

Chapter 2 Software structure

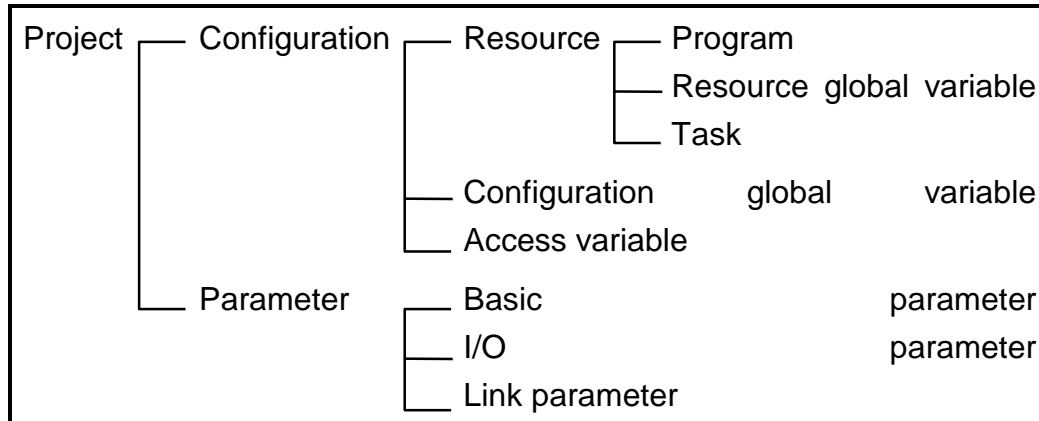


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2. Software structure

2.1. Overview

Total PLC system shall be configured before preparing PLC application program. Total PLC system is defined as one project in GLOFA PLC. All items required for one PLC system is defined hierarchically in this project.



2.2. Project

- The project shall be configured to prepare G Series PLC program. The configuration of one project means that all configuration elements are prepared for one PLC system. The basic scan program (general PLC program), basic parameter, task definition, I/O parameter etc. are prepared.
- The project consists of two parts, the configuration section and the parameter section. The configuration section defines the global variable, program, task etc. and controls the related settings. The parameter section prepare various information for the PLC system operation. Please refer to GMWIN user manual for the parameter section.

2.3. Configuration

- The configuration means one PLC system. One PLC system consists of the base, CPU module, I/O module, special module etc. Generally, one PLC system contains one CPU module
- PLC system has its designation, named as the configuration designation. This designation is a unique name for each PLC when the communication is performed between PLCs. The configuration can be named up to 8 digits according to clause 3.1.1. Identification.
- The configuration includes the configuration global variable and access variable.

2.3.1. Resource

- . The resource means one CPU module. Only one can be defined for G4 ~ G6. The resource has its own name. The resource can be named up to 8 digits according to clause 3.1.1. Identification.
- . The resource includes the program, resource global variable and task definition.

2.3.1.1. Program

- . Application program executing in PLC. In G Series PLC, several application programs can be prepared at one resource and the executing condition can be defined. For example, "A" can be defined as general scan program, "B" as the program executing by every second and "C" as the program executing by certain input. These executing conditions are called "Task". The user should prepare the application program and define executing condition(task). If the task is not defined, that program is regarded as a single scan program.

Reference

Scan program: An Application program that execute the program from start to end after reading input data at the input module and, then, writes the result to output module. (it's rotating)

- . The program has instance name. The data to be handled in the program is stored in the instance.

Reference

Please, refer to clause 3.5.2 Function block for the instance.

2.3.1.2. Resource global variable

- . The variable, defined at the resource global variable, can be used for any program in the resource. The data shared between programs are defined in the resource global variable.
- . The variable type shall be declared as VAR_EXTERNAL in order to use the resource global variable in the program.

Reference

Please refer to clause 3.3.2 Variable declaration for the variable type.

2.3.1.3. Task

- . The condition to execute the program is defined as task. The task definition is classified by the program execution condition and priority.
- . The program execution condition is divided by 3 types.
 - 1) Single: Executed only once if the condition is satisfied. The condition is set by BOOL variable name.
 - 2) Interval: Executed periodically by the specified interval. The condition is selected by the interval time. Please refer to Clause 3.1.3.1 for the interval time.
 - 3) Interrupt: Executed once when the contact point of interrupt card is on. The selection is set by the contact point number.

| Operation condition | Setting | Description |
|---------------------|----------|--|
| Single | %IX0.0.1 | Executed once when input contact point, %IX0.0.1, is on. |
| Interval | T#1S | Executed every second. |
| Interrupt | 4 | Executed once when input contact point 4 is on. |

- . The priority is set from 0 to 7. Priority 0 is the highest one. The highest priority executes high task during scheduling and, if the priority is same, it is executed in the order of the generation of condition.
- . _ERR_SYS, _H_INIT and _INIT tasks are the task which is subscribed by the system.
 - _ERR_SYS: System error task (supported only at GM1,2)
 - _H_INIT: Hot restart task
 - _INIT: Cold/Warm restart task

2.3.2. Configuration global variable

- . The variable, defined at the configuration global variable, can be used for any program in the resource. The data shared between resources are defined in the configuration global variable.
- . The variable type shall be declared as VAR_EXTERNAL in order to use the configuration global variable in the program.

Reference

Please refer to clause 3.3.2 Variable declaration for the variable type.

- . The configuration global variable can be defined at GM1 when several resources exist.

2.3.3. Access variable

The variable, defined at the access variable, can be used for other PLC system.

Reference

Please refer to the user's manual(Communication section) for the access variable.