



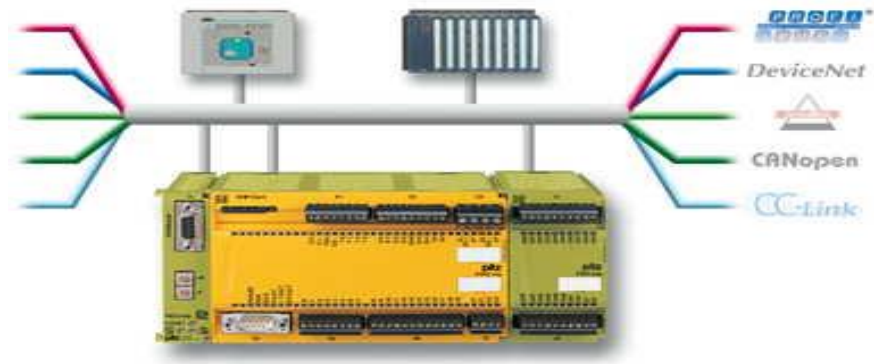
Co-funded by the
Erasmus+ Programme
of the European Union

INDI 4.0

PNOZmulti Programming and Service

Chapter 6
„Communication“

PILZ
THE SPIRIT OF SAFETY



▶ Safe Connection Module SafetyNET p Overview



PILZ | 06-4

SafetyNET p

Safe-Multi-Link connection

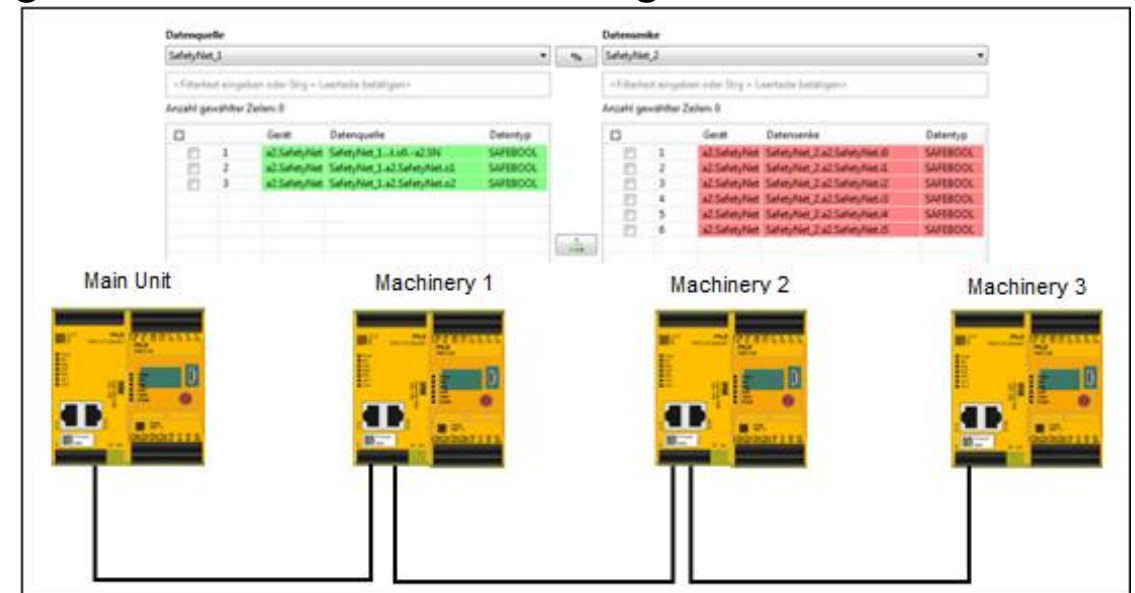
Safe-PDP connection

PLC communication

Fieldbus modules

Features

- ▶ SafetyNET p RTFL (hard real-time capable)
- ▶ Line topology
- ▶ 1 module per base unit possible
- ▶ Networking 16 PNOZmulti base units from Generation 2
- ▶ Condition:
 - Hardware: PNOZmulti base unit from Generation 2
 - Software: PNOZmulti-Configurator from V 10.6.0 or higher



▶ Safe Connection Module SafetyNET p

Technical data



PILZ | 06-4

SafetyNET p

Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

Module

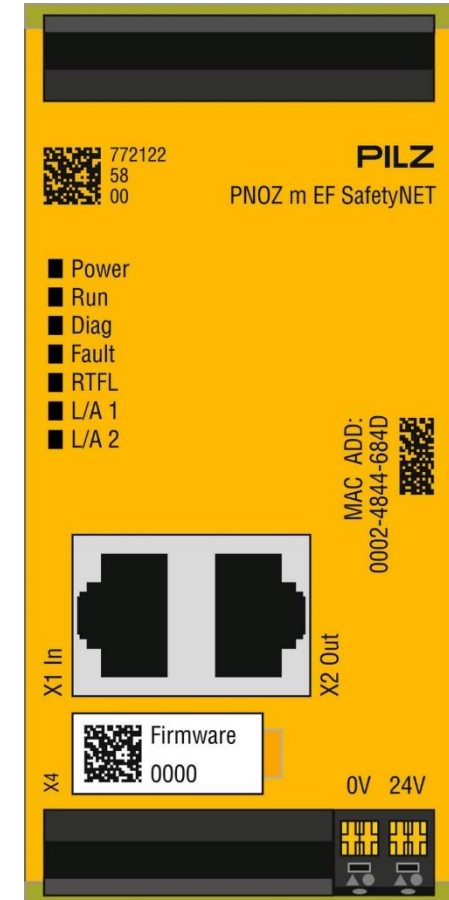
- ▶ PNOZ m EF SafetyNET (Generation 2)

Technical Data

- ▶ 128 virtual inputs PL e / SIL CL 3
- ▶ 32 virtual outputs PL e / SIL CL 3
- ▶ Max. 100 m cable length between 2 modules
- ▶ Potential-free connection
- ▶ Bidirectional data exchange

Hardware Technology

- ▶ 7 Status LEDs
- ▶ Connection via SafetyNET cable
- ▶ No address assignment necessary
- ▶ Separate operating voltage



▶ Safe Connection Module SafetyNET p Software



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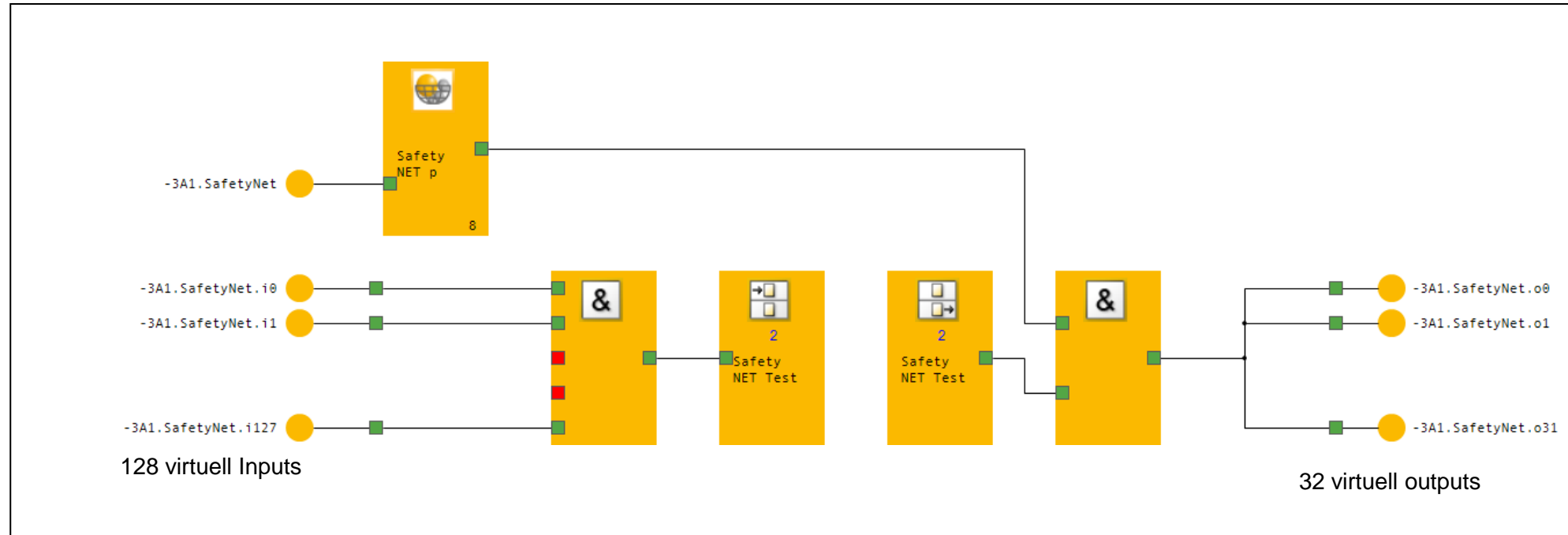
SafetyNET p

Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules



▶ Safe Connection Module SafetyNET p Wiring



PILZ | 06-6

SafetyNET p

Safe-Multi-Link connection

Safe-PDP connection

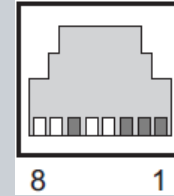
PLC communication

Fieldbus modules

General Illustration

Minimum requirements for the cable:
-100BaseTX cable according to Ethernet standard (min. KAT5)
-RJ45 plug, suitable for industrial use
-Twisted-Pair, double shielded
No crossover cable!

RF45-Plug



PIN 1 = TD+ (Transmit +)
PIN 2 = TD- (Transmit -)
PIN 3 = RD+ (Receive +)
PIN 4 = n.c.
PIN 5 = n.c.
PIN 6 = RD- (Receive -)
PIN 7 = n.c.
PIN 8 = n.c.

▶ Safe Connection Module PNOZmulti <-> PNOZmulti Overview



PILZ | 06-9

SafetyNET p

Safe-Multi-Link connection

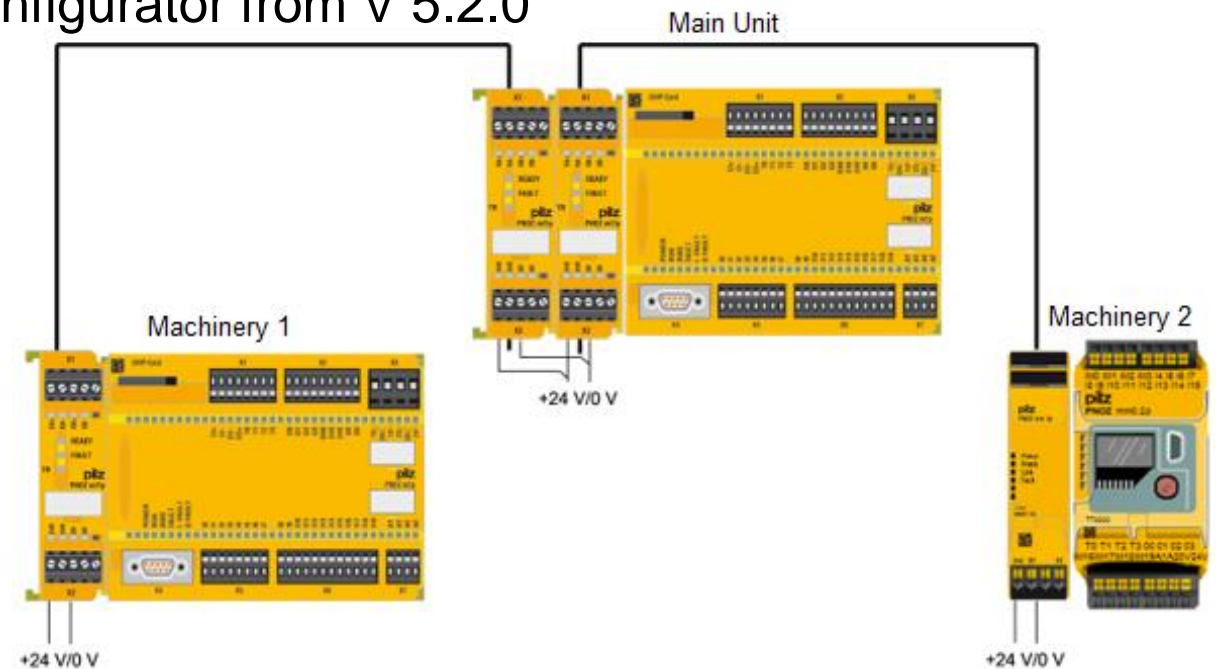
Safe-PDP connection

PLC communication

Fieldbus modules

Features

- ▶ 64 bits (32 inputs, 32 outputs) Data width
- ▶ "one cable" point to point connection
- ▶ 4 modules per base unit possible
- ▶ Condition:
 - Hardware: PNOZmulti base unit from V 5.3
 - Software: PNOZmulti Configurator from V 5.2.0



▶ Safe Connection Module PNOZmulti <-> PNOZmulti

Technical data



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SafetyNET p

Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

Modules

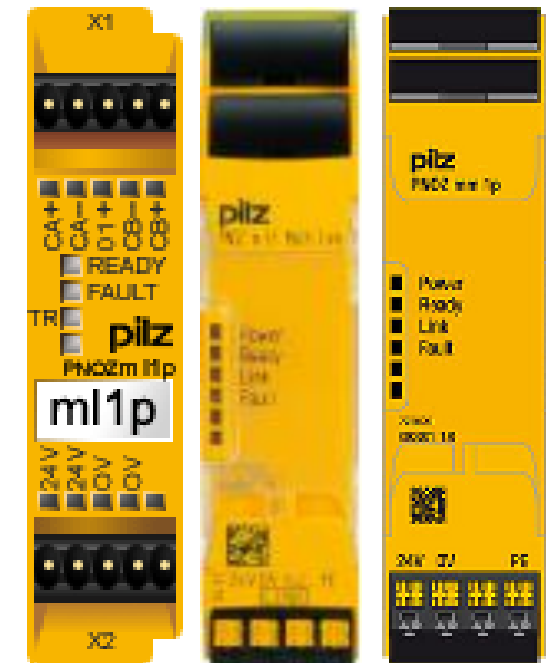
- ▶ PNOZ ml1p (1st generation)
- ▶ PNOZ m EF Multi Link (2nd generation)
- ▶ PNOZ mml1p (Mini)

Technical data

- ▶ 32 virtual inputs PL e / SIL CL 3
- ▶ 32 virtual outputs PL e / SIL CL 3
- ▶ Connection with shielded cable
- ▶ Max. 1000 m cable length between 2 modules
- ▶ Potential-free connection
- ▶ Bidirectional data exchange

Hardware technology

- ▶ 3 status LEDs
- ▶ Connection via 4 wires + shield = 1 cable
- ▶ No address assignment necessary
- ▶ Separate operating



▶ Safe Connection Module PNOZmulti <-> PNOZmulti Software



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SafetyNET p

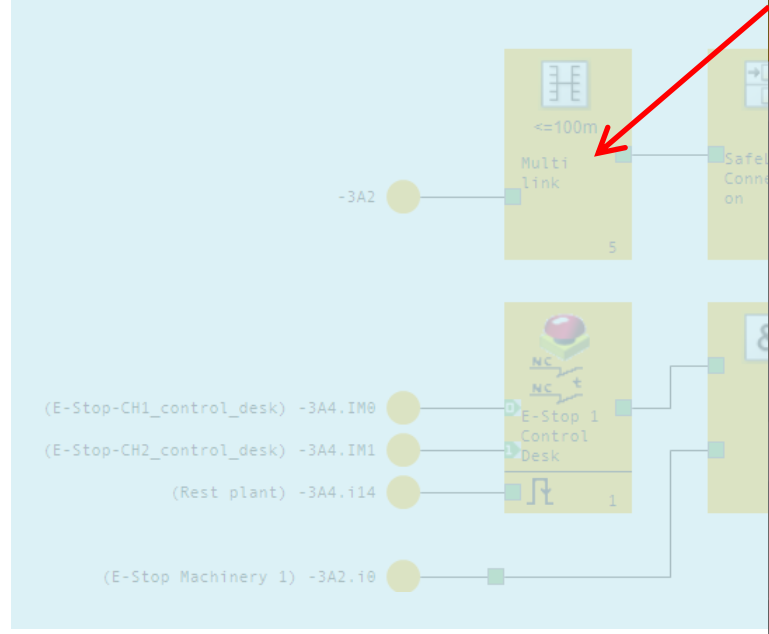
Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

- ▶ Simple configuration
- ▶ Virtual inputs/outputs
 - Active setting of the input on



Configure Link Module Status Element

Link Module Status: **Status element**

General | **PVIS**

Settings

Select Link Module: -3A2 Select Cable Length: <=100m

Element ID

Activate diagnostics

Select Element ID: 5

Equipment ID

Enter equipment ID: Multi link

Location description

Enter location description:

OK Cancel Help

▶ Safe Connection Module PNOZmulti <-> PNOZmulti

Wiring



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SafetyNET p

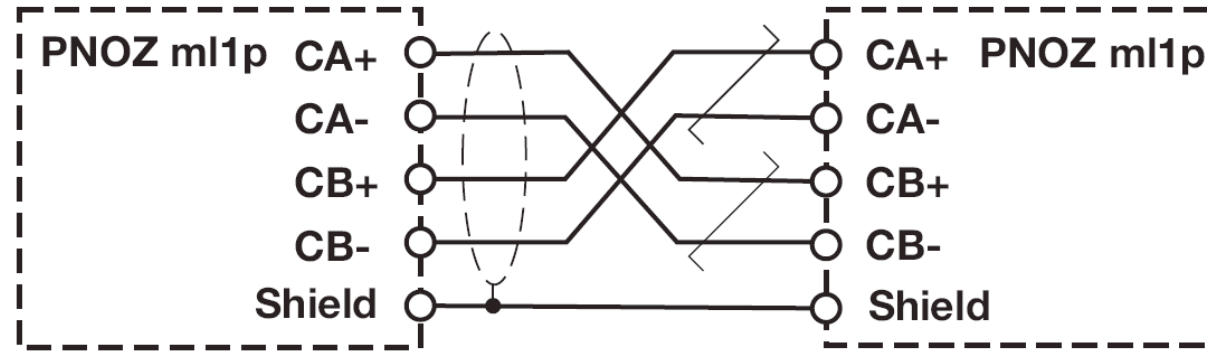
Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

Wiring



- ▶ 4-wire shielded cable
- ▶ Twisted pair cable
- ▶ Shield:
 - Is clamped on both connection modules.
 - Do not connect to the potential equalization rail!

▶ Safe Connection Module PNOZmulti <-> PDP-Module Overview



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SafetyNET p

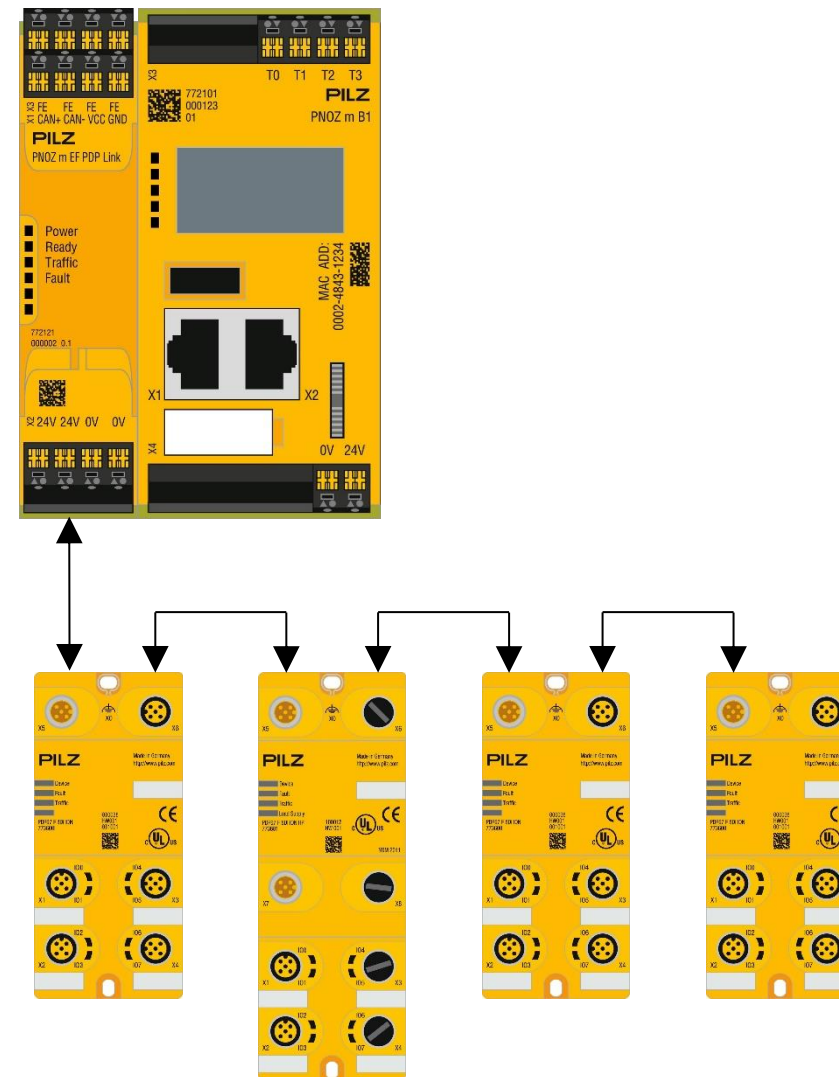
Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

- ▶ Decentralized periphery IP67
- ▶ 4 decentralized peripheral modules per link module possible
- ▶ Approx. 400 m distance possible
- ▶ Condition:
 - Hardware: PNOZmulti base unit from V 6.0 upwards
 - Software: PNOZmulti Configurator from V 7.0.0



▶ Safe Connection Module PNOZmulti <-> PDP-Module

Technical data



PILZ | 06-12

SafetyNET p

Safe-Multi-Link connection

Safe-PDP connection

PLC communication

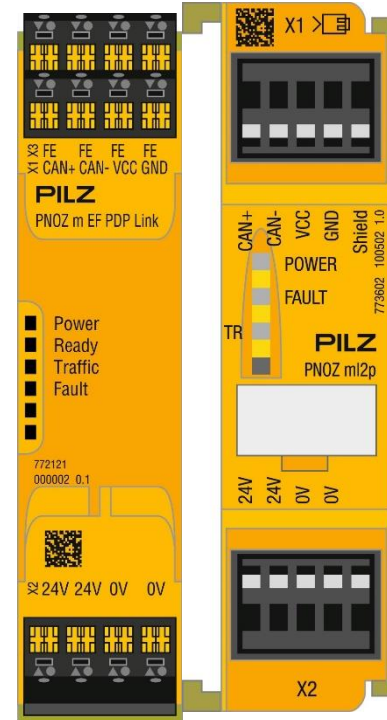
Fieldbus modules

Modules

- ▶ PNOZ ml2p (Generation 1)
- ▶ PNOZ m EF PDP Link (Generation 2)
- ▶ PNOZ mml2p (Mini)
- ▶ Technical data
- ▶ 32 virtual inputs PL e / SIL CL 3
- ▶ 4 modules (PDP67 F 8DI ION) á 8 inputs
- ▶ Binary signals only
- ▶ Fail-safe signals only
- ▶ Bus cycle time: 4 ms

Hardware Technology

- ▶ 3 status LEDs
- ▶ Connection via 4 wires + shield = 1 cable (point-to-point segments)
- ▶ Only one cable for power supply and communication
- ▶ No address assignment necessary
- ▶ Separate operating and peripheral voltage possible



▶ Safe Connection Module PNOZmulti <-> PDP-Module Software



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SafetyNET p

Safe-Multi-Link connection

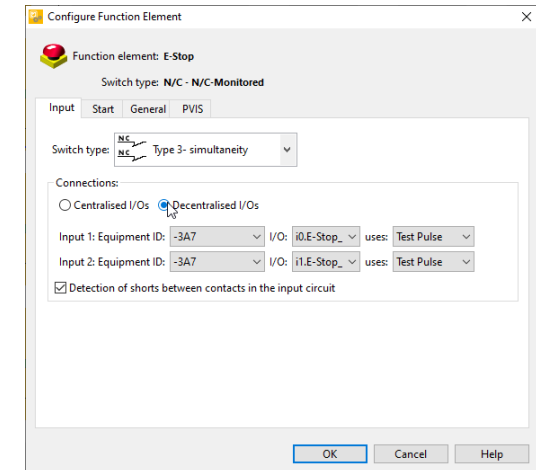
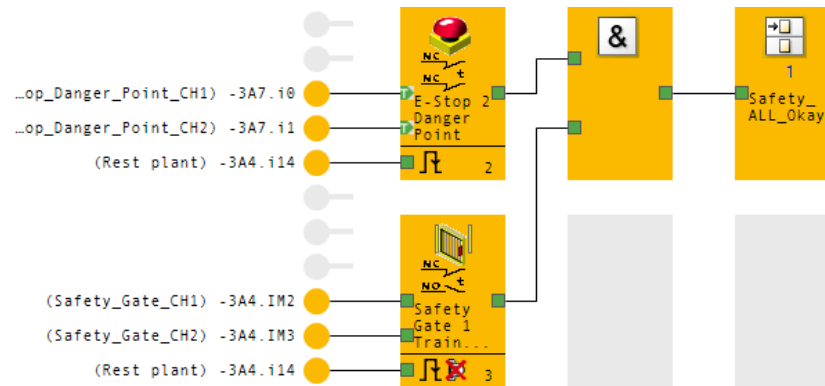
Safe-PDP connection

PLC communication

Fieldbus modules

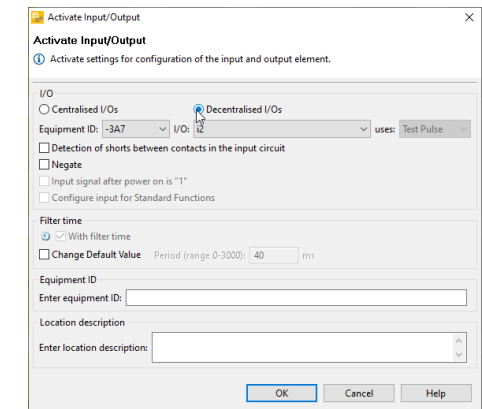
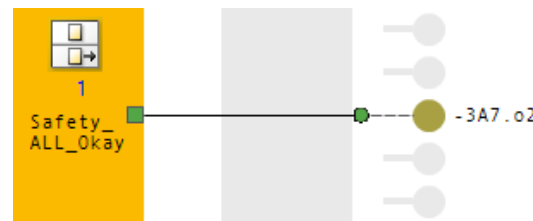
Inputs

- ▶ Configuration like the inputs directly on the basic unit/extension module



Standard outputs

- ▶ Activating the standard outputs of the PDP via the configurator



▶ Safe Connection Module PNOZmulti <-> PDP Module Wiring



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SafetyNET p

Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

Pin assignment:

- ▶ 1: Shield
- ▶ 2: +24 V
- ▶ 3: 0 V
- ▶ 4: CAN_H
- ▶ 5: CAN_L

Unshielded standard sensor cable

- ▶ Individual lengths < 10 m (point-to-point)
- ▶ 4 wires

Shielded cable (see SafetyBUS p cable)

Einzellängen < 100 m (point-to-point)

- ▶ Individual lengths < 100 m (point-to-point)
- ▶ 4 wires + shield

CAN baud rate: 500 kBaud



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SafetyNET p

Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

- ▶ Communication between PLC and PNOZmulti takes place via a telegram
- ▶ Configuration of the communication in the PLC via GSD file
- ▶ Telegram length (send and receive):
 - ▶ 1st generation and mini 20 bytes
 - ▶ 2nd generation 32 bytes
- ▶ exchange of
 - ▶ 128 Virtual inputs and outputs
 - ▶ Status and diagnostic data

► PLC Communication

Configuration of the hardware



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- SafetyNET p
- Safe-Multi-Link connection
- Safe-PDP connection
- PLC communication**
- Fieldbus modules

Communication or fieldbus module

Overview of hardware configuration

Double click on module or device

Integrated interface

Configured Hardware

Cannot move this

Configured Hardware						
	Module Name	Version	Equipment Identifier	Location Description	I	O
	I/Os transmitted via the integrated interface	v1.0	a2		128	128
0	Base Unit PNOZ m B1	v1.6 (FW 0106)	a1		0	0

► PLC Communication

Configuration and user program



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SafetyNET p

Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

1st generation and mini

- Number of virtual in- and outputs 24 or 128

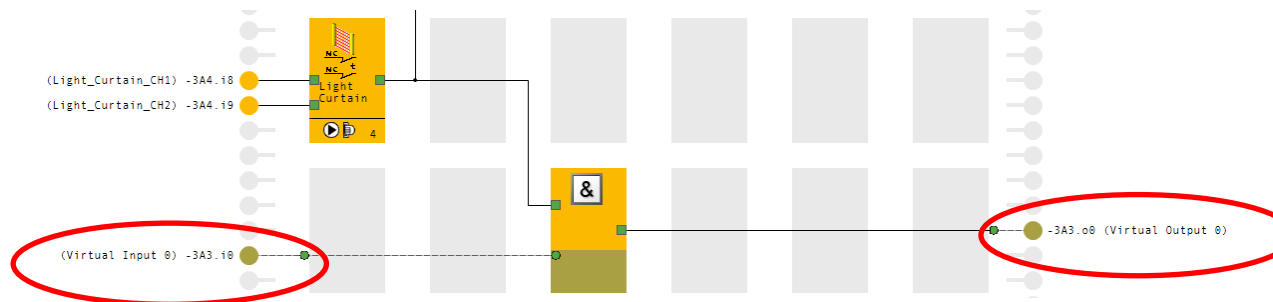
Konfigurierte Hardware						
	Modulname	Version	Betriebsmittelkennzeichen	Ortsbeschreibung	E	A
	Ein-/Ausgänge, die über die integr...	v1.0	a2		128	128
0	Basisgerät PNOZ m1p ETH	v6.7	-3A1.Basis		20	6

2nd generation

- Number of virtual In- and outputs 128

Konfigurierte Hardware						
	Modulname	Version	Betrie...	O...	E	A
-1	Feldbusmodul PNOZmulti 2	v1.0	a2		128	128
0	Basisgerät PNOZ m B0	v1.4	a1		20	4

User program



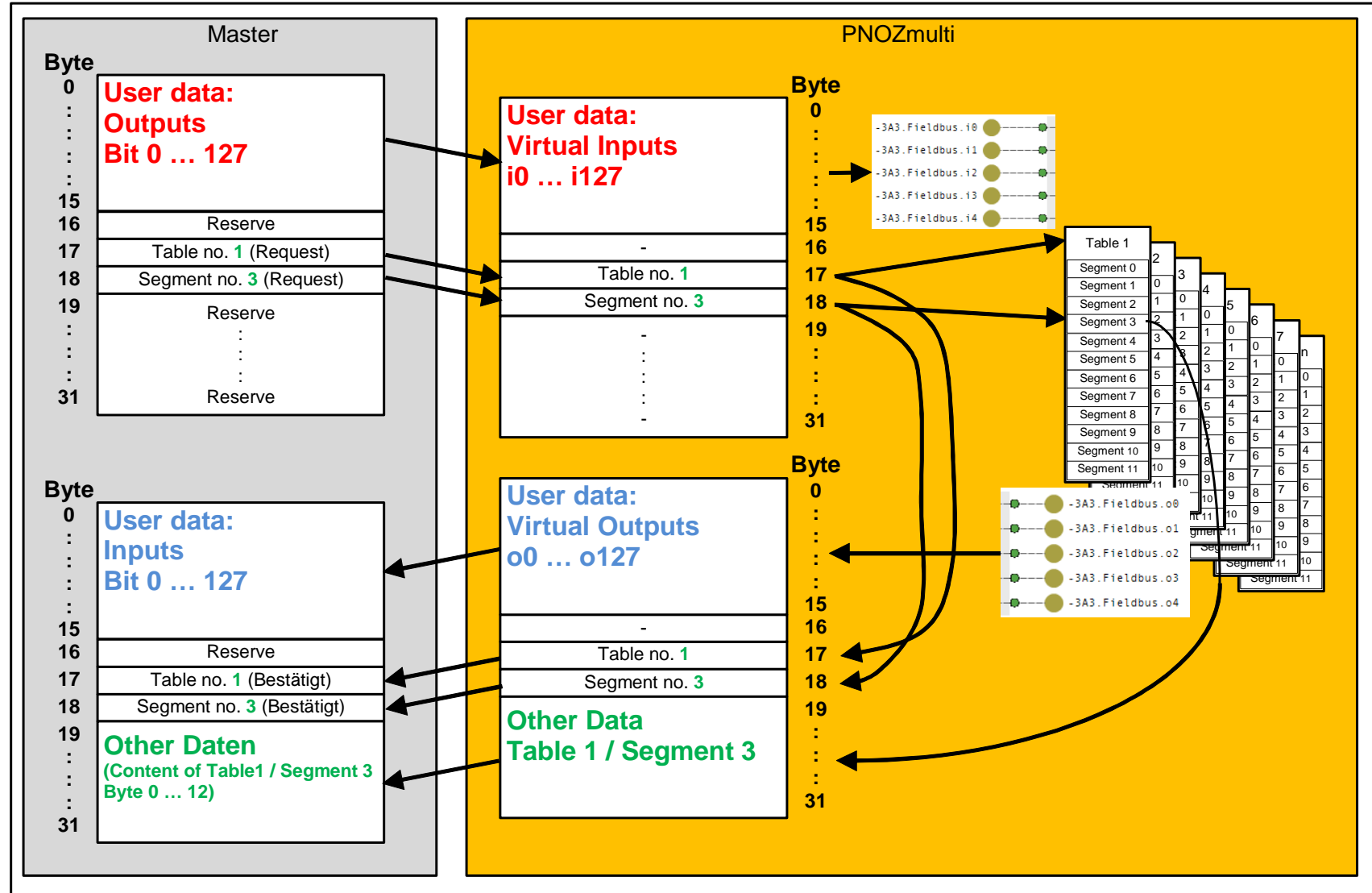
PLC Communication

Overview of user, process, diagnostic and service data



PILZ | 06-17

- SafetyNET p
- Safe-Multi-Link connection
- Safe-PDP connection
- PLC communication**
- Fieldbus modules



► PLC Communication

Communication protocols



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SafetyNET p

Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

- Pilz protocol
- Modbus/TCP
- SDO / PDO (EtherCat)
- Profits Records (Profinet)
- Ethernet/IP instances

Protocol	1st generation	Mini	2nd generation	
	PNOZ m1p (ETH) ... PNOZ m3p (ETH)	PNOZ mm0.1p ... PNOZ mm0.2p	PNOZ m B0	PNOZ m B1
Pilz-Protocol	Yes	Via ETH-communication module		YES
Modbus/TCP Register	PNOZ mc8p	PNOZ mmc1p ETH	PNOZ m ES ETH	YES
SDOs / PDOs	PNOZ mc2p	PNOZ mmc11p CAT	PNOZ m ES EtherCAT	
Profiten Records	PNOZ mc9p	-	PNOZ m ES Profinet	
Ethernet/IP instances	-	PNOZ mmc1p ETH	PNOZ m ES Ethernet/IP	

► PLC Communication

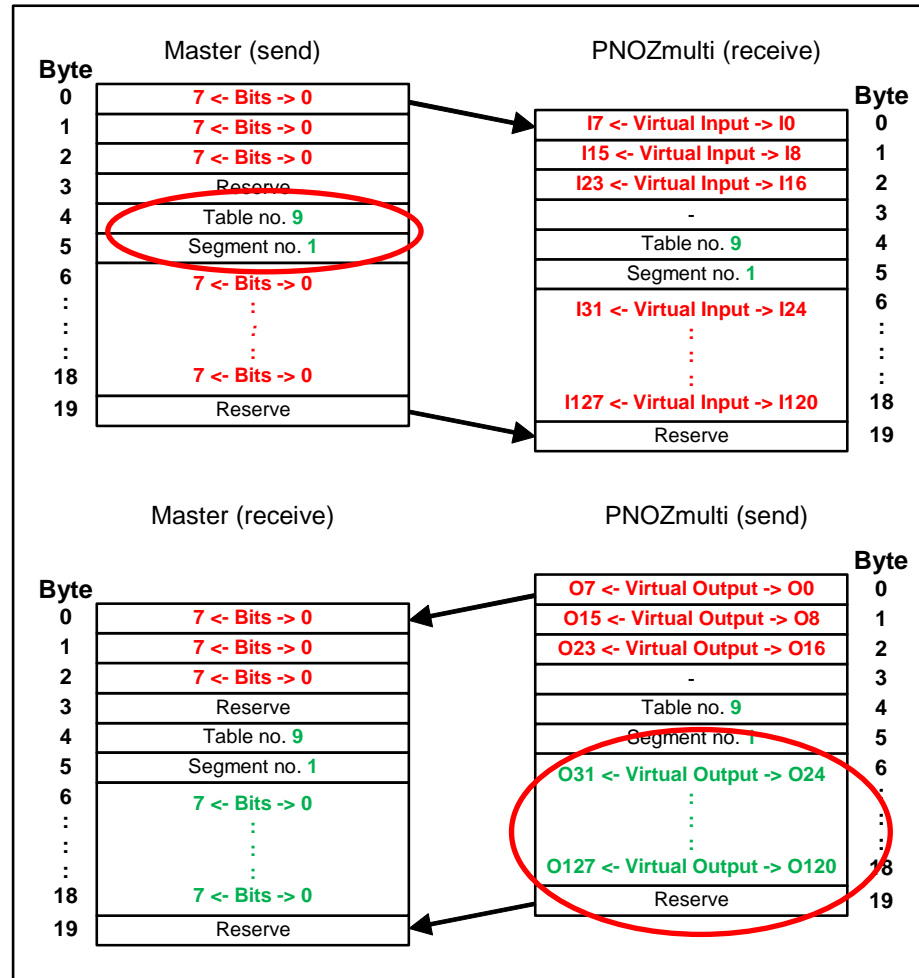
User data



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- SafetyNET p
- Safe-Multi-Link connection
- Safe-PDP connection
- PLC communication**
- Fieldbus modules

► Generation 1 and Mini



In order to be able to use the entire range of 128 virtual inputs and outputs, **table 9**, **segment 1** must be requested

► PLC Communication

Telegram structure „general overview“



PILZ | 06-19

- SafetyNET p
- Safe-Multi-Link connection
- Safe-PDP connection
- PLC communication**
- Fieldbus modules

► Generation 1 and Mini

Process data

- 3 bytes
 - Byte 0..2 (I0..I23)
 - Byte 0..2 (O0..O23)

Extended process data

- 13 bytes
 - Byte 6..18 (I24..I127)
 - Byte 6..18 (O24..O127)

Alternativ diagnostic data

- 13 bytes
 - Byte 6..18 (Table 1..8)

Data from Master (PLC) to PNOZmulti	
Master	PNOZmulti
Byte Nr.:	Contains:
0	virtual inputs I 7 ... 0
1	virtual inputs I 15 ... 8
2	virtual inputs I 23 ... 16
3	Reserve
4	Table no. x (1..8, 10)
5	Segment no. y (0..n)
6	I 31 ... 24 virtual inputs
7	I 39 ... 32 virtual inputs
8	I 47 ... 40 virtual inputs
9	I 55 ... 48 virtual inputs
10	I 63 ... 56 virtual inputs
11	I 71 ... 64 virtual inputs
12	I 79 ... 72 virtual inputs
13	I 87 ... 80 virtual inputs
14	I 95 ... 88 virtual inputs
15	I 103 ... 96 virtual inputs
16	I 111 ... 104 virtual inputs
17	I 119 ... 112 virtual inputs
18	I 127 ... 120 virtual inputs
19	Reserve

Data from PNOZmulti from Master (PLC)	
PNOZmulti	Master
Contains:	Byte Nr.:
virtual outputs O 7 ... 0	0
virtual outputs O 15 ... 8	1
virtual outputs O 23 ... 16	2
State of the LEDs from the Baseunit	3
Table no. x (1..8, 10)	4
Segment no. y (0..n)	5
Byte 0..12 from the requested segment	6
	7
	8
	9
	10
	11
	12
	13
	14
	15
	16
	17
	18
Reserve	19

► PLC Communication

User data



PILZ | 06-19

SafetyNET p

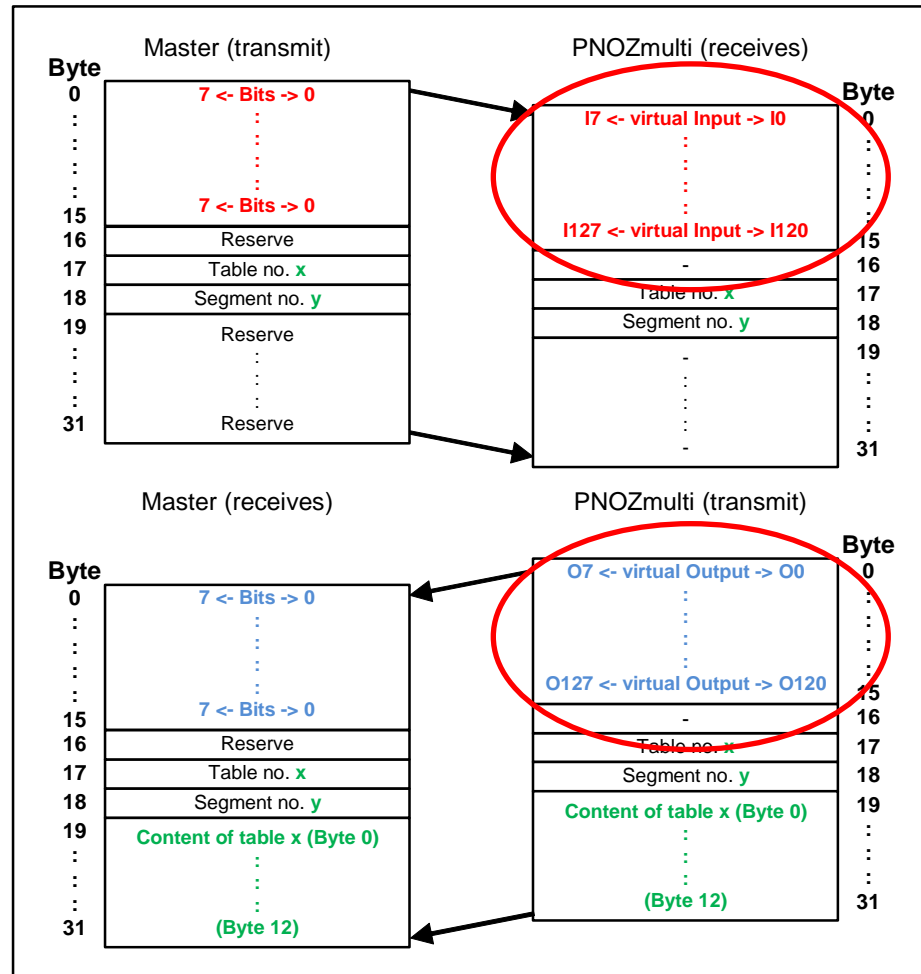
Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

► Generation 2



128 virtual inputs

128 virtual outputs

► PLC Communication

Telegram structure „general overview“



PILZ | 06-20

- SafetyNET p
- Safe-Multi-Link connection
- Safe-PDP connection
- PLC communication**
- Fieldbus modules

► 2nd generation

Process data

- 16 bytes
 - Byte 0..15 (I0..I127)
 - Byte 0..15 (O0..O127)

Diagnostic data

- 13 bytes
 - Byte 19..31 (Table x)

Daten vom Master (PLC) zum PNOZmulti	
Master	PNOZmulti
Byte Nr.:	Inhalt:
0	virtual inputs I 7 ... 0
1	virtual inputs I 15 ... 8
2	virtual inputs I 23 ... 16
3	virtual inputs I 31 ... 24
4	virtual inputs I 39 ... 32
5	virtual inputs I 47 ... 40
6	virtual inputs I 55 ... 48
7	virtual inputs I 63 ... 56
8	virtual inputs I 71 ... 64
9	virtual inputs I 79 ... 72
10	virtual inputs I 87 ... 80
11	virtual inputs I 95 ... 88
12	virtual inputs I 103 ... 96
13	virtual inputs I 111 ... 104
14	virtual inputs I 119 ... 112
15	virtual inputs I 127 ... 120
16	Reserve
17	Table no. x
18	Segment no. y
19	Reserve
20	Reserve
21	Reserve
22	Reserve
23	Reserve
24	Reserve
25	Reserve
26	Reserve
27	Reserve
28	Reserve
29	Reserve
30	Reserve
31	Reserve

Daten vom PNOZmulti zum Master (PLC)	
PNOZmulti	Master
Inhalt:	Byte Nr.:
virtual outputs O 7 ... 0	0
virtual outputs O 15 ... 8	1
virtual outputs O 23 ... 16	2
virtual outputs O 31 ... 24	3
virtual outputs O 39 ... 32	4
virtual outputs O 47 ... 40	5
virtual outputs O 55 ... 48	6
virtual outputs O 63 ... 56	7
virtual outputs O 71 ... 64	8
virtual outputs O 79 ... 72	9
virtual outputs O 87 ... 80	10
virtual outputs O 95 ... 88	11
virtual outputs O 103 ... 96	12
virtual outputs O 111 ... 104	13
virtual outputs O 119 ... 112	14
virtual outputs O 127 ... 120	15
State of the LEDs from the Baseunit	16
Table no. x	17
Segment no. y	18
	19
	20
	21
	22
	23
Byte 0..12 from the requested segment	24
	25
	26
	27
	28
	29
	30
	31

► PLC Communication

Process, diagnostic and service data (tables)



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SafetyNET p

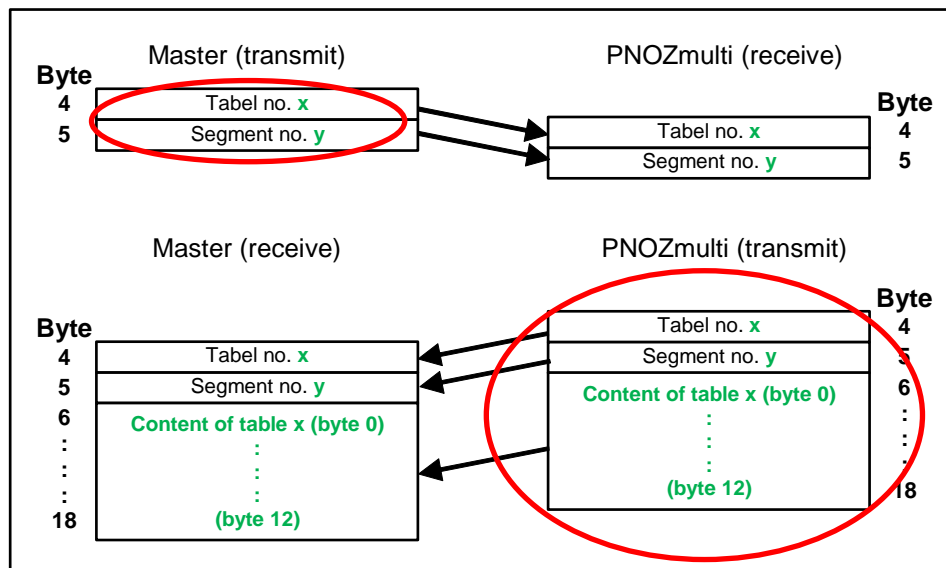
Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

► 1st generation and mini



The desired **table number** must be entered in byte 4 and the desired **segment number** in byte 5.

► PLC Communication

Telegram structure "General overview"



PILZ | 06-21

- SafetyNET p
- Safe-Multi-Link connection
- Safe-PDP connection
- PLC communication**
- Fieldbus modules

► 1st generation and mini

Process data

- 3 bytes
 - Byte 0..2 (I0..I23)
 - Byte 0..2 (O0..O23)

Extended process data

- 13 bytes
 - Byte 6..18 (I24..I127)
 - Byte 6..18 (O24..O127)

Alternativ diagnostic data

- 13 bytes
 - Byte 6..18 (table 1..8)

Data from Master (PLC) to PNOZmulti	
Master	PNOZmulti
Byte Nr.:	Inhalt:
0	Virtual inputs I 7 ... 0
1	Virtual inputs I 15 ... 8
2	Virtual inputs I 23 ... 16
3	Reserve
4	Table no. x (1..8, 10)
5	Segment no. y (0..n)
6	I 31 ... 24 Virtual inputs
7	I 39 ... 32 Virtual inputs
8	I 47 ... 40 Virtual inputs
9	I 55 ... 48 Virtual inputs
10	I 63 ... 56 Virtual inputs
11	I 71 ... 64 Virtual inputs
12	I 79 ... 72 Virtual inputs
13	I 87 ... 80 Virtual inputs
14	I 95 ... 88 Virtual inputs
15	I 103 ... 96 Virtual inputs
16	I 111 ... 104 Virtual inputs
17	I 119 ... 112 Virtual inputs
18	I 127 ... 120 Virtual inputs
19	Reserve

Data from PNOZmulti to Master (PLC)	
PNOZmulti	Master
Inhalt:	Byte Nr.:
Virtual outputs O 7 ... 0	0
Virtual outputs O 15 ... 8	1
Virtual outputs O 23 ... 16	2
State of the LEDs from the Baseunit	3
Table no. x (1..8, 10)	4
Segment no. y (0..n)	5
Byte 0..12 from the requested segment	6
	7
	8
	9
	10
	11
	12
	13
	14
	15
	16
	17
	18
Reserve	19

► PLC Communication

Overview of tables and segments (1st generation)



PILZ | 06-22

SafetyNET p
Safe-Multi-Link connection
Safe-PDP connection
PLC communication
Fieldbus modules

Table 1: Checksums, creation date, configuration, operating hours counter etc.

Segment no.	Byte	Description
0	0 ... 12	Product no., unit version, serial no.
1	0 ... 12	CRC sum, creation date, operating hours counter, type of base unit
2	0 ... 12	Expansion modules configured on the right-hand side
3 ... 5	0 ... 12	Project name byte (Format: Unicode)
6	0 ... 12	Date on which the program was last modified (day, month, year, hour, minute, time zone)
7	0 ... 12	Connected fieldbus module type, version no.
8	0 ... 12	Expansion modules configured on the left-hand side

Table 2: Reserve

Table 3: Status of all inputs

Segment no.	Byte	Description
0	0 ... 12	Status of inputs, RIGHT-HAND expansion modules
1 ... 2	0 ... 12	Status of inputs, LEFT-HAND expansion modules: - Link modules (ml1p, ml2p, mml1p and mml2p) - Analogue input module (ma1p)

Table 4: Status of all outputs

Segment no.	Byte	Description
0 ... 1	0 ... 12	Status of outputs, RIGHT-HAND expansion modules
2 ... 3	0 ... 12	Status of outputs, LEFT-HAND expansion modules: - Link modules (ml1p, ml2p, mml1p and mml2p)

► PLC Communication

Overview of tables and segments (1st generation)



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SafetyNET p

Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

Table 5: Device status of all modules

Segment no.	Byte	Description
0 ... 1	0 ... 12	Status of the LEDs: Base unit and RIGHT-HAND expansion modules
2	0 ... 12	Status of the LEDs: Fieldbus module
3	0 ... 12	Status of the LEDs: Speed monitor
4	0 ... 12	Status of the LEDs: LEFT-HAND expansion modules

Table 7: Status of elements with ID identifier

Segment no.	Byte	Description
0	0	Number of elements with ID identifier
1	0 ... 12	Status of elements with ID identifier 1 ... 100
2 ... 19	0 ... 12	Diagnostic values of elements from ID 1 ... 100

Table 8: Configured switch types

Segment no.	Byte	Description
0 ... 7	0 ... 12	Configured switch type of elements ID 1 ... 100

Table 9: Extended virtual fieldbus inputs/outputs (I24...127 / O24...127)

Segment no.	Byte	Description
1	0 ... 12	Control virtual inputs I24...127 and poll status of virtual outputs O24...127.
2	0 ... 12	Only poll status of virtual outputs O24...127.
3	0 ... 12	Only control virtual inputs I24...127.

► PLC Communication

Process, diagnostic and service data (tables)



PILZ | 06-23

SafetyNET p

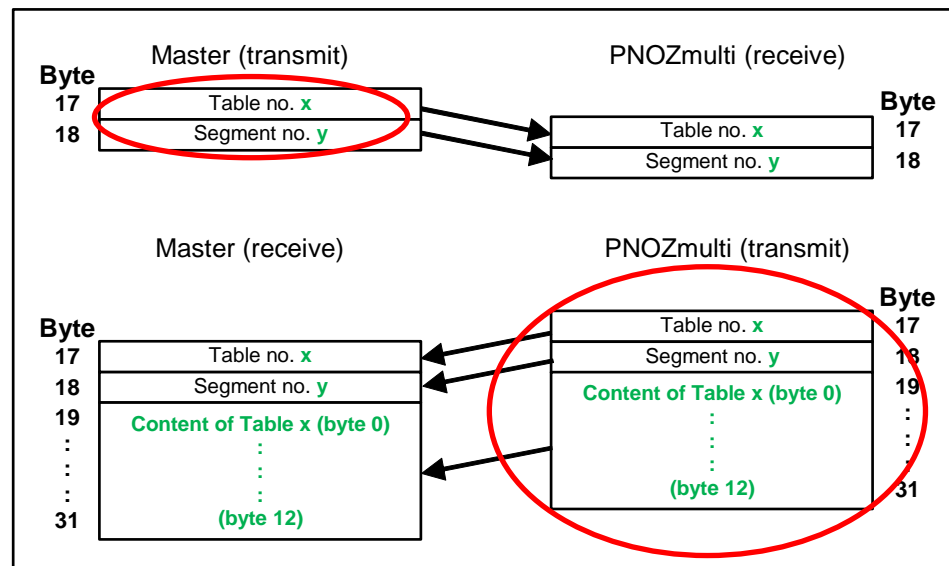
Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

► 2nd generation



The desired **table number** must be entered in byte 17 and the desired **segment number** in byte 18.

► PLC Communication

Overview of tables and segments (2nd generation)



PILZ | 06-23 +

SafetyNET p

Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

Table 20: Process data of the base unit

Segment no.	Byte	Description
0	0 ... 12	Status of the inputs/outputs and supply voltage
1..2	0 ... 12	Status of the I/O_LEDs

Table 21: Process data of the expansion modules (right)

Segment no.	Byte	Description
0..18	0 ... 12	Status of expansion modules, RIGHT-HAND

Table 22: Process data of the expansion modules (left)

Segment no.	Byte	Description
0..11	0 ... 12	Status of expansion modules, LEFT-HAND

Table 23: Process data of the communication and fieldbus modules

Segment no.	Byte	Description
0..1	0 ... 12	Status of the virtual inputs
2..3	0 ... 12	Status of the virtual outputs
4..6	0 ... 12	System LEDs of the fieldbus modules
7..8	0 ... 12	System LEDs of the communication modules

► PLC Communication

Overview of tables and segments (2nd generation)



PILZ | 06-24

SafetyNET p

Safe-Multi-Link connection

Safe-PDP connection

PLC communication

Fieldbus modules

Table 70: Diagnostic word of elements with ID identifier

Segment no.	Byte	Description
0..16	0 ... 12	Diagnostic values of elements from ID 1 ... 100

Table 71: Status of elements with ID identifier

Segment no.	Byte	Description
0	0 ... 12	Status of elements with ID identifier 1 ... 100

Table 80: Project data

Segment no.	Byte	Description
0	0 ... 12	CRC sum
1	0 ... 12	Creation date, operating hours counter, type of base unit
2..4	0 ... 12	Project name byte (format: Unicode)

Table 90: Data of the base unit

Segment no.	Byte	Description:
0	0 ... 12	Product number, serial number, unit type, unit version
1	0 ... 12	Firmware
2	0 ... 12	Operating hours counter

► PLC Communication

Overview of tables and segments (2nd generation)



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Safe-Multi-Link connection

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Fieldbus modules

Table 91: Unit data of the expansion modules (right)

Segment no.	Byte	Description
0	0 ... 12	Product number, serial number, unit type, unit version (1st unit)
1..2	0 ... 12	Firmware (1st unit)
3	0 ... 12	Product number, serial number, unit type, unit version (2nd unit)
4..5	0 ... 12	Firmware (2nd unit)
6	0 ... 12	Product number, serial number, unit type, unit version (3rd unit)
7..8	0 ... 12	Firmware (3rd unit)
9	0 ... 12	Product number, serial number, unit type, unit version (4th unit)
10..11	0 ... 12	Firmware (4th unit)
12	0 ... 12	Product number, serial number, unit type, unit version (5th unit)
13..14	0 ... 12	Firmware (5th unit)
15	0 ... 12	Product number, serial number, unit type, unit version (6th unit)
16..17	0 ... 12	Firmware (6th unit)

► PLC Communication

Overview of tables and segments (2nd generation)



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Table 92: Unit data of the expansion modules (left)

Segment no.	Byte	Description
0	0 ... 12	Product number, serial number, unit type, unit version (1st unit)
1..2	0 ... 12	Firmware (1st unit)
3	0 ... 12	Product number, serial number, unit type, unit version (2nd unit)
4..5	0 ... 12	Firmware (2nd unit)
6	0 ... 12	Product number, serial number, unit type, unit version (3rd unit)
7..8	0 ... 12	Firmware (3rd unit)
9	0 ... 12	Product number, serial number, unit type, unit version (4th unit)
10..11	0 ... 12	Firmware (4th unit)

Table 93. Unit data of the communication and fieldbus modules (left)

Segment no.	Byte	Description
0	0 ... 12	Product number, serial number, unit type, unit version (fieldbus module)
1..2	0 ... 12	Firmware (fieldbus module)
3	0 ... 12	Product number, serial number, unit type, unit version (communication module)
4..5	0 ... 12	Firmware (communication module)

► PLC Communication

Overview of tables and segments (2nd generation)



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PLC communication

Fieldbus modules

Table 94: Unit data of the standard expansion modules

Segment no.	Byte	Description
0 ... 1	0 ... 12	Product and firmware of the 1st expansion module on the right
2 ... 3	0 ... 12	Device connection data from the 2nd expansion module on the right
bis		
18 ... 19	0 ... 12	Device connection data from the 12th expansion module on the right

Table 110: Connected devices

Segment no.	Byte	Description
0 ... 2	0 ... 12	Additional data from the 1st expansion module on the right

Table 201: Additional data

Segment no.	Byte	Description
0 ... 2	0 ... 12	Additional data from the 1st expansion module on the right
3 ... 5	0 ... 12	Additional data from the 2nd expansion module on the right
bis		
33 ... 35	0 ... 12	Additional data from the 12th expansion module on the right

► Filedbus Modules Overview



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Safe-Multi-Link connection

Safe-PDP connection

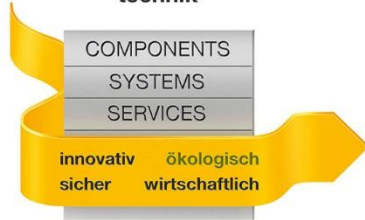
PLC communication

Fieldbus modules

[Overview filedbus modules](#)

Fieldbus	Modul Generation 1	Modul Generation mini	Modul Generation 2
EtherCAT 	PNOZ mc2p	PNOZ mmc11p CAT	PNOZ m ES EtherCAT
PROFIBUS-DP 	PNOZ mc3p	PNOZ mmc3p DP	PNOZ m ES Profibus
DeviceNet 	PNOZ mc4p	PNOZ mmc4p DN	-
Interbus S 	PNOZ mc5p / mc5.1p	-	-
CANopen 	PNOZ mc6p / mc6.1p	PNOZ mmc6p CAN	PNOZ m ES CANopen
CC-Link 	PNOZ mc7p	PNOZ mmc7p CC	PNOZ m ES CC-Link
Ethernet 	PNOZ mc8p	PNOZ mmc1p ETH	PNOZ m ES ETH / PNOZ m ES Ethernet/IP
Profinet 	PNOZ mc9p	-	PNOZ m ES Profinet
Sercos III 	PNOZ mc10p	-	-
ETHERNET POWERLINK 	PNOZ mc12p	PNOZ mmc12p PL	PNOZ m ES Powerlink
Seriell RS232	-	PNOZ mmc2p RS232	PNOZ m ES RS232

Automatisierungs- technik



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