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CLAIMS

1. A programmable logic controller, PLC, comprising:
 - a programmable logic module;
 - a Modbus interface configured to receive one or more Modbus commands, the one or more Modbus commands specifying a configuration for one or more Boolean logic operations; and
 - a programming module operatively coupled to the Modbus interface and the programmable logic module, the programming module being configured to program the programmable logic module in accordance with the configuration for the one or more Boolean logic operations specified by the received one or more Modbus commands.
2. The PLC according to claim 1, wherein the PLC further comprises one or more PLC inputs and one or more PLC outputs.
3. The PLC according to claims 1 or 2, wherein the received one or more Modbus commands comprise one or more first Modbus commands which specify:
 - a first Boolean logic operation; and
 - a first input for the first Boolean logic operation.
4. The PLC according to claim 3, wherein the one or more first Modbus commands are configured to:
 - specify the first Boolean logic operation by setting a first Modbus register to a first value; and
 - specify the first input by setting a second Modbus register to a second value.

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5. The PLC according to claim 3 or 4, wherein the one or more first Modbus commands further specify a second input for the first Boolean logic operation.
6. The PLC according to any of claims 3 to 5, wherein the first Boolean
5 logic operation is a logic operation selected from the group consisting of FALSE, OR, AND, XOR, NOR, NAND, XNOR, and TRUE.
7. The PLC according to any of claims 3 to 6, wherein the PLC is
10 configured to output, for use by a device remote from the PLC, an output of the first Boolean logic operation.
8. The PLC according to any of claims 3 to 7 when dependent on claim 2,
wherein the one or more first Modbus commands specify that the first input for
15 the first Boolean logic operation is a value received at a first PLC input of the one or more PLC inputs.
9. The PLC according to any of claims 3 to 7 when dependent on claim 2,
wherein the one or more first Modbus commands specify that the first input for
20 the first Boolean logic operation is an output of a second Boolean logic operation.
10. The PLC according to any of claims 3 to 9, wherein the one or more first
Modbus commands specify that the first input for the first Boolean logic
operation is an inverted input.
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11. The PLC according to any of claims 3 to 10, wherein the one or more
Modbus commands specify that an output of the first Boolean logic operation is
a value output at a first PLC output of the one or more PLC outputs.

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12. The PLC according to any of claims 1 to 11, wherein the programmed operation of the PLC comprises monitoring and/or controlling a system or apparatus remote from the PLC.
- 5 13. The PLC according to any of claims 1 to 12, wherein the Modbus interface is configured to receive the one or more Modbus commands from a device remote from the PLC.
14. A system comprising:
- 10 a PLC in accordance with any of claims 1 to 13; and
- a device remote from the PLC and configured to transmit the one or more Modbus commands to the Modbus interface of the PLC.
- 15 15. A method for programming operation of a programmable logic controller, PLC, the PLC comprising a programmable logic module, a Modbus interface and a programming module, the method comprising:
- receiving, by the Modbus interface of the PLC, one or more Modbus commands, the one or more Modbus commands specifying a configuration for one or more Boolean logic operations; and
- 20 programming, by the programming module of the PLC, operation of the programmable logic module in accordance with the configuration for the one or more Boolean logic operations specified by the received one or more Modbus commands.
- 25 16. The method of claim 15, further comprising:
- receiving, by a device remote from the PLC, a user input;
- generating, by the device remote from the PLC, using the user input, the one or more Modbus commands; and

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transmitting, by the device remote from the PLC, to the Modbus interface, the one or more Modbus commands in accordance with the Modbus protocol.

5 17. The method of claim 15 or 16, further comprising at least one of:

monitoring, by the PLC, a system or apparatus; or

controlling, by the PLC, a system or apparatus; wherein

the system or apparatus is remote from the PLC.

10 18. A program or plurality of programs arranged such that when executed by a computer system or one or more processors it/they cause the computer system or the one or more processors to:

receive one or more Modbus communications, the one or more Modbus communications specifying a configuration for one or more Boolean logic

15 operations; and

program operation of a programmable logic controller, PLC, in accordance with the configuration for the one or more Boolean logic operations.

19. A machine-readable storage medium storing a program or at least one of
20 the plurality of programs according to claim 18.