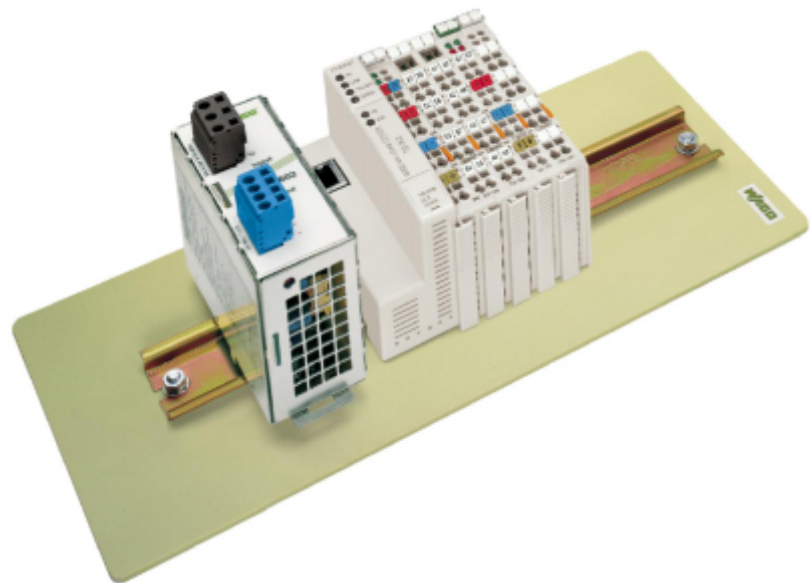


# WAGO → I/O → SYSTEM 750

## Modular I/O System

### ETHERNET StarterKit 2 510 376 07



### Quick Start ETHERNET Fieldbus Controller 750-841

Version 1.0.1

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Every conceivable measure has been taken to ensure the correctness and completeness of this documentation. However, as errors can never be fully excluded, we would appreciate any information or ideas at any time.

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We wish to point out that the software and hardware terms as well as the trademarks of companies used and/or mentioned in the present manual are generally trademark or patent protected.

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# 1 Important Comments

To ensure fast installation and start-up of the units described in this manual, we strongly recommend that the following information and explanations are carefully read and abided by.

## 1.1 Legal Principles

### 1.1.1 Copyright

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### 1.1.2 Personnel Qualification

The use of the product detailed in this manual is exclusively geared to specialists having qualifications in PLC programming, electrical specialists or persons instructed by electrical specialists who are also familiar with the valid standards. WAGO Kontakttechnik GmbH declines all liability resulting from improper action and damage to WAGO products and third party products due to non-observance of the information contained in this manual.

### 1.1.3 Intended Use

For each individual application, the components supplied are to work with a dedicated hardware and software configuration. Modifications are only permitted within the framework of the possibilities documented in the manuals. All other changes to the hardware and/or software and the non-conforming use of the components entail the exclusion of liability on part of WAGO Kontakttechnik GmbH.

Please direct any requirements pertaining to a modified and/or new hardware or software configuration directly to WAGO Kontakttechnik GmbH.

## 1.2 Symbols



### **Danger**

Always abide by this information to protect persons from injury.



### **Warning**

Always abide by this information to prevent damage to the device.



### **Attention**

Marginal conditions must always be observed to ensure smooth operation.



### **ESD (Electrostatic Discharge)**

Warning of damage to the components by electrostatic discharge. Observe the precautionary measure for handling components at risk.



### **Note**

Routines or advice for efficient use of the device and software optimization.



### **More information**

References on additional literature, manuals, data sheets and INTERNET pages

## 1.3 Number Notation

Number Code	Example	Note
Decimal	100	normal notation
Hexadecimal	0x64	C notation
Binary	'100' '0110.0100'	Within ', Nibble separated with dots

## 1.4 Safety Notes



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### Attention

Switch off the system prior to working on bus modules!

In the event of deformed contacts, the module in question is to be replaced, as its functionality can no longer be ensured on a long-term basis.

The components are not resistant against materials having seeping and insulating properties. Belonging to this group of materials is: e.g. aerosols, silicones, triglycerides (found in some hand creams).

If it cannot be ruled out that these materials appear in the component environment, then additional measures are to be taken:

- installation of the components into an appropriate enclosure
- handling of the components only with clean tools and materials.



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### Attention

Cleaning of soiled contacts may only be done with ethyl alcohol and leather cloths. Thereby, the ESD information is to be regarded.

Do not use any contact spray. The spray may impair the functioning of the contact area.

The WAGO-I/O-SYSTEM 750 and its components are an open system. It must only be assembled in housings, cabinets or in electrical operation rooms. Access must only be given via a key or tool to authorized qualified personnel.

The relevant valid and applicable standards and guidelines concerning the installation of switch boxes are to be observed.



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### ESD (Electrostatic Discharge)

The modules are equipped with electronic components that may be destroyed by electrostatic discharge. When handling the modules, ensure that the environment (persons, workplace and packing) is well grounded. Avoid touching conductive components, e.g. gold contacts.

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## 1.5 Scope

These quick start instructions describe the ETHERNET StarterKit 2 with the Ethernet fieldbus controller 750-841 and the basic components 750-430, -530, -600, 787-602 and 759-312 of the WAGO-I/O-SYSTEM.

You will find detailed information about operation, assembly and start-up in the manuals “Ethernet TCP/IP 750-841“ and “WAGO-I/O-PRO CAA“. This documentation is hence only valid in connection with the appropriate manuals.



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### Further information

You can also find the manuals “Ethernet TCP/IP 750-841“ and “WAGO-I/O-PRO CAA“ on our “WAGO-I/O-PRO CAA“ CD-ROM (759-911) and on the Internet under [www.wago.com](http://www.wago.com).

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## 2 Quick Start

### 2.1 Node assembly

Build up the fieldbus node as follows (from left to right):

750-841; 750-430 ; 750-530 ; 750-600.

Connect the supplies for the controller and for the power jumper contacts to the DC 24 V power supply unit 787-602 (see Fig.1).

In this example it would be sufficient to bridge “24V“ and “+“ or “0V“ and “-“.

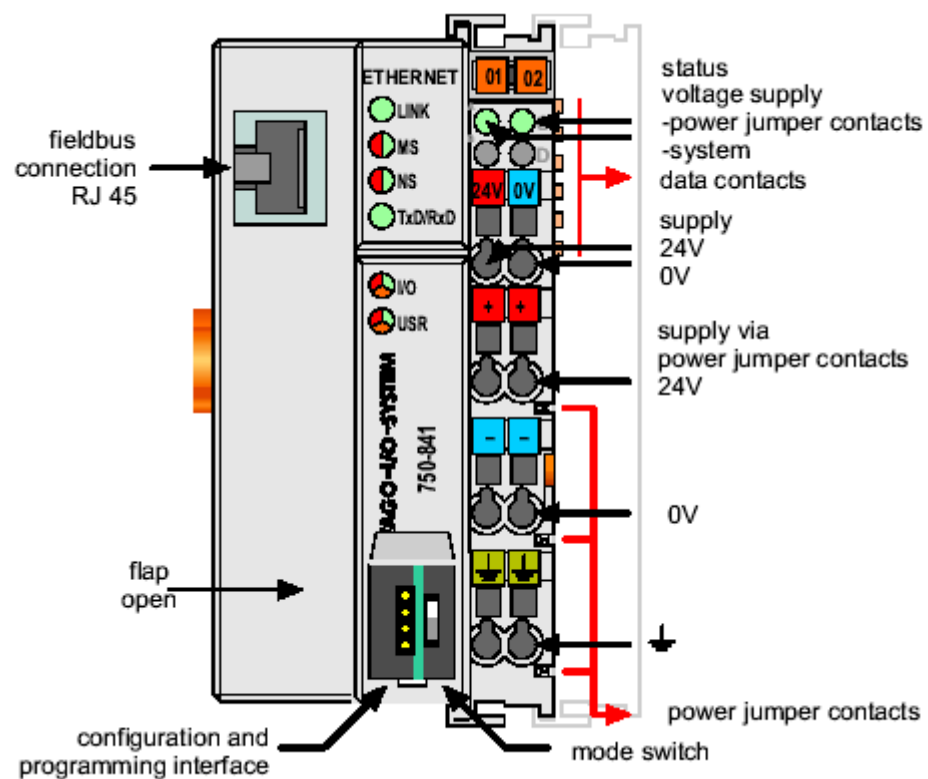


Fig.1: 10/100 MBit ETHERNET fieldbus controller 750-841

## 2.2 Ethernet network start-up

Connect the fieldbus node to your Ethernet network.

Either connect it directly to a PC using a crossover cable (crossed Ethernet cables) or to a Hub or a Switch using a 1-to-1 patch cable.

Please write down the following Ethernet settings of your PC: the IP address (e.g. 192.168.1.1), the Subnet Mask (e.g. 255.255.0.0) and possibly the Gateway IP address.

You can see the settings under Start → Settings → Network and Dialup Connections.

Your network administrator can give you more information.

Write down the MAC ID of the controller 750-841 which you can find on the barcode sticker or on the circuit diagram on the back of the controller.

Install the "WAGO BootP Server" which you can find on the "ELECTRONICC Tools and Docs" CD (Item no.: 0888-0412/0001-0101) or on the Internet under: [www.wago.com](http://www.wago.com) → Service → Downloads → Software. Click the "Edit Bootptab" button. Create an entry in the bootptab file with the following structure:

"Any name" : ht=1 : ha= „MAC Id of the coupler" : ip= „New IP address of the coupler" : sm= „Subnet mask"

Example:

Wago:ht=1:ha=0030DE001234:ip=192.168.1.2:sm=255.255.0.0:

Restart the BootP Server via the "Start" button and disconnect the fieldbus node from the power supply for approx. 2 s.

The Controller 750-841 will now send a BootP Request and will receive the IP address from the BootP Server.



**Note**

The IP address has not yet been stored permanently by the BootP Server but only is in the RAM memory of the controller.

---



**Note**

The permanent storage of the IP address for the ETHERNET fieldbus controller 750-841 is achieved in a different way as it is the case with the ETHERNET fieldbus controller 750-842.

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Leave the controller turned on and turn off the BootP Server.

Start a browser (e.g. Internet Explorer, Netscape Navigator).



Enter the IP address of the controller 750-841 into the address bar of your browser (e.g. <http://192.168.1.2>).

The Proxy server should be avoided for local addresses.



**Further information**

Please find more information about avoiding the Proxy server in the browser help section under "Proxy server" and "LAN settings".

The integrated Web server will now create some Web pages.

Call up the "TCP/IP configuration" Web page via the "TCP/IP" link and enter the user name "admin" and the password "wago" into the password dialog window.

Click the "Submit" button (Fig. 2).

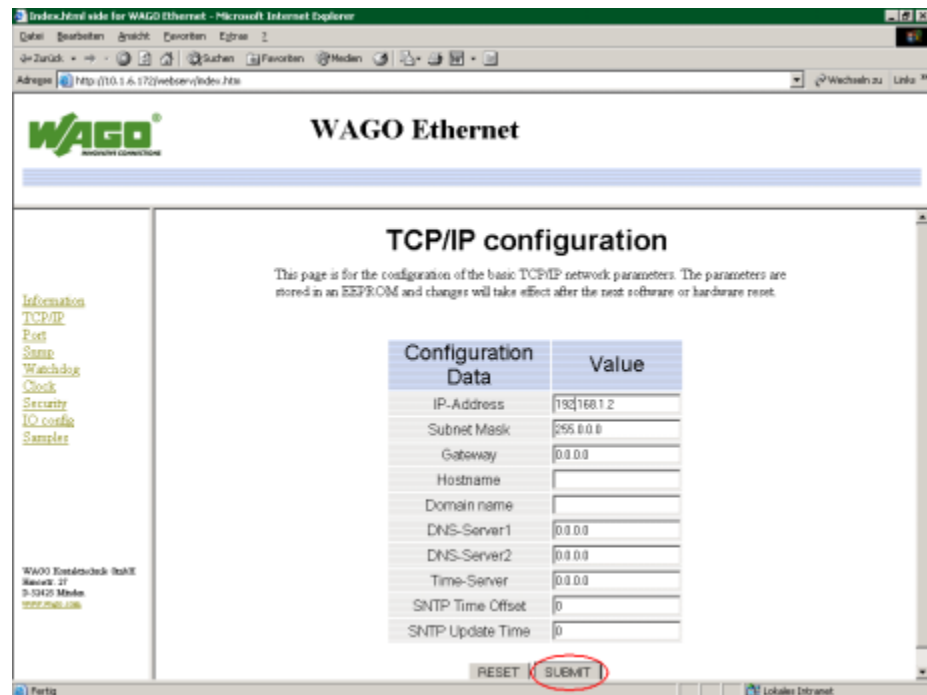


Fig. 2: Web server 750-841 "TCP/IP configuration", storing the current IP address

The IP address has now been stored in the EEPROM.

After a power failure, the IP address is only copied automatically from the EEPROM into the RAM if the BootP request of the controller is deactivated.

This need to be done after entering the user name “admin” and the password “wago” on the Web page “Port configuration“ (see Fig. 3).

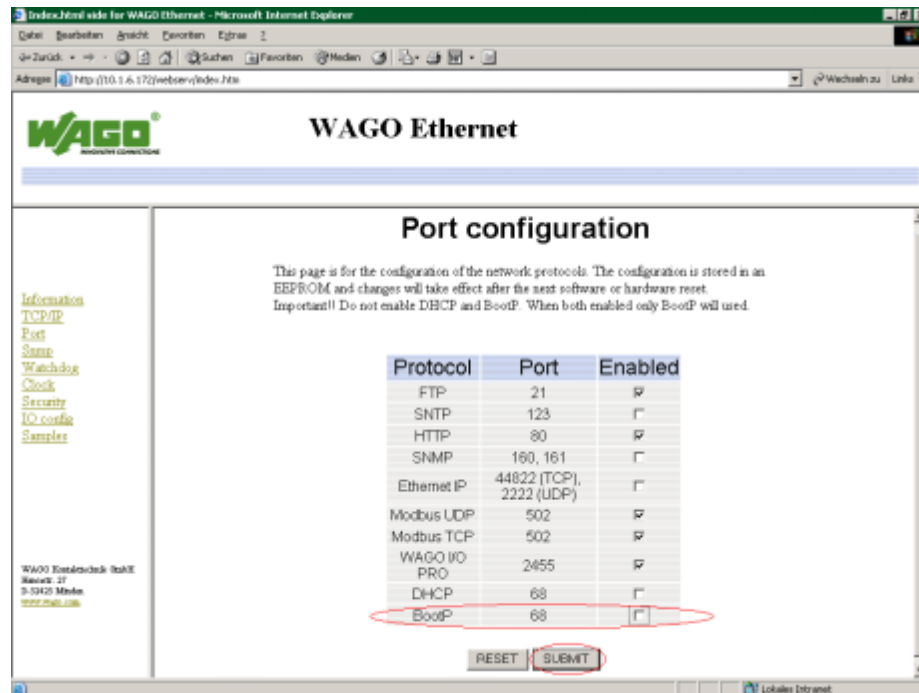


Fig.3 : Web server 750-841 “Port configuration“, deactivation of BootP server.

This also prevents that the IP address could be changed by a BootP server.

You can check the IP address by turning the Controller power off and on again and then regarding the Web pages using a Browser.

Additionally, the protocols can be activated on the “Port configuration” Web page (e.g. Ethernet/IP, Modbus/UDP, Modbus/TCP). The protocols will be immediately available for the process data communication via Ethernet.

## 2.3 The first program

### Prerequisite:

The WAGO-I/O-PRO CAA software has to be installed correctly and started.

Before programming the controller 750-841 the target settings have to be made. This is done when a new project is created or later under  
→ Resources → Target settings.

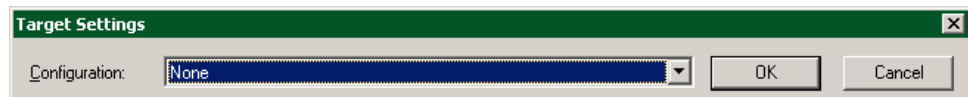


Fig. 4: WAGO-I/O-PRO CAA, target settings (1)

Choose "WAGO, 750-841, Ethernet 10/100MBit/s Controller".

All other target settings can be kept.

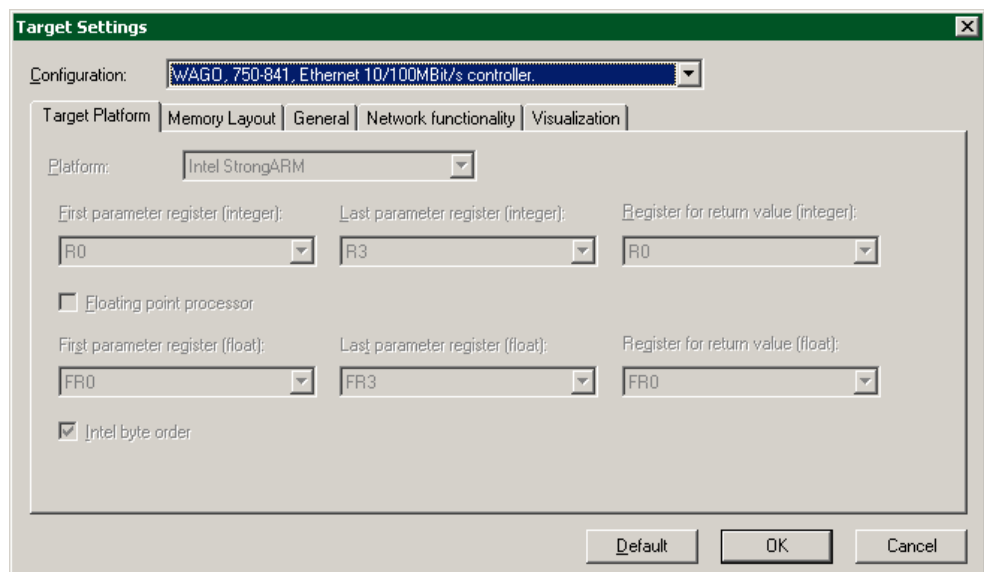


Fig. 5: WAGO-I/O-PRO CAA, target settings (2)



### More information

Please find more information about the supported functions in the Readme file of the fieldbus controller 750-841 or WAGO-I/O-PRO CAA.

Under → PLC Configuration the controller 750-841 can now be seen on the register card "Resources". The number of I/O modules that are connected to the controller 750-841 needs to be indicated here (Fig. 6).

To do so, click on the controller entry with the right mouse button and then click on "Add module" according to the number of connected modules (end modules or passive power supply modules excepted).

Hence you click twice for the modules 750-430, -530 and -600 in order to connect two modules.

It is now possible to determine whether the controller (PLC) or an Ethernet protocol (Fieldbus 1 = Modbus/TCP or Fieldbus 2 = Ethernet/IP) will get write access on the module outputs ("PAAssignment") under → Module Parameters (Fig. 6).

In the following example "PLC" is used.

Please note that the value is "plugged" under "Module Parameters".

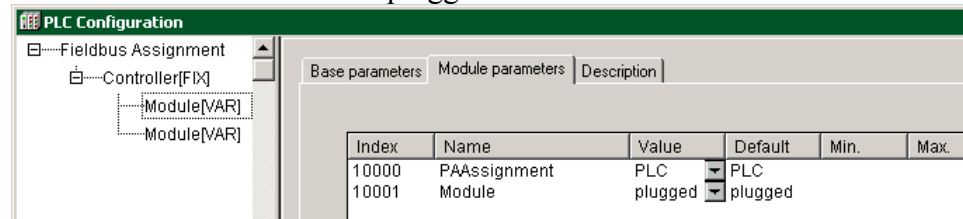


Fig. 6: WAGO-I/O-PRO CAA, PLC Configuration (2)

You can now continue creating the project as described in the manuals "Ethernet TCP/IP 750-841" and "WAGO-I/O-PRO CAA".

Example:

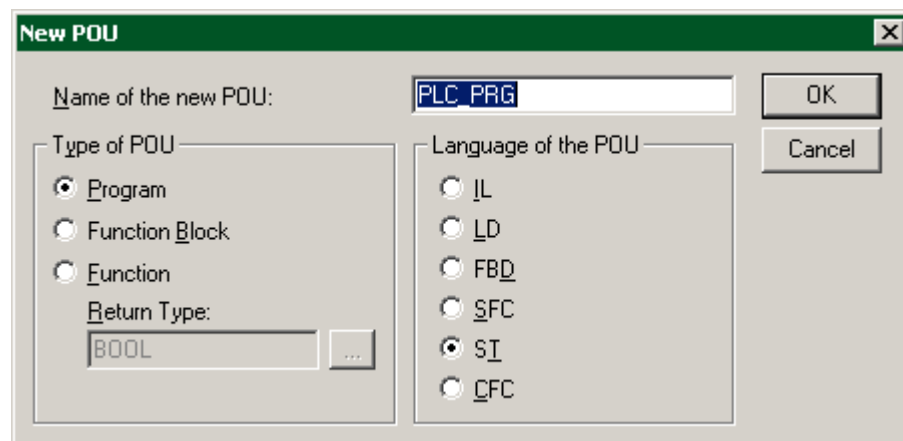


Fig. 7: WAGO-I/O-PRO CAA, Creating a new POU

A new POU "PLC\_PRG" is created using the programming language "ST" (Fig. 7).

The simplest configuration would be a controller 750-841 with only one digital input module and one digital output module.

The local process image will then look like the following (byte declaration):

Input_Byte	AT	%IB0:	BYTE;
Output_Byte	AT	%QB0:	BYTE;

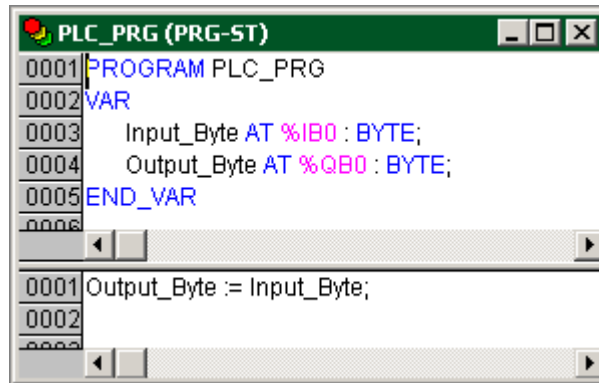


Fig. 8: WAGO-I/O-PRO CAA, Declaration and assignment in the PLC-PRG

A simple assignment could be:

```
Output_Byte := Input_Byte;
```

The inputs are thus assigned to the outputs (Fig. 8).

If the test program can be compiled without any problems it can be loaded.

The compilation is started via → Project → Rebuild all.

## 2.4 Program download to the controller 750-841

Click → Communication Parameters in the online menu and create a new communication channel.

Choose EthernetTCP/IP (3S TCP/IP driver).

Enter the IP address of the coupler under “Address“ (e.g. 192.168.1.2).

Enter port number 2455.

Please note that *the simulation is deactivated*.

You can now download the program via → Online → Login.

Start the program via → Online → Run.



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### Note

With the demo version of WAGO-I/O-PRO it is not possible to store programs permanently; i.e. the program must be downloaded and started anew after a power failure.

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## 2.5 Modbus/TCP DLL application examples

Before you can use the Modbus/TCP-DLL, it needs to be installed on your computer (preferably in the Windows System directory).

Restart your computer.

You can find a DLL function description in the API Modbus/TCP DLL manual, chapter 2.1 ff which is on the “WAGO DLL Modbus/TCP“ CD-ROM (759-312).

In the “Samples” directory you will find examples for DLL applications under Visual Basic and Visual C.



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