. When the switch-on temp. difference 1 between collector (1 or 2) and storage is reached, the Pump (R1) or Pump (R2) is activated to heat up the corresponding area of storage. Use boiler (or other heater) as auxiliary heating device via the switch-on temp. difference 2 between boiler (or other heater) and storage.

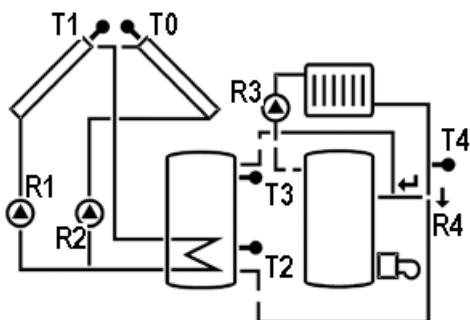


Relay output	Note
R1	Pump 1
R2	Pump 2
R4	3-port valve
Sensor input	Note
T0	Temp. of Collector 2
T1	Temp. of Collector 1
T2	Temp. of Storage base
T3	Temp. of Storage top
T4	Temp. of Boiler

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 20
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Delta ON 2	8	5-20	Set the desired switch-on temp. difference 2
Delta OFF 2	4	2-12	Set the desired switch-off temp. difference 2
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 21

The split pressurized solar water heating system with two collector arrays and one storage. When the switch-on temp. difference 1 between collector (1 or 2) and storage is reached, the Pump (R1) or Pump (R2) is activated to heat up the corresponding area of storage. Use gas water heater to realize the heating function via 3-port valve (R4).

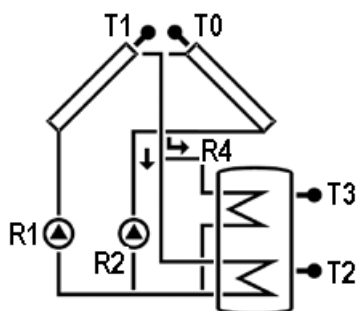


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
R3	Pump 3
R4	3-port valve
Sensor input	Note
T0	Temp. of Collector 2
T1	Temp. of Collector 1
T2	Temp. of Storage base
T3	Temp. of Storage top
T4	Heating circuit temp.

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 21
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Three time periods on heating	Whole day working	00:00-23:50	Set the auto. Working time period of heating function.
Heating Reference	25	15-65	Set the base reference temp. of heating function
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 22

The split pressurized solar water heating system with two collector arrays and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) or Pump (R2) is activated to heat up the corresponding storage area via 3-port valve (R4). The upper storage area is priority heated.

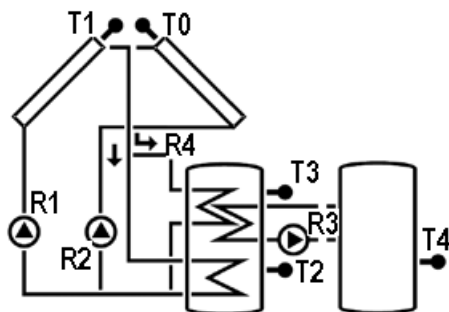


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
R4	3-port valve
Sensor input	Note
T0	Temp. of Collector 2
T1	Temp. of Collector 1
T2	Temp. of Storage base
T3	Temp. of Storage top

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 22
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 23

The split pressurized solar water heating system with two collector arrays and two storages. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) or Pump (R2) is activated to heat up the corresponding storage area via 3-port valve (R4). The upper storage area is priority heated. Pump (R3) is activated to control the heat transfer to storage 2 via switch-on temp. difference 2.

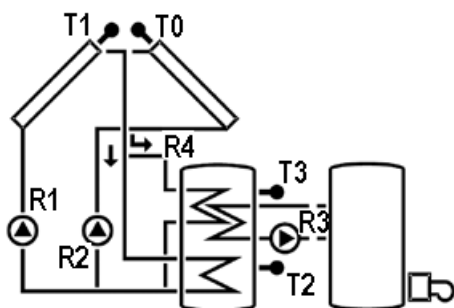


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
R3	Pump 3
R4	3-port valve
Sensor input	Note
T0	Temp. of Collector 2
T1	Temp. of Collector 1
T2	Temp. of Storage base 1
T3	Temp. of Storage top 1
T4	Temp. of Storage 2

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 23
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Delta ON 2	8	5-20	Set the desired switch-on temp. difference 2
Delta OFF 2	4	2-12	Set the desired switch-off temp. difference 2
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 24

The split pressurized solar water heating system with two collector arrays and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) or Pump (R2) is activated to heat up the corresponding storage area via 3-port valve (R4). The upper storage area is priority heated. Use one gas water heater as auxiliary heating device.

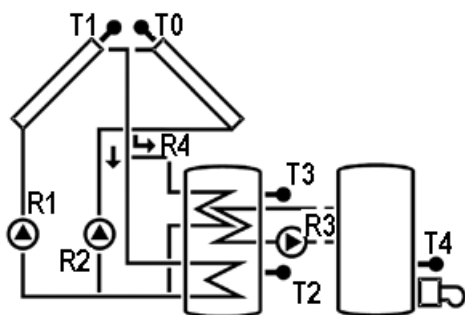


Relay output	Note
R1	Pump 1
R2	Pump 2
R3	Pump 3
R4	3-port valve
Sensor input	Note
T0	Temp. of Collector 2
T1	Temp. of Collector 1
T2	Temp. of Storage base
T3	Temp. of Storage top

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 24
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 25

The split pressurized solar water heating system with two collector arrays and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) or Pump (R2) is activated to heat up the corresponding storage area via 3-port valve (R4). The upper storage area is priority heated. Use boiler (or other heater) as auxiliary heating device via the switch-on temp. difference 2 between boiler (or other heater) and storage.

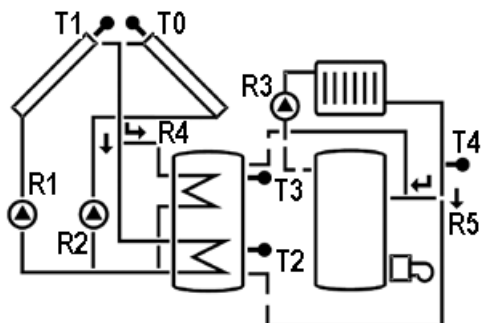


Relay output	Note
R1	Pump 1
R2	Pump 2
R3	Pump 3
R4	3-port valve
Sensor input	Note
T0	Temp. of Collector 2
T1	Temp. of Collector 1
T2	Temp. of Storage base
T3	Temp. of Storage top
T4	Temp. of Boiler

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 25
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Delta ON 2	8	5-20	Set the desired switch-on temp. difference 2
Delta OFF 2	4	2-12	Set the desired switch-off temp. difference 2
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 26

The split pressurized solar water heating system with two collector arrays and one storage. When the switch-on temp. difference 1 between collector and storage is reached, the Pump (R1) or Pump (R2) is activated to heat up the corresponding storage area via 3-port valve (R4). The upper storage area is priority heated. Use gas water heater to realize the heating function via 3-port valve (R5).

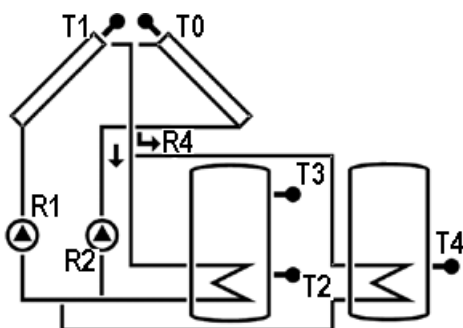


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
R3	Pump 3
R4	3-port valve
R5	3-port valve
Sensor input	Note
T0	Temp. of Collector 2
T1	Temp. of Collector 1
T2	Temp. of Storage base
T3	Temp. of Storage top
T4	Heating circuit temp.

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 26
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Three time periods on heating	Whole day working	00:00-23:50	Set the auto. Working time period of heating function.
Heating Reference	25	15-65	Set the base reference temp. of heating function
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 27

The split pressurized solar water heating system with two collector arrays and two storages. When the switch-on temp. difference 1 between collector 1 and storage 1 or between collector 1 and storage 1 is reached, the Pump (R1) or Pump (R2) is activated to heat up the corresponding storage via 3-port valve (R4).

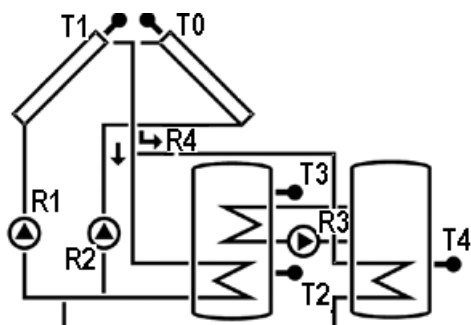


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
R4	3-port valve
Sensor input	Note
T0	Temp. of Collector 2
T1	Temp. of Collector 1
T2	Temp. of Storage base 1
T3	Temp. of Storage top 1
T4	Temp. of Storage 2

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 27
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 28

The split pressurized solar water heating system with two collector arrays and two storages. When the switch-on temp. difference 1 between collector 1 and storage 1 or between collector 1 and storage 1 is reached, the Pump (R1) or Pump (R2) is activated to heat up the corresponding storage via 3-port valve (R4). Pump (R3) is activated to control the heat transfer to storage 2 via switch-on temp. difference 2.

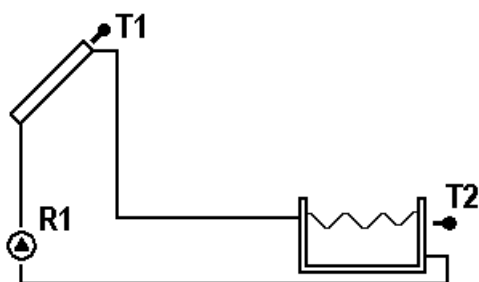


Relay output	Note
Elec. Heating	Elec. Heater
R1	Pump 1
R2	Pump 2
R3	Pump 3
R4	3-port valve
Sensor input	Note
T0	Temp. of Collector 2
T1	Temp. of Collector 1
T2	Temp. of Storage base 1
T3	Temp. of Storage top 1
T4	Temp. of Storage 2

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 28
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Storage Maintain	60	45-75	Set the referenced temp. of auxiliary heating
Storage Protect	80	50-95	When the storage reaches the desired overheating protection temp., temp. difference circulation will be switched off. (This function can be activated or not selectively.)
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
Delta ON 2	8	5-20	Set the desired switch-on temp. difference 2
Delta OFF 2	4	2-12	Set the desired switch-off temp. difference 2
Three time periods on auxiliary heating	04:00-05:00 10:00-10:00 17:00-22:00	00:00-23:50	Set the auto. working time period of auxiliary heating.
Anti-bacteria	ON		To avoid the bacteria occur, the system takes the bacteria-killing process periodically.
Holiday Function	OFF		This function will be activated when a holiday is planed or when there is no need to use hot water for a long time.
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 29

The standard split pressurized solar pool system with one collector array and the pool.

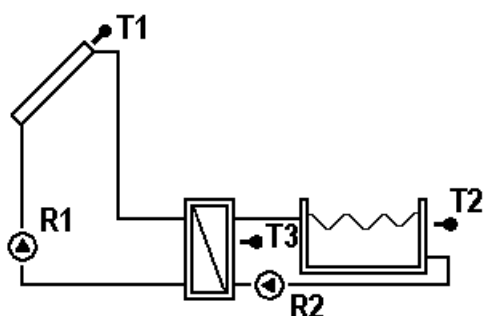


Relay output	Note
R1	Pump 1
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Pool

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 29
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

System 30

The standard split pressurized solar pool system with one collector array, the pool, and the heat exchanger.



Relay output	Note
R1	Pump 1
Sensor input	Note
T1	Temp. of Collector
T2	Temp. of Pool
T3	Heating circuit temp.

Setting item	Factory setting	Value arrange	Description
System Select	1	1-30	System 30
Date & Time			Display the current time in 24 hours
Anti-frost	3	2-8	When the collector temp. is lower than the desired frost protection temp., this function will be activated. (This function can be activated or not selectively.)
Delta ON 1	8	5-20	Set the desired switch-on temp. difference 1
Delta OFF 1	4	2-12	Set the desired switch-off temp. difference 1
System Emergency Off	130	120-160	When the collector is overheating, the system switches off emergently, which to avoid the accessories to be destroyed. (This function can be activated or not selectively.)
Language Select	English		According to customer's supplied language
Factory Default			All the desired values (except Time display) can be set back to factory default.

Fault message

Note 1:

If there are faults on the controller, please do not repair it by yourself. It should be taken by the qualified specialist.

If there is a problem with the controller or temperature sensor, the fault signals will be displayed on the screen as the following:

Fault signal	<FF>	<FE>
Possible cause	The inside of sensor or the connection wire between sensor and controller is open circuit.	The inside of sensor or the connection wire between sensor and controller is short circuit.
Solution	Check the connection or resistance value of the sensor, replace it on necessary.	

Note 2:

Use Ohmmeter to check the resistance value of sensors. According to the comparative with the standard value, the fault sensor can be checked out. When check the resistance value, the sensor should be cut off from the system. Small error can be allowed when compare the test value with the standard value.

PT1000 Resistance value:

	0	10	20	30	40	50	60	70	80	90	100	110	120
	1000	1039	1077	1116	1155	1194	1232	1270	1309	1347	1385	1422	1460

NTC 10K B=3950 Resistance value:

	0	10	20	30	40	50	60	70	80	90	100	110	120
	33620	20174	12535	8037	5301	3588	2486	1759	1270	933	697	529	407

Packing list

	No.	Item	Specification	Quantity
Standard	1	Main controller	186×140×41mm	1 pc
	2	Power line		1 pc
	3	PT1000 sensor	1.5m	2 pcs
	4	NTC sensor	1.5m	4 pcs
	5	Network line	1m	1 pc
	6	Fixed screw		1 bag
	7	Manual		1 pc
Selection	8	Flow sensor		1 pc
	9	NTC sensor	1.5m	2 pcs

SP III Controller Network Connection Manual

The product can be connected to any kind of web browser currently, such as Internet Explorer, Google Chrome, Fire fox, and so on.

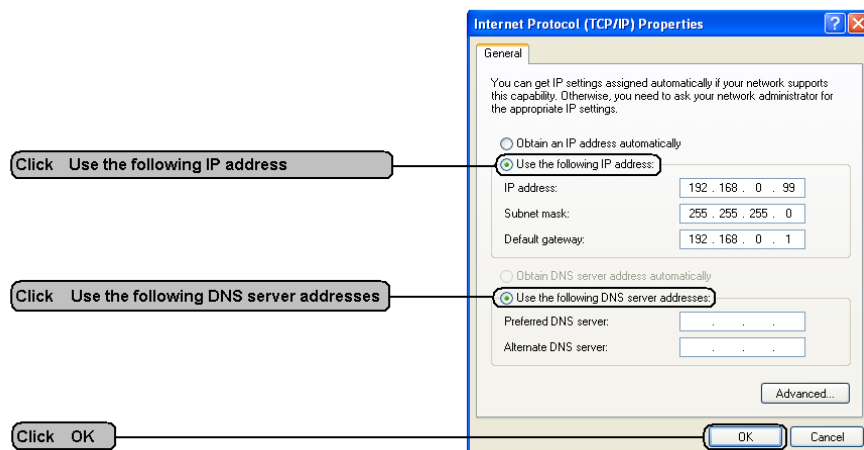
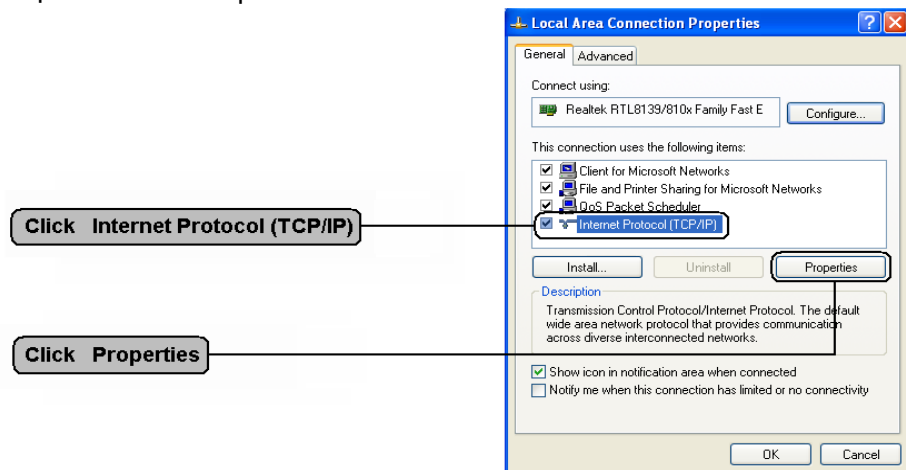


Connect to the computer directly

1. Through the internet cable(CAT5 ,JTP) ,connect the computer with network to the internet port in the right side of the product.
2. The default IP address for this controller is “192.168.0.10”.
3. If the IP address of the customer is not in the same net segment as the above IP address, please setup as the following steps:

Take the Windows system as example:

“Start” “Control board” “Internet connection” Click the right key “Local Area Connection Properties” “Properties”



Connect to the computer through Router or Switch

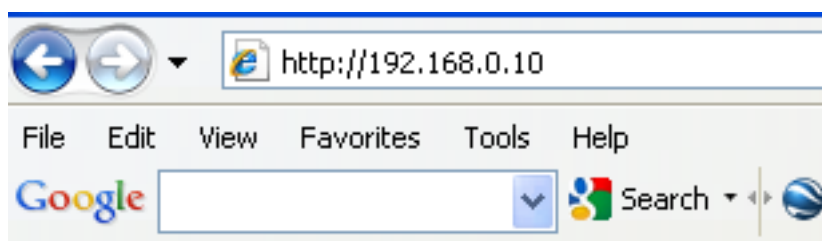
If the customer connects the product to the computer through Router or Switch, he should make sure that the computer can access the IP address of this product. And the customer should have the basic knowledge about TCP/IP, to take setup processes.

Login into the controller

1. Open the web browser, and type the following address into the URL address bar:

[Http://192.168.0.10](http://192.168.0.10)

Then click the key of “Enter” or “Return”:

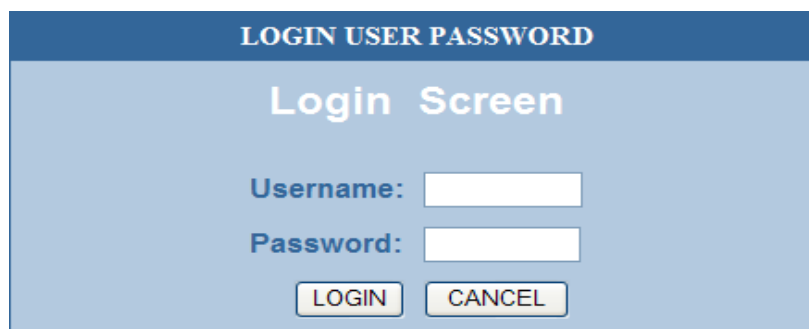


2. Go into the login interface

The default login name is “admin”

The password is empty

Click “Login”

A screenshot of a login interface. The title bar at the top says "LOGIN USER PASSWORD". Below the title bar, the text "Login Screen" is displayed. There are two input fields: "Username:" followed by an empty text box, and "Password:" followed by an empty text box. At the bottom of the form, there are two buttons: "LOGIN" and "CANCEL".

3. The login is successful, go into the homepage.
4. Browse the web page, the customer can review or setup the information about the product, such as the operation parameter, working state, and history data, and so on.