# 1 Program Summary

XC series PLC as the controllers, accept the signal and execute the program in the controller, to fulfill the requirements from the users. In this chapter, we start with the program forms, introduce the main features, the supported two program languages etc.

| 1-1    Programmer Controller's Features |
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| 1-2    Program Language |
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| 1-3    Program Format |
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**Program Language**

XC series PLC support two kinds of program languages, instruction list and ladder, the two languages can convert to the other;

**Security of the Program**

To avoid the stolen or wrong modifying of user program, we encrypt the program. When uploading the encrypted program, it will check in the form of password. This can maintain the user's copyright; meantime, it limits the download, to avoid the modification with the program spitefully.

**Program's comments**

When the user program is too long, adding comments to the program and its soft components is necessary.

**Offset Function**

Add offset appendix (like X3[D100]  M10[D100]  D0[D100]) behind coils, data registers can realize indirect addressing. For example, when D100=9, X3[D100]=X14; M10[D100]=M19, D0[D100]=D9

**Rich Basic Functions**

l    XC series PLC offers enough basic instructions, can fulfill basic sequential control, data moving and comparing, arithmetic operation, logic control, data loop and shift etc.
l    XC series PLC also support special compare, high speed pulse, frequency testing, precise time, PID control, position control etc for interruption, high speed counter (HSC).

**C Language Function Block**

XC series PLC support C language function block, users can call the edited function block freely. This function reduces the program quantity greatly.

**Stop when power ON Function**

XC series PLC support "Stop when power on PLC" function. With this function, when there is a serious problem during PLC running, use this method to stop all output immediately. Besides, with this method, connect PLC when parameters are set wrongly.

## Communication Function

XC series PLC support many communication formats, like basic Modbus communication, CABBUS communication, free format communication. Besides, via special network module, connect to Ether net, GPRS net.

## 1-2    Program Language

### 1-2-1    Type

XC series PLC support two types of program language:

## Instruction List

Instruction list inputs in the form of "LD", "AND", "OUT" etc. This is the basic input form of the programs, but it's hard to read and understand;

E.g.:
| Step | Instruction | Soft Components |
|------|-------------|-----------------|
| 0 | LD | X000 |
| 1 | OR | Y005 |
| 2 | ANI | X002 |
| 3 | OUT | Y005 |

## Ladder

With sequential control signal and soft components, draw the sequential control graph on program interface, this method is called "Ladder". This method use coil signs etc. to represent sequential circuit, so it's easier to understand the program. Meantime, monitor PLC with the circuit's status.

E.g.:
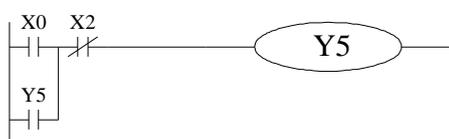
## 1-2-2    Alternation

Convert the above two methods freely:
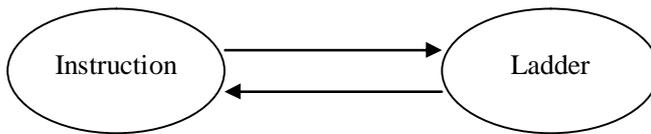


## 1-3    Program Format

### Direct Input

The above two program methods can input in the correspond interface separately, especially in the ladder window, there is a instruction hint function, which improves the program efficiency greatly;
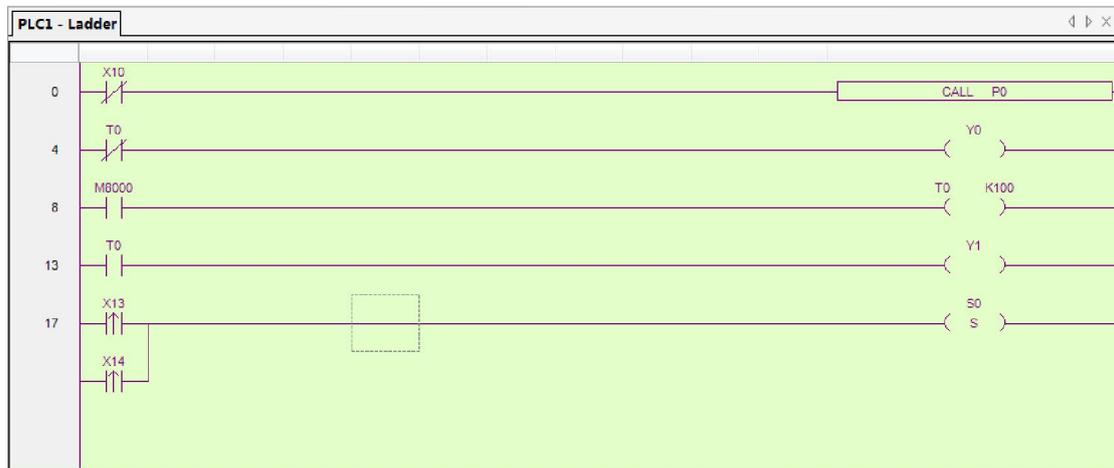


### Panel Configuration

As in XC series PLC, there are many instructions which has complicate usage and many using methods, like pulse output instruction, main unit PID etc. XCPPro also support the configure interface for these special instructions. In the correcpond configure interface, input the parameters and ID according to the requirements will be ok;
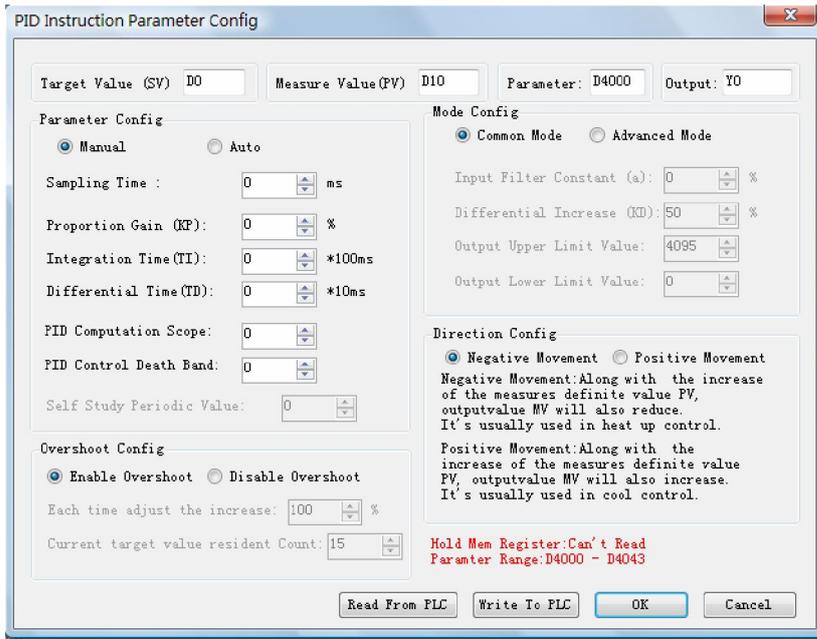
For the details of panel configuration, please refer  XC series PLC user manual  software part