

PLUTO

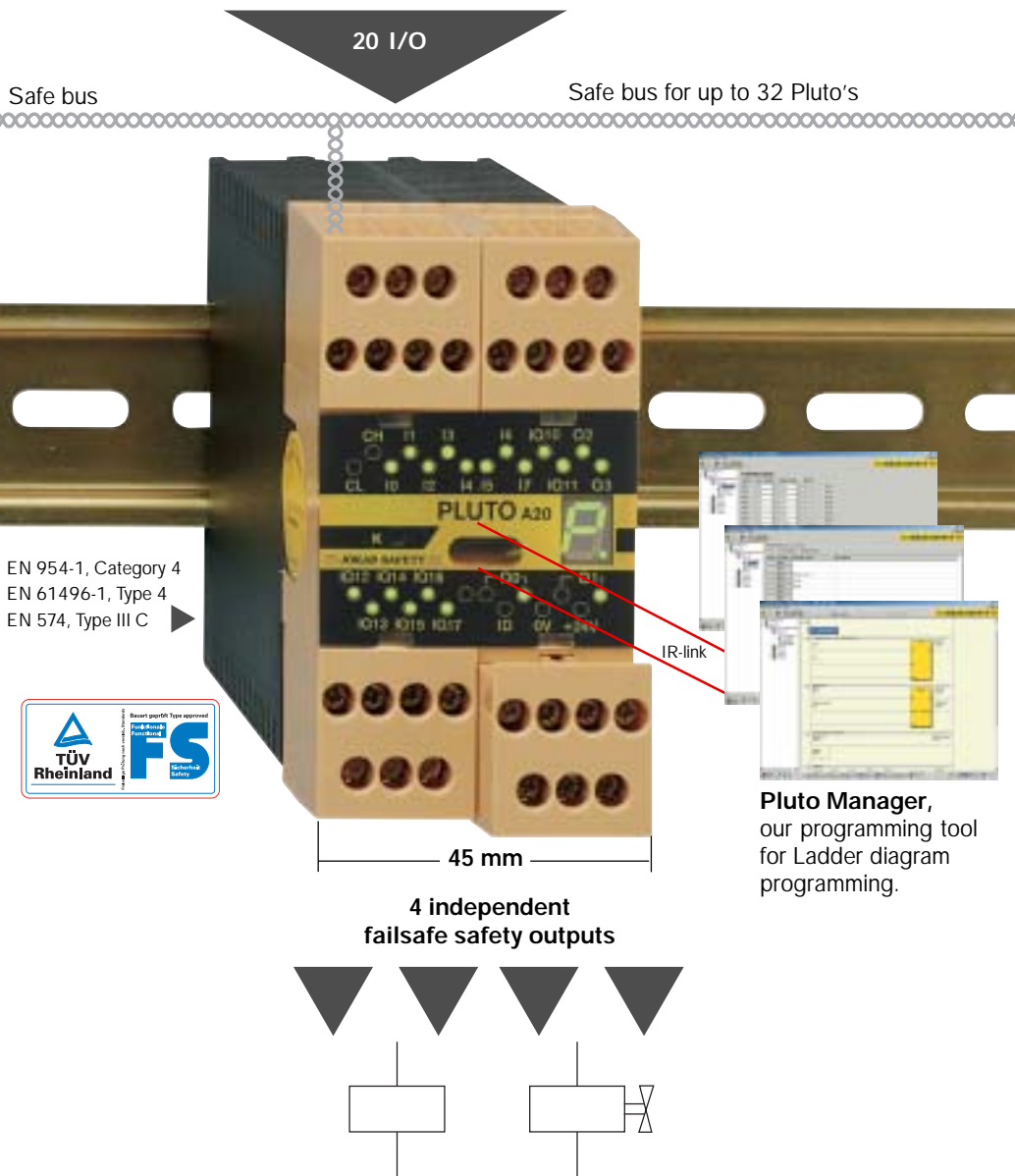
SAFETY PLC

≡ JOKAB SAFETY ≡

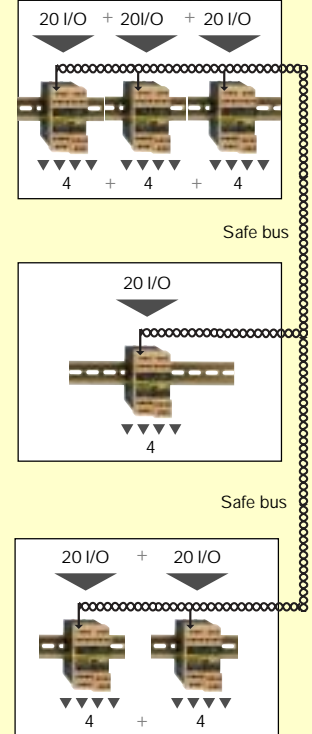
The new Safety PLC concept developed by JOKAB SAFETY AB simplifies the design of safety systems.



A wide range of Safety devices can be connected to each Pluto. By using Jokab Safety dynamic safety devices and adaptors up to twice the number of safety devices can be connected.



PLUTO – All Masters



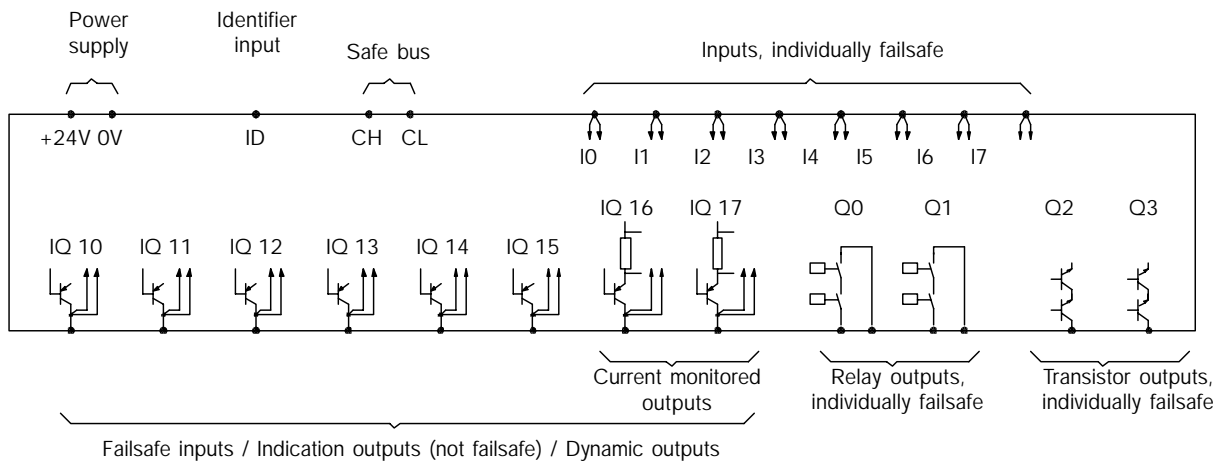
- Each Pluto can see the I/O of every other Pluto on the safe bus.
- 8 of the 20 I/O can be used as in and/or outputs.
- 32 Pluto's can be linked together using safe bus communication. This gives a total of 640 I/O.

■ Why should I choose Pluto?

- Simple programming
- Easy to configure and install
- Up to 640 I/O
- Highest safety level
- Training and support
- Cost effective safety solutions
- Jokab Safety has long experience in machine safety

www.jokabsafety.com

I/O Configuration - Pluto



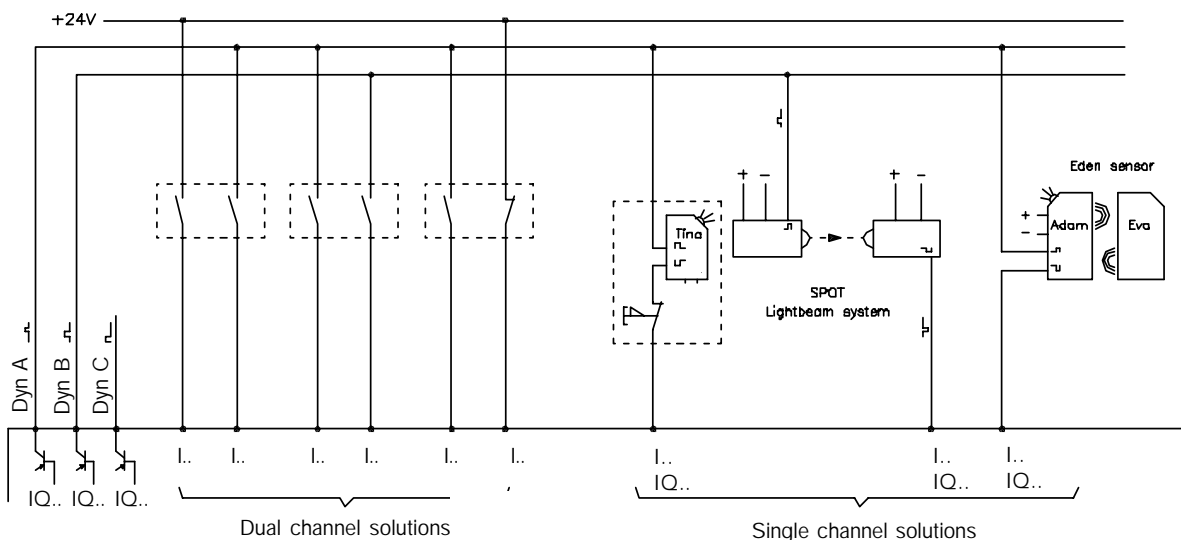
- ID:** Input for identifier which provide a unique ID number that can be read by the system.
- IO...7:** Individually failsafe Safety inputs (24 VDC). A high safety level can be reached by using only one input.
- IQ10...17:** Multi function terminals that can be used as safety inputs, current monitored outputs, signal outputs for indication or control of non safety related functions.
- Q0, Q1:** Relay outputs, individually failsafe and individually programmable.
- Q2, Q3:** Failsafe transistor outputs (-24 VDC) which are individually failsafe and individually programmable. Intended for control of electromechanical components such as relays, contactors and valves.

Connection of input devices

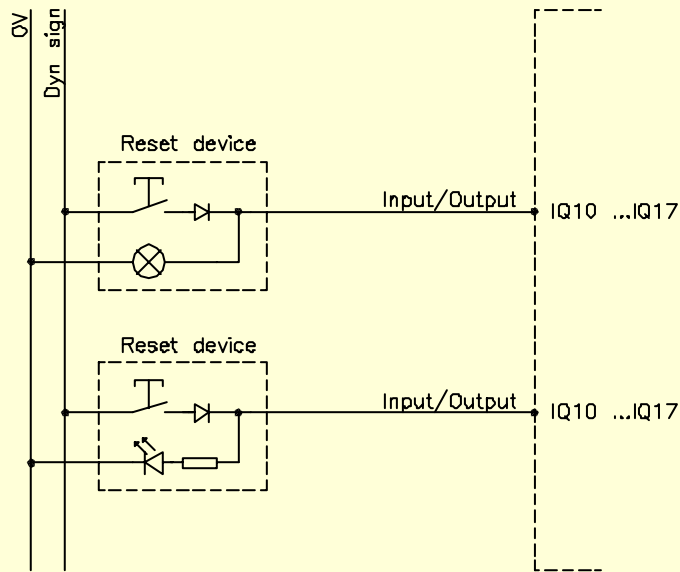
The system offers both dual and single channel solutions for input devices. To detect short circuits in cabling, up to three different dynamic signals and a static +24 VDC can be used as input drivers. Individual inputs are software configured to only accept one type of signal.

In dual channel solutions the two channels shall be of different signal type. A short circuit between the channels is then detected by the system.

In single channel solutions the dynamic signal is modified at each sensor. A short circuit between the sensor input and output is then detected by the the Pluto system. Category 4 can then be fulfilled by using only one channel and one input.



Reset device using both the input and output possibility



As shown it is possible to connect both an indicator lamp and an input switch to the same terminal e.g. illuminated push button. The function is mainly intended for reset devices and reduces the number of IQ terminals used.

Technical data

Supply
Nominal voltage 24 VDC , -15%, +20%
Max interruption < 20 ms

Power consumption at 24VDC
 Unit consumption 270 mA / 8,4 W
 Fail safe outputs 0 – 1.8 A / 0 - 43 W
 PLC outputs (non fail safe) 0 – 2.5 A / 0 - 60 W

Recommended external fuse 6 A
Installation category: Category II according to IEC 61010-1

Failsafe inputs
 IIO – I7 +24 V (for PNP sensors)
 IQ10 – IQ17 +24 V (for PNP sensors) also configurable as non-failsafe outputs.
 Max. over voltage 30 V continuously
 Filter time (standard) 5 – 10 ms, software

Safety output
 Q2-Q3: Solid state, -24 VDC
 Output voltage tolerance: Supply voltage -1.5 V at 800 mA
 Max. load/output: 800 mA
 Q0-Q1: Relay output
 Max voltage 250 VAC
 Max. load / output 1.5 A

Outputs, non-failsafe
 IQ10 – IQ17 Transistor +24V, PNP open collector (also configurable as failsafe inputs.)
 Max load/output 800 mA
 Max total load IQ10-IQ17 2.5 A

Current monitoring IQ16, IQ17
 Range 0 - 1.0 A
 Resolution 20 mA

Indications:
 Input LED's 1 per output (green) Controlled by processor
 Output LED's 1 per output (green) Controlled by processor
 Indication of status and error 7 segment display

General
 Enclosure 45 x 84 x 118 mm (w x h x d)

Response time: 20 - 30 ms
 Software setting *NO Filt* reduces the response time. - 5 ms
 Response time over the bus(normal function): +10 ms

Program memory: 32 k

Ambient air temperature: -10°C - + 50°C
Temperature, transportation and storage: - 25 - +55°C

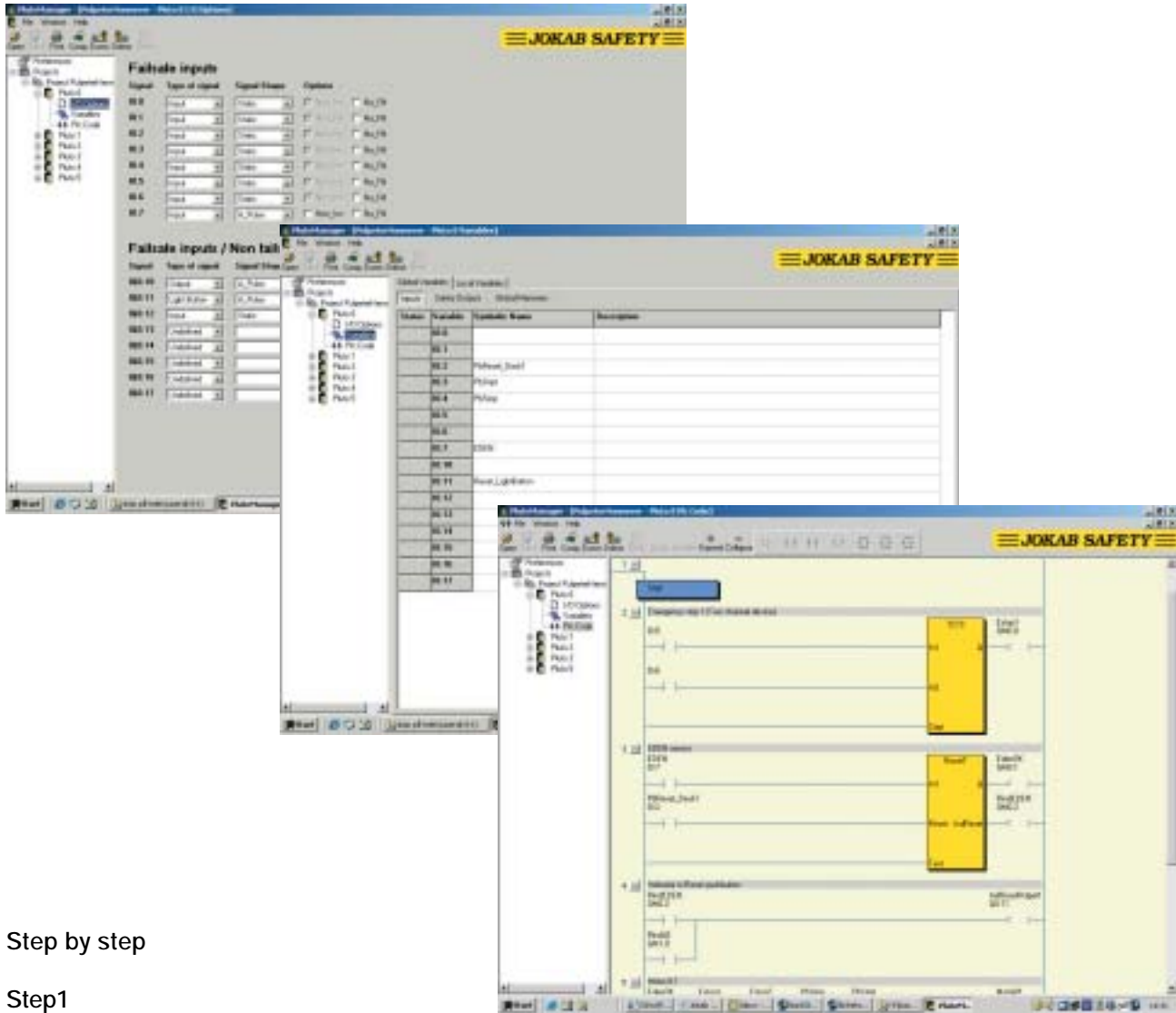
Degree of protection:
 Enclosure: IP 40 - IEC 60 529
 Terminals: IP 20 - IEC 60 529

Certificates



Pluto Manager

Programming of a project using five Pluto.



Step by step

Step 1

Hardware configuration of Pluto I/O:

Inputs can be selected for static and dynamic pulse inputs. Outputs can be configured to transmit either static or pulsed signals. 8 I/O can be programmed as both inputs and outputs as for example Pushbutton input and light indication.

Step 2

In the software you can define Global and Local variables such as registers, memories and safety outputs. Global variables can be used by all the Pluto:s connected on the safe bus.

Step 3

Programming using predefined function blocks certified by TÜV and free ladder programming using timers, arithmetic functions, sequences etc. In order to program Safety functions the procedures in the Jokab Safety programming manual must be adhered to in order to fulfill the safety regulations.

≡ JOKAB SAFETY ≡

JOKAB SAFETY AB - SWEDEN

Boplatsgatan 3
SE-213 76 MALMÖ
Tel: 040 - 14 36 30
Fax: 040 - 22 92 88
www.jokabsafety.com

Varlbergsvägen 11
SE-434 91 KUNGSBACKA
Tel: 0300 - 359 00
Fax: 0300 - 730 85
e-mail: info@jokabsafety.se

JOKAB SAFETY North America

7800 Twin Oaks Drive
Windsor, Ontario Canada N8N 5B6
Tel: 1 - 800 - 265 - 2633
Fax: 1 - 800 - 565 - 9302

JOKAB SAFETY North America

6471 Commerce Drive
Westland, Michigan 48185 USA
Tel: 1 - 800 - 265 - 2633
Fax: 1 - 800 - 565 - 9302

JOKAB SAFETY (UK) LTD - United Kingdom

Unit 2, Horace House,
Oakfield Industrial Estate,
Stanton Harcourt Road, Eynsham,
Witney, Oxon. OX29 4TX
Tel: (01865) 88 30 50 Fax: (01865) 88 30 55

Australien: Sensorplex Pty Ltd, 03-95501890. **Austria:** Contra, 01-278 25 55. **Belgium:** JOKAB SAFETY Belgium n.v., 02-361 1540. **Brazil:** JOKAB SAFETY div. of ABG, 041-643 1384. **Canada/USA:** JOKAB SAFETY North America, 1-888 282 2123. **Denmark:** JOKAB SAFETY DK A/S, 44-34 14 54. **Finland:** JUHA-ELEKTRO OY, 09-478 411. **France:** JLP AUTOMATISME, 04-77 93 58 58. **Germany:** Stuttgart: JOKAB SAFETY (D) GmbH, 07424-92212, Hamburg, Inko 040-670 61 33-35. Köln, Debra 02234-788 98. **Holland:** SCHIFF ELECTRONIC B.V, 0488-45 32 54. **Ireland:** MCC CONTROLS, 01-450 6236. **Italy:** Masautomazione, 02-26 92 20 90. **Norway:** Automasjon og Sikkerhet AS, 33-01 52 20. **Spain:** SAFEWORX, 93 308 07 38. **Switzerland:** Mattle Industrieprodukte AG, 01-938 13 33.

While every effort has been taken to ensure the accuracy of information contained in our data sheets, promotional and information material JOKAB SAFETY (UK) LIMITED cannot accept responsibility for errors or omissions and reserves the right to make any improvements without notice. It is the users responsibility to ensure that this equipment is correctly designed, specified, installed, cared for and operated to meet all applicable local, national and international codes/regulations. Technical data in our data sheets is correct to the level of accuracy of Jokab Safety's test procedures as verified by various international approved bodies. Other information (such as application examples, wiring diagrams, operation or use) is intended solely to illustrate the various uses of our products. JOKAB SAFETY (UK) LIMITED does not guarantee or imply that the product when used in accordance with such examples in a particular environment will fulfil any particular safety requirement and does not assume any responsibility or liability for actual use of the product based on the examples given. Printed in Sweden 03-04-03