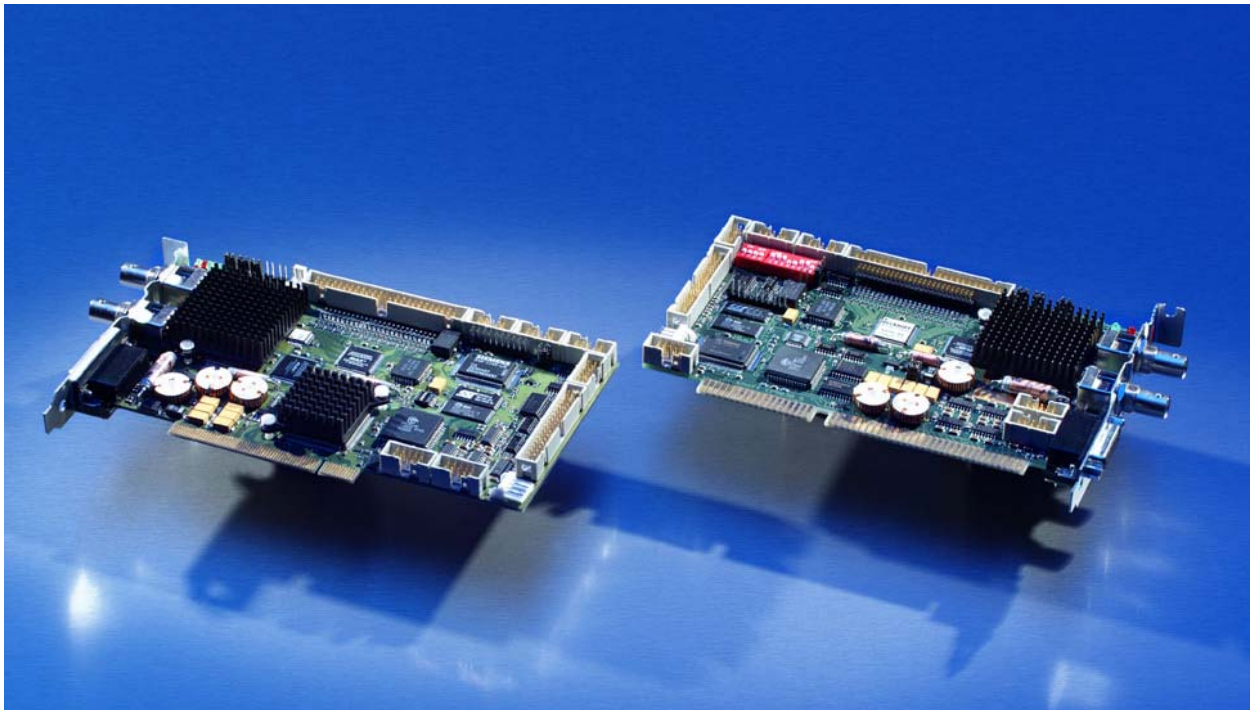


Operating instructions for

Beckhoff CP9030 / CP9035
CP-Link Cards

Version: 1.5
Date: 2009-10-05

BECKHOFF

Table of contents

General instructions

Notes on the Documentation

This description is only intended for the use of trained specialists in control and automation engineering who are familiar with the applicable national standards. It is essential that the following notes and explanations are followed when installing and commissioning these components.

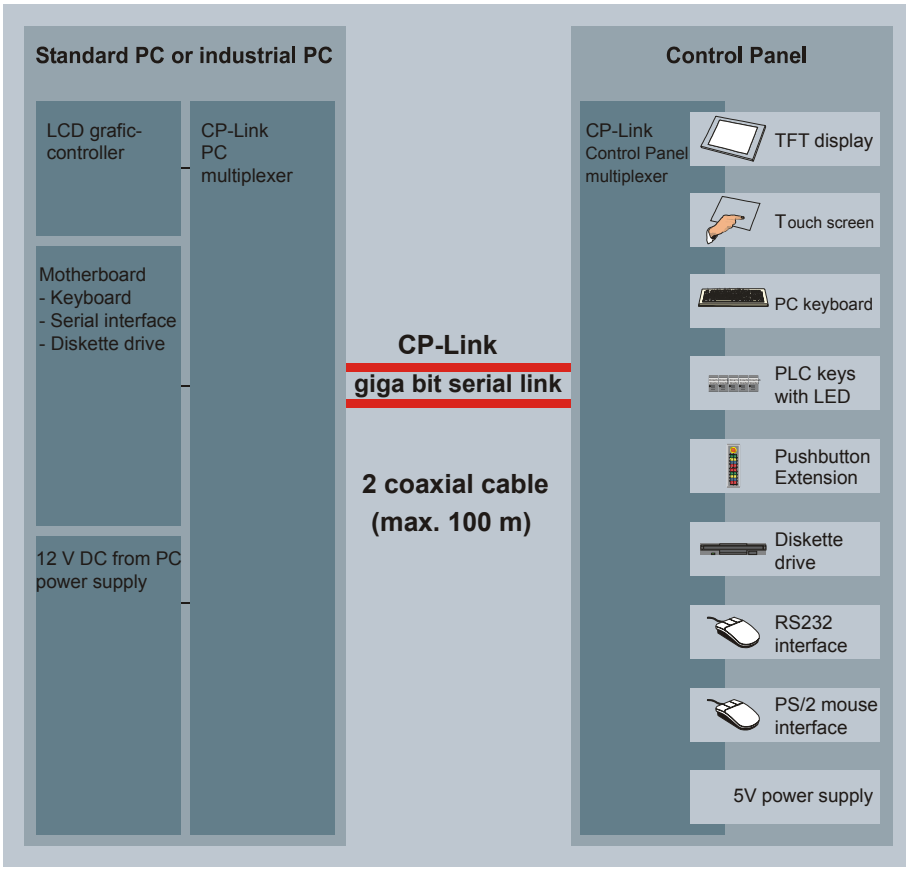
Liability Conditions

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations, guidelines and standards.

The documentation has been prepared with care. The products described are, however, constantly under development. For that reason the documentation is not in every case checked for consistency with performance data, standards or other characteristics. None of the statements of this manual represents a guarantee (Garantie) in the meaning of § 443 BGB of the German Civil Code or a statement about the contractually expected fitness for a particular purpose in the meaning of § 434 par. 1 sentence 1 BGB. In the event that it contains technical or editorial errors, we retain the right to make alterations at any time and without warning. No claims for the modification of products that have already been supplied may be made on the basis of the data, diagrams and descriptions in this documentation.

Beckhoff CP-Link System Description

System



CP-Link

Flexibility

Maximum flexibility for location of the Control Panel on the equipment.

The connection from the Control Panel to the PC itself is made via CP Link, a transmission technology having a data rate in the gigabit range. CP Link implements transmission segments up to 100 m on a twin-core coaxial cable. No additional power supply is needed. The CP-Link Interface is implemented as an ISA and PCI bus plug-in card and is thus usable in any PC. The PC is also equipped with a graphics card providing an LCD interface. The PC ports for LC display, keyboard, COM ports, PS/2 mouse and floppy drive are converted by the CP-Link plug-in card into a high-frequency serial signal and transmitted via coaxial cable to the Control Panel. The CP-Link Interface in the Control Panel re-converts the serial signal for the original PC ports, to which the components of the Control Panel, such as keyboard, LC display, touch screen, touch pad, PS/2 mouse and floppy drive are connected, but at a 100 meters longer distance than would ordinarily be possible. There is a CP-Link channel for each direction of the communication between the Control Panel and the PC. Two coaxial cables are laid for this reason.

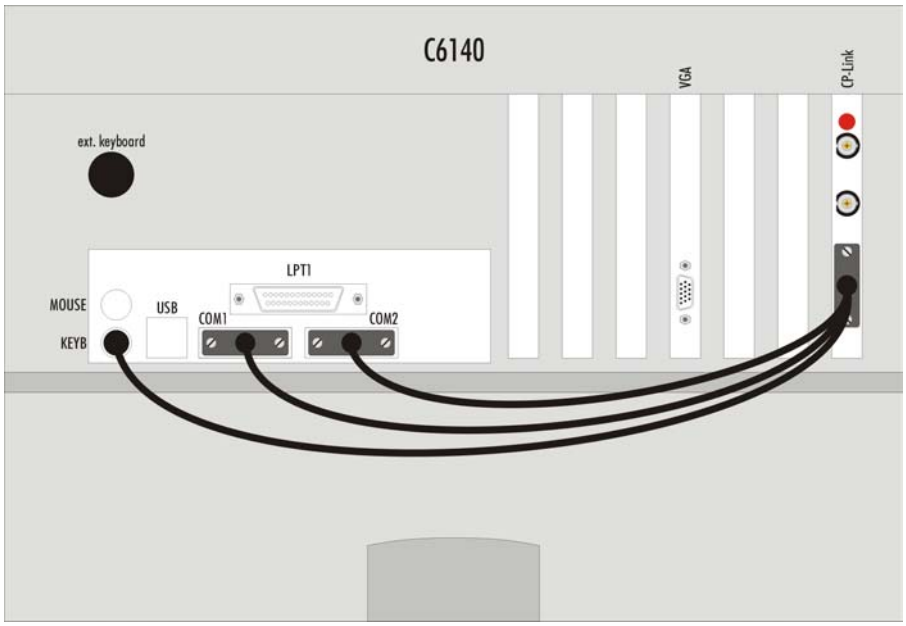
Example: CP-Link "Single" Connection

One Control Panel with Touchpad and Touchscreen

The signals required for the touchpad (RS232) and touchscreen (RS232) are distributed through connector ST303 to the computer's individual COM ports. The sequence of the COM ports only has to be maintained for the installation of the corresponding drivers. The keyboard signals are also passed via ST303 to the motherboard's own keyboard connection. Switching between the various keyboards (Control Panel membrane keypad, a keyboard socket which may be present on the Control Panel, and external keyboard connection on the PC) is performed on the CP-Link board, which means that it is possible to operate all the keyboards in parallel.

The BNC cables are connected to the *CP-Link A* and *CP-Link B* connectors on the CP-Link card. Orientation is aided by a red mark on the card. The cable types and the corresponding lengths are described below.

Fig. 3



Multi CP-Link

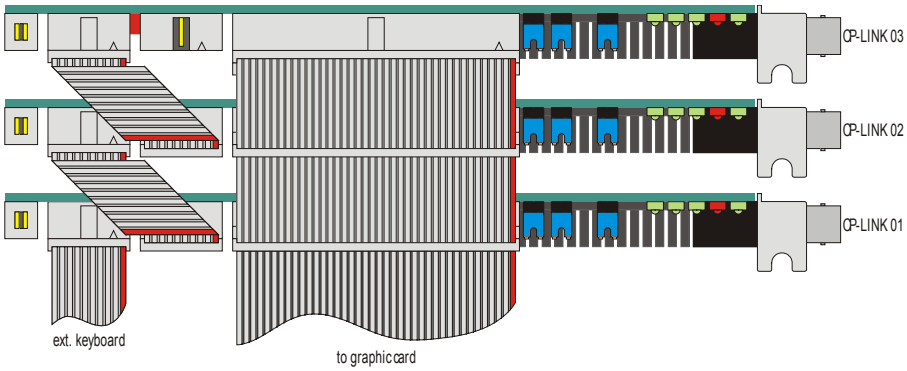
Up to three Control Panels

Up to three Control Panels can be connected to one PC. Each Control Panel can be installed at a distance of up to 100 m from the PC, which ensures maximum flexibility in locating the Control Panel on the equipment.

For each Control Panel, one CP-Link insert card is installed in the PC.

If a number of pointing devices or interfaces (touchpad, touchscreen, RS232) are used with the Control Panel it is necessary for the PC to have a corresponding number of interfaces.

Assembly and connections in the PC



All displays show the same image. This requires all the displays to have the same format.

Data can be entered on the PC keyboard, on the keyboard of one of the Control Panels or on a standard keypad connected to one of the Control Panels or directly to the PC.

Example: CP-Link "Double" Connection

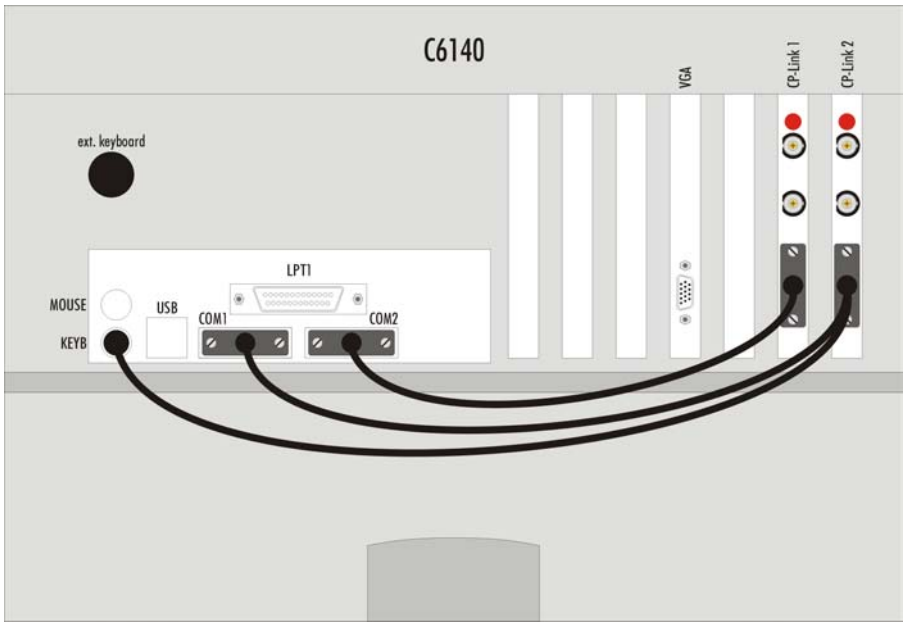
One Control Panel with Touchscreen and one Control Panel with Touchpad

If we assume that the Control Panel with touchpad is connected to CP-Link 1 and that the Control Panel with touchscreen is connected to CP-Link 2, then the signals from the one Control Panel for the touchpad (RS232) from CP-Link 1 are passed to COM2, and the signals from the touchscreen (RS232) of the other Control Panel are passed to COM 1. The keyboard cable to the motherboard must be plugged into the card on the outside (CP-Link 2). Further, a 1:1 connection from ST305 (CP-Link 1) to ST304 (CP-Link 2) is required in order to pass the keyboard signals arising from CP-Link 1 on to CP-Link 2.

The drivers must be installed in accordance with the assignments of the touchpad and touchscreen.

The BNC cables are connected to the "CP-Link A" and "CP-Link B" connectors on the CP-Link card. Orientation is aided by a red mark on the card. The cable types and the corresponding lengths are described below.

Fig. 4

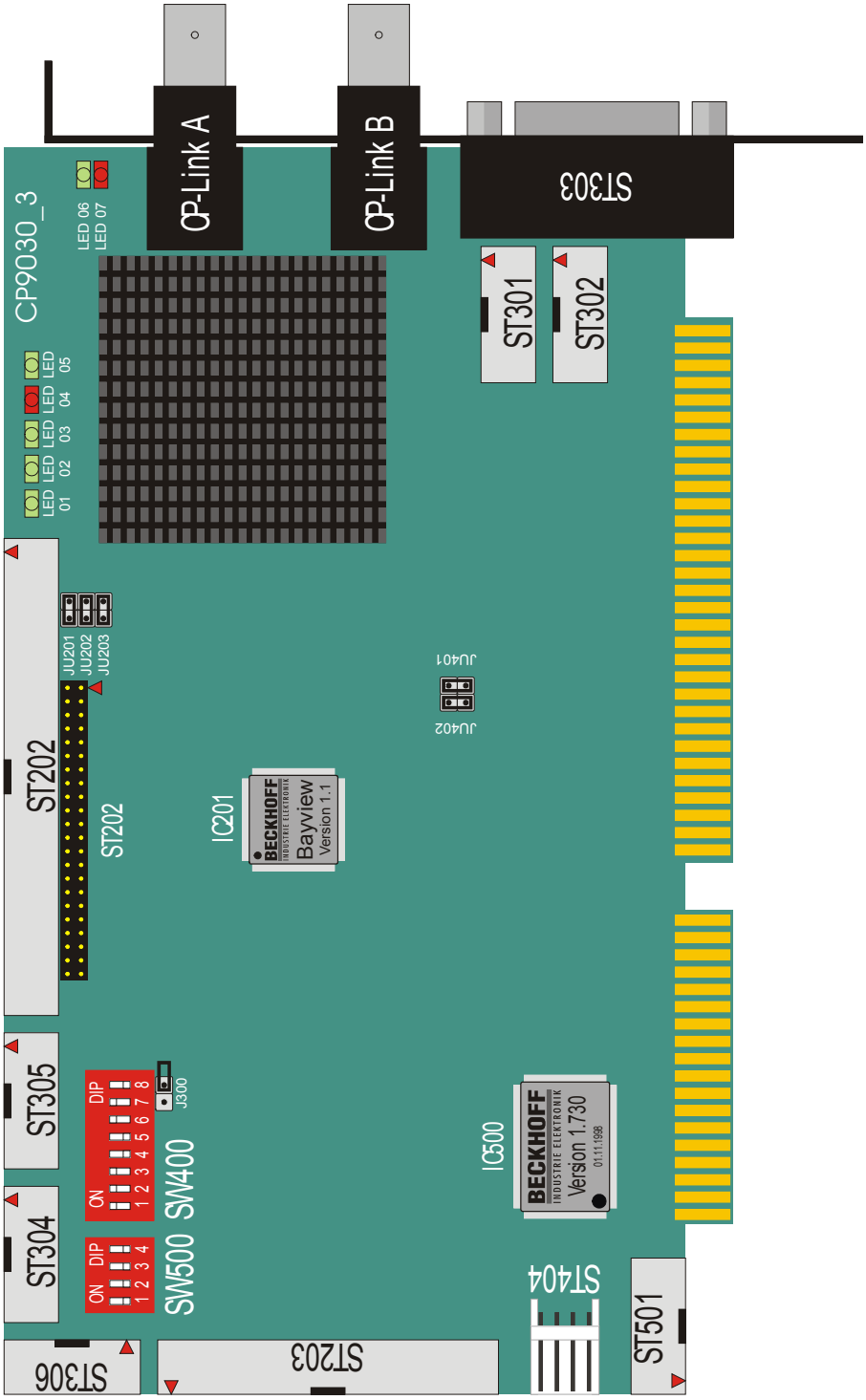


Technical Data CP9030

Layout of the BECKHOFF CP-Link Card

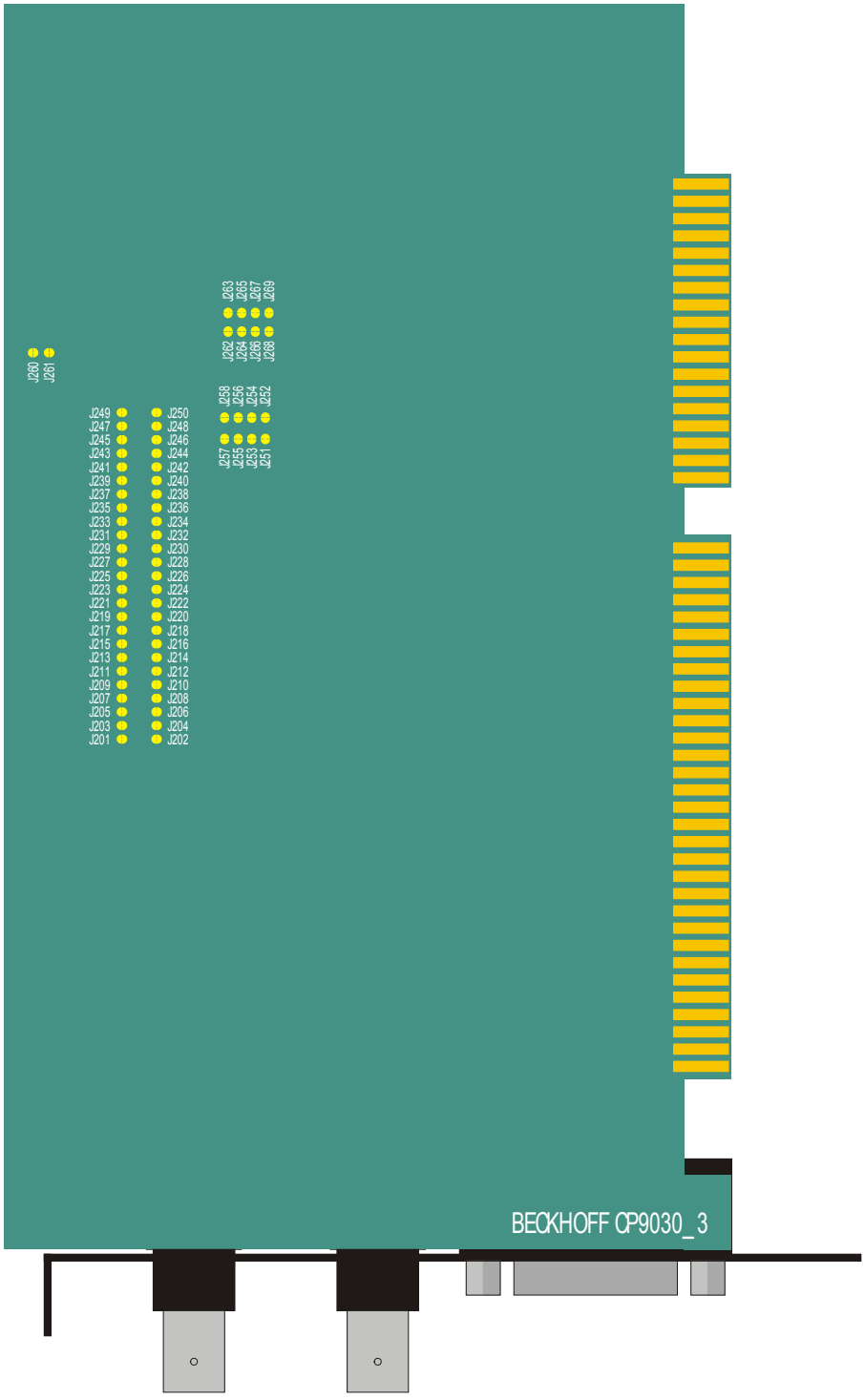
CP9030_3

Fig. 5



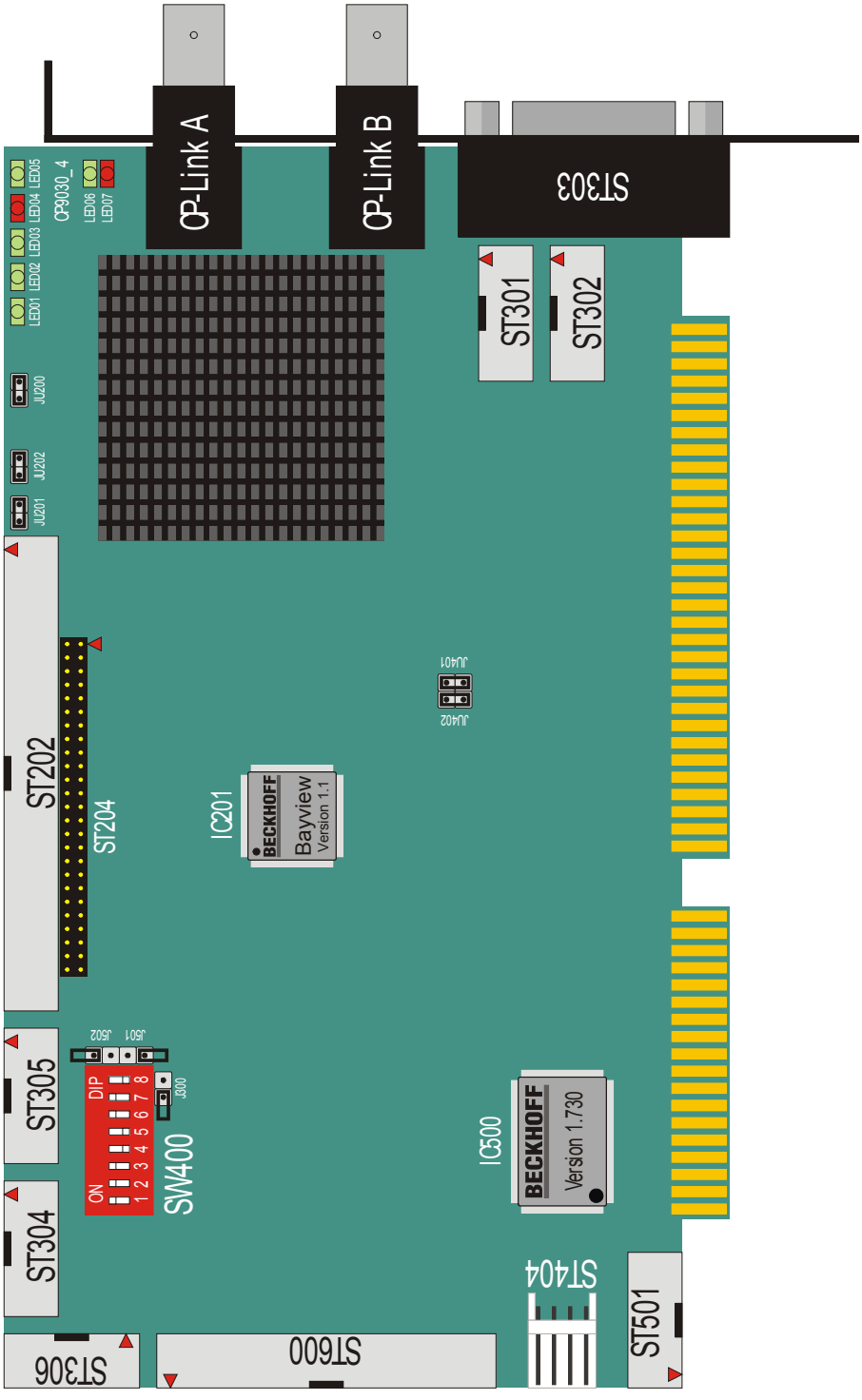
Configuration jumpers on the CP9030_3

Fig. 6



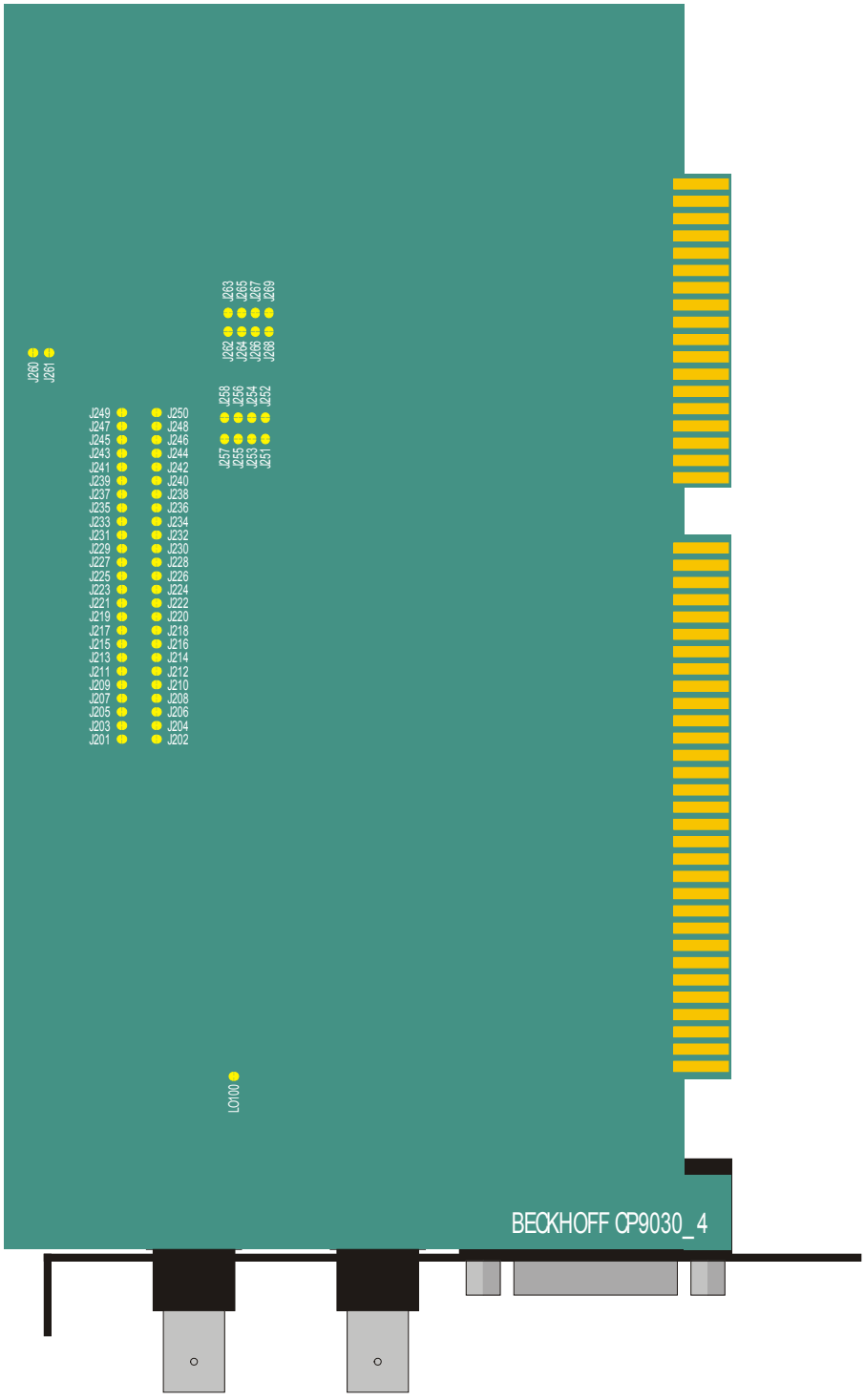
CP9030_4

Fig. 7



Configuration jumpers on the CP9030_4

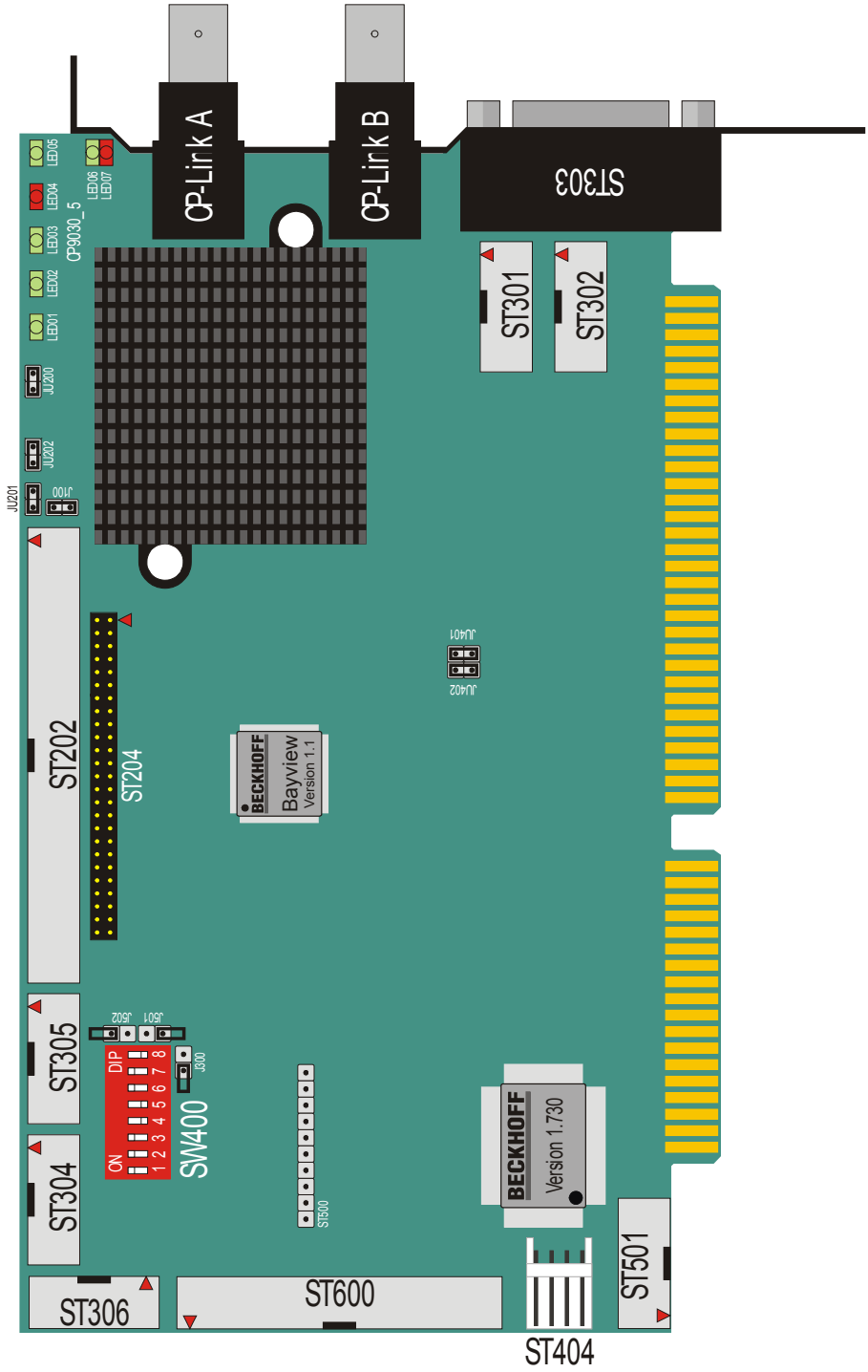
Fig. 8



,

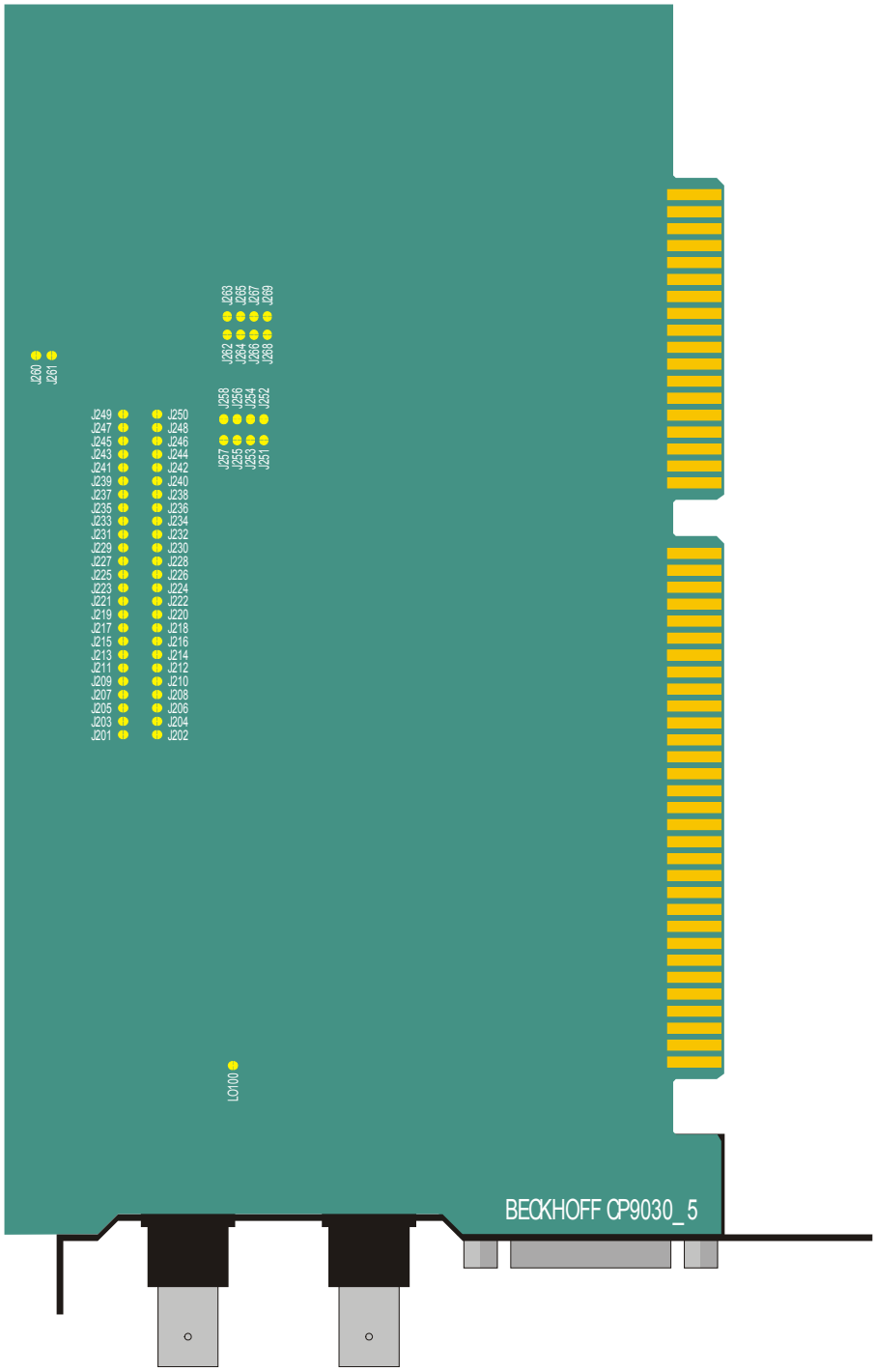
CP9030_5

Fig. 9



Configuration jumpers on the CP9030_5

Fig. 10



Cable and jumper configurations

Advantech SBC

CLOSED
J207, J208, J209, J210, J214, J239, J240, J245
LO100 (CP9030_4) for 15 inch display

OPEN
It is essential that the remaining jumpers are OPEN to avoid damaging the CP-Link card or the graphic card / SBC!

Ribbon Cable ST205 (50 pin RM2.0)
Pin assignment 1:1
Pin 1-6 of the post connector remain open

Bayview 50 / 52 Graphic Card

CLOSED
J201, J202, J206, J209, J212, J214, J217, J220, J223, J226, J229, J232, J235, J238, J241, J247
LO100 (CP9030_4) for 15 inch display

OPEN
It is essential that the remaining jumpers are OPEN to avoid damaging the CP-Link card or the graphic card / SBC!

Ribbon Cable ST202 (50 pin RM2.54)
Pin assignment 1:1
Pins 1-4 of the ribbon cable must be disconnected

Boser HS6237 SBC

CLOSED
J201, J202, J203, J204, J208, J239
LO100 (CP9030_4) for 15 inch display

OPEN
It is essential that the remaining jumpers are OPEN to avoid damaging the CP-Link card or the graphic card / SBC!

Ribbon Cable ST205 (50 pin RM2.0)
Pin assignment 1:1
Pin 1-6 of the post connector remain open
Pins 1, 2 and 35 of the ribbon cable must be disconnected

Inside Technology 686LCD SBC

CLOSED
J203, J209, J212, J214, J217, J220, J223, J226, J229, J232, J235, J238, J240, J245, J250
LO100 (CP9030_4) for 15 inch display

OPEN
It is essential that the remaining jumpers are OPEN to avoid damaging the CP-Link card or the graphic card / SBC!

Ribbon Cable ST202 (50 pin RM2.54)
Pin assignment 1:1
Pin 40 of the ribbon cable must be disconnected

MITAC 251 SBC

CLOSED
J203, J204, J215, J216, J221, J227, J228, J233, J234, J239, J240, J245, J246
LO100 (CP9030_4) for 15 inch display

OPEN
It is essential that the remaining jumpers are OPEN to avoid damaging the CP-Link card or the graphic card / SBC!

Ribbon Cable ST202 (50 pin RM2.54)
Pin assignment 1:1
Pins 3, 4 of the ribbon cable must be disconnected

Vampower 7 Graphic Card

CLOSED
J227, J229, J230, J230, J236, J238, J244, J246, J250
LO100 (CP9030_4) for 15 inch display

OPEN
It is essential that the remaining jumpers are OPEN to avoid damaging the CP-Link card or the graphic card / SBC!

Ribbon Cable ST202 (50 pin RM2.54)
Pin assignment 1:1
Pins 29, 39, 43, 45 of the ribbon cable must be disconnected

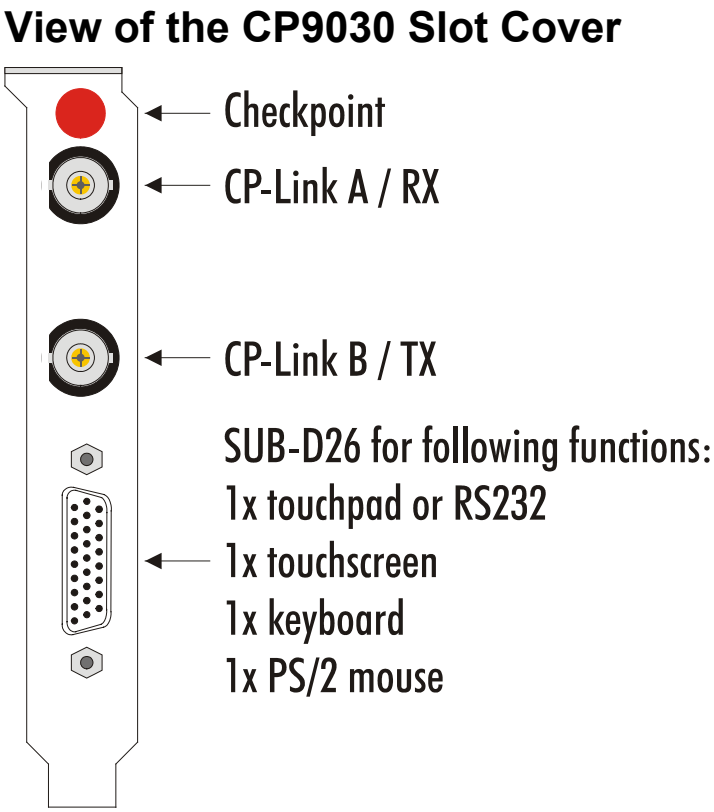
Vampower 8 Graphic Card

CLOSED
J201, J202, J203, J204, J208, J239
LO100 (CP9030_4) for 15 inch display

OPEN
It is essential that the remaining jumpers are OPEN to avoid damaging the CP-Link card or the graphic card / SBC!

Ribbon Cable ST205 (50 pin RM2.0)
Pin assignment 1:1
Pin 1-6 of the post connector remain open

Fig. 2


View of the CP9030 Slot Cover
Checkpoint
CP-Link A / RX
CP-Link B / TX
SUB-D26 for following functions:
1x touchpad or RS232
1x touchscreen
1x keyboard
1x PS/2 mouse

CP9030 DPRAM Memory Allocation

Address	Denomination	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0
0x03FF	Request	Active							Toggle
0x03FE	Ready	COM_F							Toggle
0x03FD 0x03F0	Ident String	„CP9030 v1.730“							
0x03EF	Reserve								
0x03EE	Control		Keyb_on	BLOFF					
0x03ED	USV Status		Charge controller					Battery voltage	Ext. vers . OK
		Waiting	Charged	No battery	Charging				
0x03EC	UPS control								Active
0x03EB	CP-state	Reset Ackn			PDLenErr			CnfErr	KbusErr
0x03EA	CP-Control	Reset Request							
0x03E9	Reserve								
0x030E									
0x030F									
0x030E									
0x030D									
0x030C									
0x030B	Pd error								
0x030A	Pd cycles								
0x0309									
0x0308									
0x0307									
0x0306									
0x0305									
0x0304									
0x0303									
0x0302									
0x0301	No. of pd input words								
0x0300	No. of pd output words								
0x02FF									
0x0280									
0x027F									
0x0200									
0x01FF	Process data input								
0x0104	...BUTTON 256								
0x0103	BUTTON 25..32	T 32	T 31	T 30	T 29	T 28	T 27	T 26	T 25
0x0102	BUTTON 17.0.24	T 24	T 23	T 22	T 21	T 20	T 19	T 18	T17
0x0101	BUTTON 9.0.16	T 16	T 15	T 14	T 13	T 12	T 11	T 10	T9
0x0100	BUTTON 1.0.8	T 8	T 7	T 6	T 5	T4	T 3	T 2	T 1
0x00FF	Process data output								
0x0004	...LED 256								
0x0003	LED 25..32	L 32	L 31	L 30	L 29	L 28	L 27	L 26	L 25
0x0002	LED 17..24	L 24	L 23	L 22	L 21	L 20	L 19	L 18	L 17
0x0001	LED 9..16	L 16	L 15	L 14	L 13	L 12	L 11	L 10	L 9
0x0000	LED 1..8	L 8	L 7	L 6	L 5	L 4	L 3	L 2	L 1

LED1..256
Output for LEDs; "1" = LED on
Up to 256 LEDs can be controlled

BUTTON1..256
Inputs for buttons; "1" = button pressed
Up to 256 buttons can be read

No. of pd outp. words (number of process data output words)
A reference value with which the output status derived from the Control Panel (CP2020 pd outp.words) is compared. If they differ, then for reasons of safety no outputs are set.

No. of pd inp. words (number of process data input words)
A reference value with which the input status derived from the Control Panel (CP2020 pd inp.words) is compared. If they differ, then for reasons of safety no outputs are set. Inputs can continue to be read.

Pd cycles (process data cycles)
A continuously incremented 8-bit counter. If it is active, *Pd errors* remains unchanged.

Pd errors (process data errors)
An error counter that is incremented whenever errors occur in transmission protocols.

CP2020 Pd outp. words (process data output words)
Returns the size (in words) of the process data output status determined by the Control Panel.

CP2020 Pd inp. words (process data input words)
Returns the size (in words) of the process data input status determined by the Control Panel.

CP-Control
Reset request : "1" reset of the CP-Link electronics

CP-state
Reset ackn. : "1" - reset carried out
PDLenErr : "1" process data length error
CnfErr : "1"
KbusErr : "1" - communication error; e.g. to the button extensions C9900-E6xx

UPS control
Active : "1" battery operation is supported

UPS Status
Ext. vers. OK : "1" input voltage (24V DC) is present
Battery voltage : "1" - the battery voltage is sufficient
Charging : "1" - The battery pack is being charged
No battery : "1" - The battery pack is not present or is defective
Charged : "1" - The battery pack is fully charged
Waiting : "1" - Pause during the process of charging the battery pack

Control
BLOFF : "1" switches the background illumination off
Keyb_on : "1" disables the Control Panel's membrane keypad
J300 (CP9030_3) J501 and J502 must be set

Ident String
Returns the current firmware status of the CP-Link card

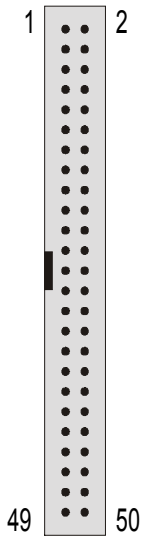
Ready
COM_F : "1" - A communication error has occurred

Request
If the CP-Link card is being operated in synchronous mode (as, for example, with TwinCAT), then the data should not be fetched from the PLC until both the values (**Active** and **Toggle**) are "1". Only then is a correct value for the buttons guaranteed.

CP9030 card pin assignments

ST202 / ST204 (Display connection)

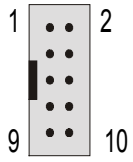
The assignment varies according to the programming.



PIN	Signal	PIN	Signal	PIN	Signal
1	nc	18	G2	35	GND
2	nc	19	G3	36	B6
3	nc	20	GND	37	B7
4	DISPON	21	G4	38	GND
5	nc	22	G5	39	R0
6	GND	23	GND	40	R1
7	ENAB	24	G6	41	GND
8	nc	25	G7	42	R2
9	GND	26	GND	43	R3
10	HSYNC	27	B0	44	GND
11	VSYNC	28	B1	45	R4
12	GND	29	GND	46	R5
13	DISPCLK	30	B2	47	nc
14	GND	31	B3	48	R6
15	G0	32	GND	49	R7
16	G1	33	B4	50	nc
17	GND	34	B5		

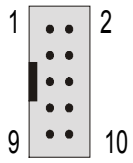
IC201
indicates the programmed graphic card adaptation and its version.
IC500
indicates the revision of the BECKHOFF firmware for the CP-Link card.

ST305 (Keyboard switching for the next CP-Link card)



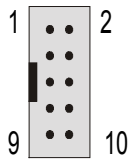
PIN	Signal	PIN	Signal
1	PCKCI	6	5V
2	PCKDI	7	GND
3	5V	8	GND
4	5V	9	GND
5	5V	10	GND

ST304 (External keyboard connection)



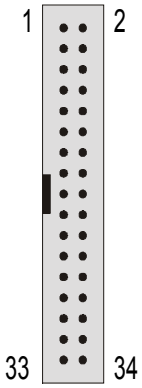
PIN	Signal	PIN	Signal
1	EKCI	6	5V
2	EKDI	7	GND
3	5V	8	GND
4	5V	9	GND
5	5V	10	GND

ST306 (PS/2 mouse connection)



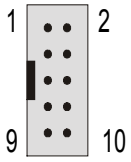
PIN	Signal	PIN	Signal
1	PCMOCI	6	5V
2	PCMODI	7	GND
3	EMOCI	8	GND
4	EMODI	9	GND
5	5V	10	GND

ST203, ST600 (FDD connection for the Control Panel)



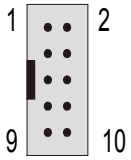
PIN	Signal	PIN	Signal	PIN	Signal
1	GND	13	GND	25	GND
2	DENSEL	14	nc	26	TR0
3	GND	15	GND	27	GND
4	nc	16	MTR1	28	WRTPRT
5	GND	17	GND	29	GND
6	nc	18	DIR	30	RDATA
7	GND	19	GND	31	GND
8	INDEX	20	STEP	32	HDSEL
9	GND	21	GND	33	GND
10	nc	22	WDATA	34	DSKCHG
11	GND	23	GND		
12	DS1	24	WGATE		

ST501 (24V UPS control)



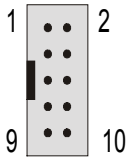
PIN	Signal	PIN	Signal
1	GND	6	PA0
2	PCL0	7	PA1
3	PCL1	8	PA2
4	PCH0	9	PA3
5	PCH1	10	PA4

ST302 (Touchscreen connection)*



PIN	Signal	PIN	Signal
1	DCD	6	CTS
2	DSR	7	DTR
3	RXD	8	RI
4	RTS	9	GND
5	TXD	10	nc

ST301 (Touchpad/RS232 connection)

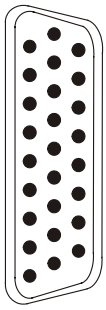


PIN	Signal	PIN	Signal
1	DCD	6	CTS
2	DSR	7	DTR
3	RXD	8	RI
4	RTS	9	GND
5	TXD	10	nc

ST404 (Additional voltage connection for the CP-Link card)

PIN	Signal
1	12V
2	GND
3	GND
4	5V

ST303 external connection



ST303 PIN	RS232 D-SUB 9 female*	Touchscreen D-SUB 9 female	Keyboard DIN 5	Keyboard PS/2	Mouse PS/2
1	9				
2	8				
3	7				
4	6				
5		8			
6		2			
7		4			
8			1	5	
9					
10	1				
11	2				
12	3				
13	4				
14		7			
15		3			
16		6			
17			2	1	
18					
19	5				
20					
21					
22		5			
23					
24					
25					
26					

* The RS232 and Touchpad connections are identical

SW500 (Index setting)

PIN	Signal
1	SW1
2	SW2
3	SW3
4	SW4

SW400 (Address setting)

"1"=ON - "0"=OFF

Segment	8	7	6	5	4	3	2	1
C800	0	1	1	0	1	1	1	1
C880	0	1	1	0	1	1	1	0
C900	0	1	1	0	1	1	0	1
C980	0	1	1	0	1	1	0	0
CA00	0	1	1	0	1	0	1	1
CA80	0	1	1	0	1	0	1	0
CB00	0	1	1	0	1	0	0	1
CB80	0	1	1	0	1	0	0	0
CC00	0	1	1	0	0	1	1	1
CC80	0	1	1	0	0	1	1	0
CD00	0	1	1	0	0	1	0	1
CD80	0	1	1	0	0	1	0	0
CE00	0	1	1	0	0	0	1	1
CE80	0	1	1	0	0	0	1	0
CF00	0	1	1	0	0	0	0	1
CF80	0	1	1	0	0	0	0	0
D000	0	1	0	1	1	1	1	1
D080	0	1	0	1	1	1	1	0
D100	0	1	0	1	1	1	0	1
D180	0	1	0	1	1	1	0	0
D200	0	1	0	1	1	0	1	1
D280	0	1	0	1	1	0	1	0
D300	0	1	0	1	1	0	0	1
D380	0	1	0	1	1	0	0	0
D400	0	1	0	1	0	1	1	1
D480	0	1	0	1	0	1	1	0
D500	0	1	0	1	0	1	0	1
D580	0	1	0	1	0	1	0	0
D600	0	1	0	1	0	0	1	1
D680	0	1	0	1	0	0	1	0
D700	0	1	0	1	0	0	0	1
D780	0	1	0	1	0	0	0	0
D800	0	1	0	0	1	1	1	1
D880	0	1	0	0	1	1	1	0
D900	0	1	0	0	1	1	0	1
D980	0	1	0	0	1	1	0	0
DA00	0	1	0	0	1	0	1	1
DA80	0	1	0	0	1	0	1	0
DB00	0	1	0	0	1	0	0	1
DB80	0	1	0	0	1	0	0	0
DC00	0	1	0	0	0	1	1	1

Segment	8	7	6	5	4	3	2	1
DC80	0	1	0	0	0	1	1	0
DD00	0	1	0	0	0	1	0	1
DD80	0	1	0	0	0	1	0	0
DE00	0	1	0	0	0	0	1	1
DE80	0	1	0	0	0	0	1	0
DF00	0	1	0	0	0	0	0	1
DF80	0	1	0	0	0	0	0	0
E000	0	0	1	1	1	1	1	1
E080	0	0	1	1	1	1	1	0
E100	0	0	1	1	1	1	0	1
E180	0	0	1	1	1	1	0	0
E200	0	0	1	1	1	0	1	1
E280	0	0	1	1	1	0	1	0
E300	0	0	1	1	1	0	0	1
E380	0	0	1	1	1	0	0	0
E400	0	0	1	1	0	1	1	1
E480	0	0	1	1	0	1	1	0
E500	0	0	1	1	0	1	0	1
E580	0	0	1	1	0	1	0	0
E600	0	0	1	1	0	0	1	1
E680	0	0	1	1	0	0	1	0
E700	0	0	1	1	0	0	0	1
E780	0	0	1	1	0	0	0	0

Description of the Status LEDs

LED 01 - 12V supply voltage present

If the LED is illuminated, the 12V supply voltage for the Control Panel is present at the lower BNC socket (CP-Link B). If it is not lit there may be a short circuit, or the PC power supply unit may not be operating correctly.

LED 02 - Transmit PLL locked

If the LED is lit, the clock signal from the video card is present. If it is not lit, then either the video card is not operating correctly, or the connection of the video card to the CP9030 is not made properly.

LED 03 - Receive PLL locked

If the LED is lit, data are being sent from the Control Panel to the PC. If it is not lit, the most probable reason is that the upper coaxial cable (CP-Link A) is defective or is not properly connected.

LED 04 - Receive data error

If the LED lights up, receive errors are occurring.

This LED is lit continuously if there is no connection to the Control Panel.

LED 05 - Not used

LED 06 - CP-Link RUN

This LED flashes for a short period when the computer is switched on, and then becomes continuously lit. When the LED is lit, the communication software on the CP-Link has started running.

LED 07 - CP-Link COMM-ERR

If the LED flashes, data errors are occurring. A single flash when the screen mode is changed is normal. Transmission is then resynchronised. If the LED continues flashing, then either the coaxial cable is damaged, or there is excessive interference from other devices such as frequency converters, large transformers, etc.. This may be remedied through the use of high-quality double-screened coaxial cable.

Jumper Assignments

JU200
10 inch display in the Control Panel (OPEN)

JU203 (CP9030_3)

JU201
Floppy in the Control Panel (OPEN)

JU202
Floppy in the Control Panel (OPEN)

JU401
12V (always set)

JU402
12V (always set)

J300
If the jumper is set then it is possible for the Control Panel's keyboard to be disabled under TwinCat.

J501
If this jumper **and** jumper J300 are set then it is possible for the Control Panel's keyboard **and** touchscreen to be disabled under TwinCat.

The standard setting is for JU200 (JU203), JU201, JU202, JU401 and JU402 to be set. Do not change any of the factory settings without first contacting our Technical Support.

ISA bus current consumption

The CP9030 card is powered primarily from the PC's ISA bus. At larger distances (> 50 m) it is recommended that the additional power supply connection, ST404, is used.

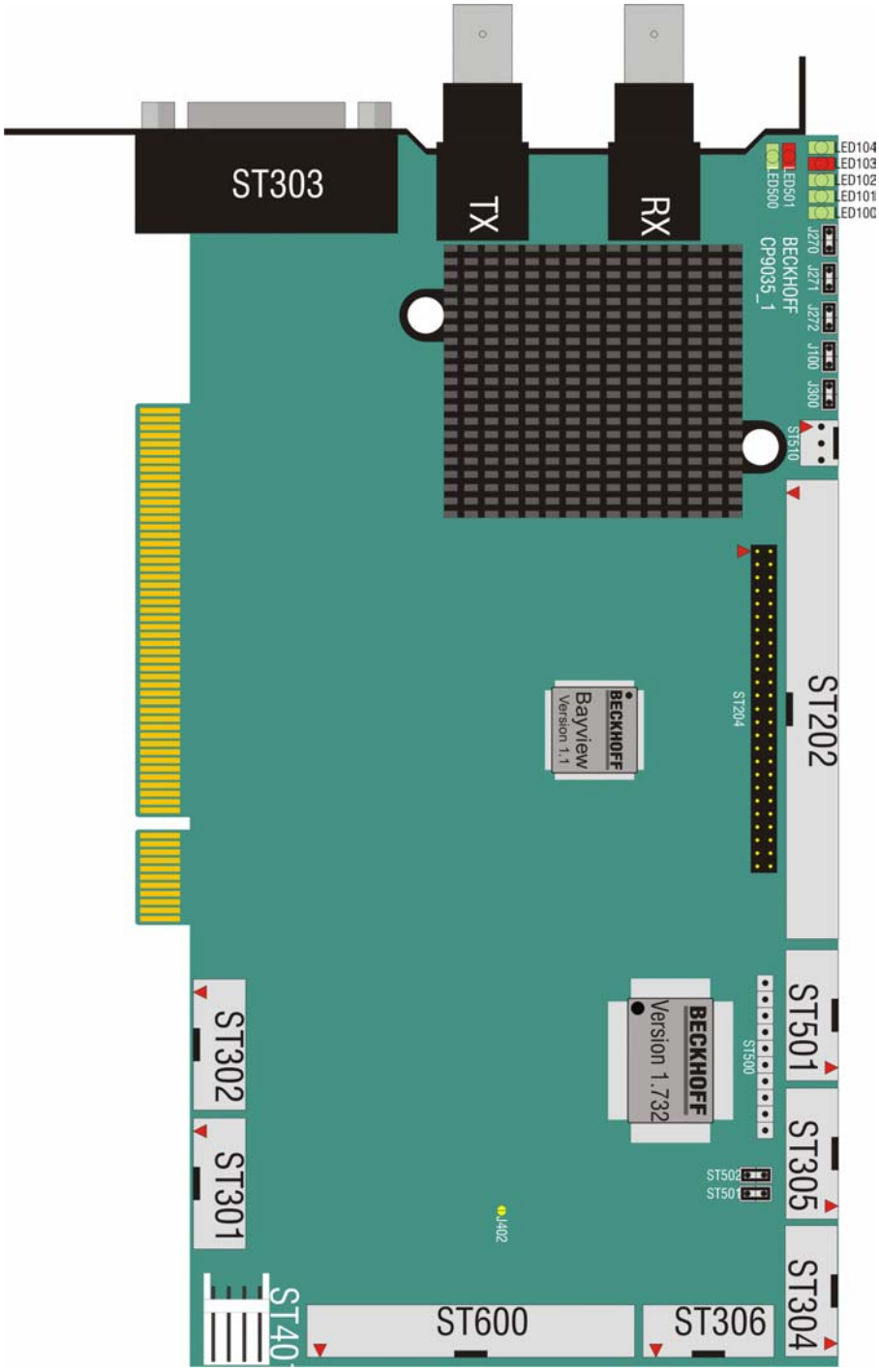
ISA bus current consumption	5V:	approx. 1.0 A
ISA bus current consumption	12V:	approx. 1.5 A

Technical Data CP9035

Layout of the BECKHOFF CP-Link Card

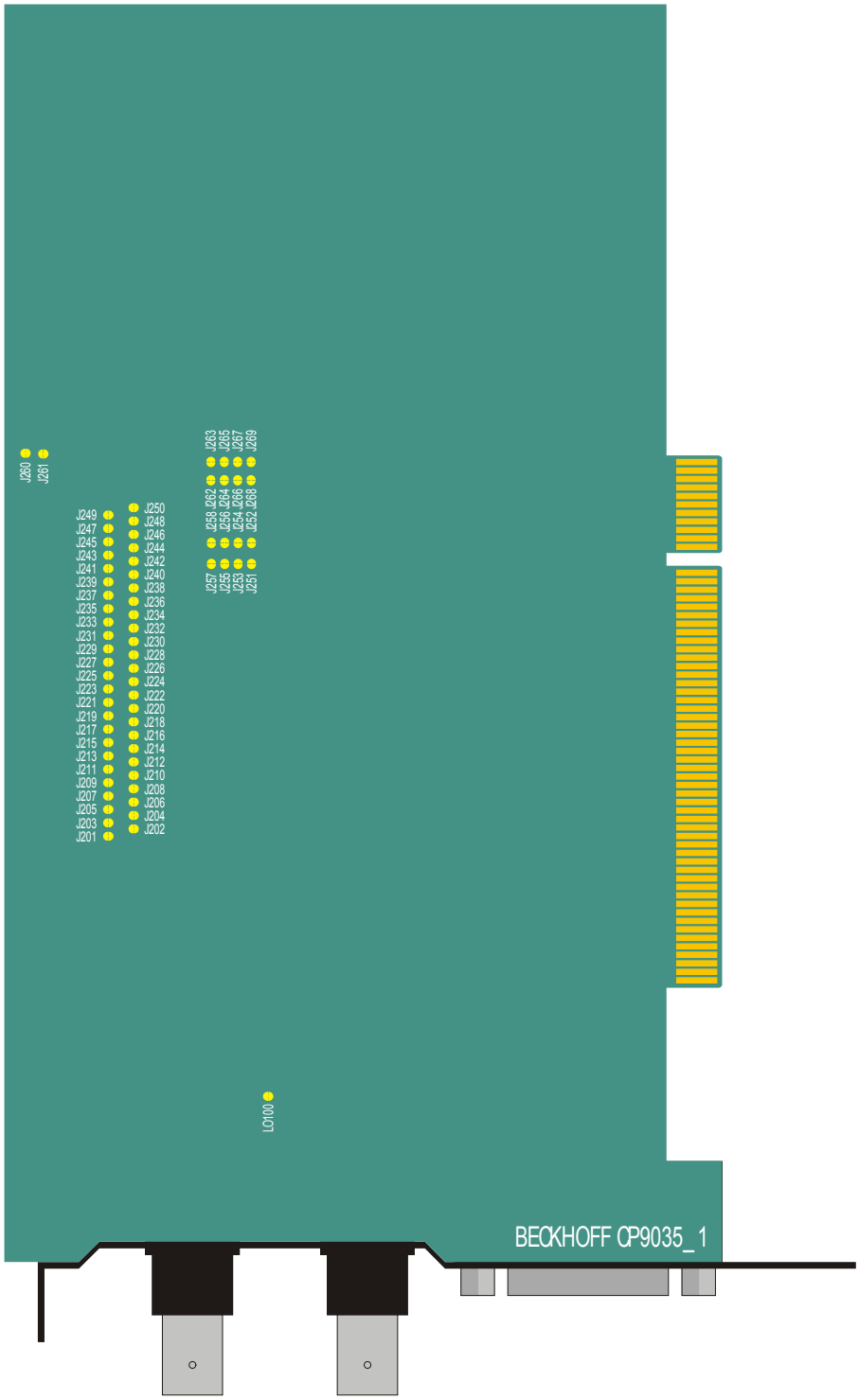
CP9035_1

Fig. 11



Configuration jumpers on the CP9035_1

Fig. 12



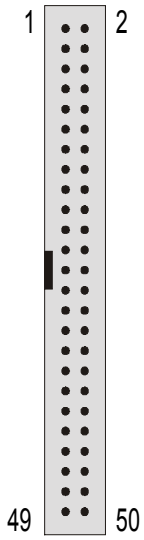
Cable and jumper configurations

The jumper and cable configurations are compatible with the CP9030 ISA version.

CP9035 card pin assignments

ST202 [RM2.54] / ST204 [RM2.0] – display connection

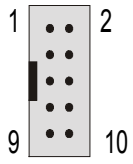
The assignment varies according to the programming.



PIN	Signal	PIN	Signal	PIN	Signal
1	nc	18		35	GND
2	nc	19	G3	36	B6
3	nc	20	GND	37	B7
4	DISPON	21	G4	38	GND
5	nc	22	G5	39	R0
6	GND	23	GND	40	R1
7	ENAB	24	G6	41	GND
8	nc	25	G7	42	R2
9	GND	26	GND	43	R3
10	HSYNC	27	B0	44	GND
11	VSYNC	28	B1	45	R4
12	GND	29	GND	46	R5
13	DISPCLK	30	B2	47	nc
14	GND	31	B3	48	R6
15	G0	32	GND	49	R7
16	G1	33	B4	50	nc
17	GND	34	B5		

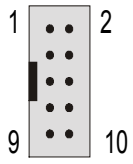
IC201
indicates the programmed graphic card adaptation and its version.
IC500
indicates the revision of the BECKHOFF firmware for the CP-Link card.

ST305 (Keyboard switching for the next CP-Link card)



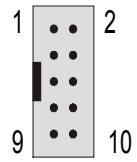
PIN	Signal	PIN	Signal
1	PCKCI	6	5V
2	PCKDI	7	GND
3	5V	8	GND
4	5V	9	GND
5	5V	10	GND

ST304 (External keyboard connection)



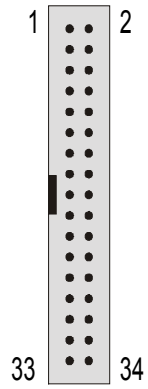
PIN	Signal	PIN	Signal
1	EKCI	6	5V
2	EKDI	7	GND
3	5V	8	GND
4	5V	9	GND
5	5V	10	GND

ST306 (PS/2 mouse connection)



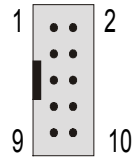
PIN	Signal	PIN	Signal
1	PCMOCI	6	5V
2	PCMODI	7	GND
3	EMOCI	8	GND
4	EMODI	9	GND
5	5V	10	GND

ST600 (FDD connection for the Control Panel)



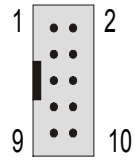
PIN	Signal	PIN	Signal	PIN	Signal
1	GND	13	GND	25	GND
2	DENSEL	14	nc	26	TR0
3	GND	15	GND	27	GND
4	nc	16	MTR1	28	WRTPRT
5	GND	17	GND	29	GND
6	nc	18	DIR	30	RDATA
7	GND	19	GND	31	GND
8	INDEX	20	STEP	32	HDSEL
9	GND	21	GND	33	GND
10	nc	22	WDATA	34	DSKCHG
11	GND	23	GND		
12	DS1	24	WGATE		

ST501 (24V UPS control)



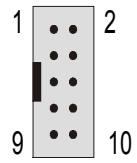
PIN	Signal	PIN	Signal
1	GND	6	PA0
2	PCL0	7	PA1
3	PCL1	8	PA2
4	PCH0	9	PA3
5	PCH1	10	PA4

ST302 (Touchscreen connection)*



PIN	Signal	PIN	Signal
1	DCD	6	CTS
2	DSR	7	DTR
3	RXD	8	RI
4	RTS	9	GND
5	TXD	10	nc

ST301 (Touchpad/RS232 connection)

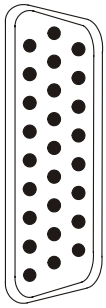


PIN	Signal	PIN	Signal
1	DCD	6	CTS
2	DSR	7	DTR
3	RXD	8	RI
4	RTS	9	GND
5	TXD	10	nc

ST401 (Voltage connection for the CP-Link card)

PIN	Signal
1	12V
2	GND
3	GND
4	5V

ST303 external connection



ST303 PIN	RS232 D-SUB 9 female*	Touchscreen D-SUB 9 female	Keyboard DIN 5	Keyboard PS/2	Mouse PS/2
1	9				
2	8				
3	7				
4	6				
5		8			
6		2			
7		4			
8			1	5	
9					
10	1				
11	2				
12	3				
13	4				
14		7			
15		3			
16		6			
17			2	1	
18					
19	5				
20					
21					
22		5			
23					
24					
25					
26					

* The RS232 and Touchpad connections are identical

Description of the Status LEDs

LED 100 - 12V supply voltage present

If the LED is illuminated, the 12V supply voltage for the Control Panel is present at the lower BNC socket (CP-Link B). If it is not lit there may be a short circuit, or the PC power supply unit may not be operating correctly.

LED 101 - Transmit PLL locked

If the LED is lit, the clock signal from the video card is present. If it is not lit, then either the video card is not operating correctly, or the connection of the video card to the CP9030 is not made properly.

LED 102 - Receive PLL locked

If the LED is lit, data are being sent from the Control Panel to the PC. If it is not lit, the most probable reason is that the upper coaxial cable (CP-Link A) is defective or is not properly connected.

LED 103 - Receive data error

If the LED lights up, receive errors are occurring.

This LED is lit continuously if there is no connection to the Control Panel.

LED 104 - Not used

LED 500 - CP-Link RUN

This LED flashes for a short period when the computer is switched on, and then becomes continuously lit. When the LED is lit, the communication software on the CP-Link has started running.

LED 501 - CP-Link COMM-ERR

If the LED flashes, data errors are occurring. A single flash when the screen mode is changed is normal. Transmission is then resynchronised. If the LED continues flashing, then either the coaxial cable is damaged, or there is excessive interference from other devices such as frequency converters, large transformers, etc.. This may be remedied through the use of high-quality double-screened coaxial cable.

Jumper Assignments

J300
If this jumper is set then it is possible for the Control Panel's keyboard to be disabled by software.

J100
Is set if a PS/2 mouse is connected. The Control Panel must be designed for this

J272
Must be withdrawn for a 10" Control Panel

J271
Must be withdrawn if the Control Panel is fitted with a floppy drive.

J270
Must be withdrawn if the Control Panel is fitted with a floppy drive.

J501
If jumper J501 and jumper J300 are set then it is possible software to disable the Control Panel's keyboard **and** its touchscreen.

J270, J271 and J272 are normally set. Do not change any of the factory settings without first contacting our Technical Support.

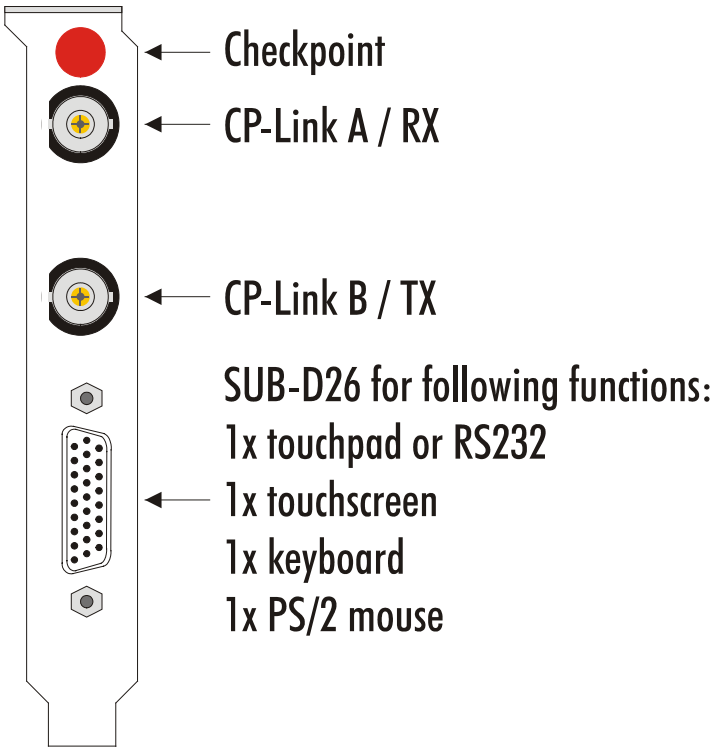
Current consumption

The CP9035 card is powered exclusively through the ST401 power supply connector. It cannot be powered via the PCI bus - this could damage the motherboard.

Current consumption 5V: **approx. 1.0 A**
Current consumption 12V: **approx. 1.5 A**

Fig. 13

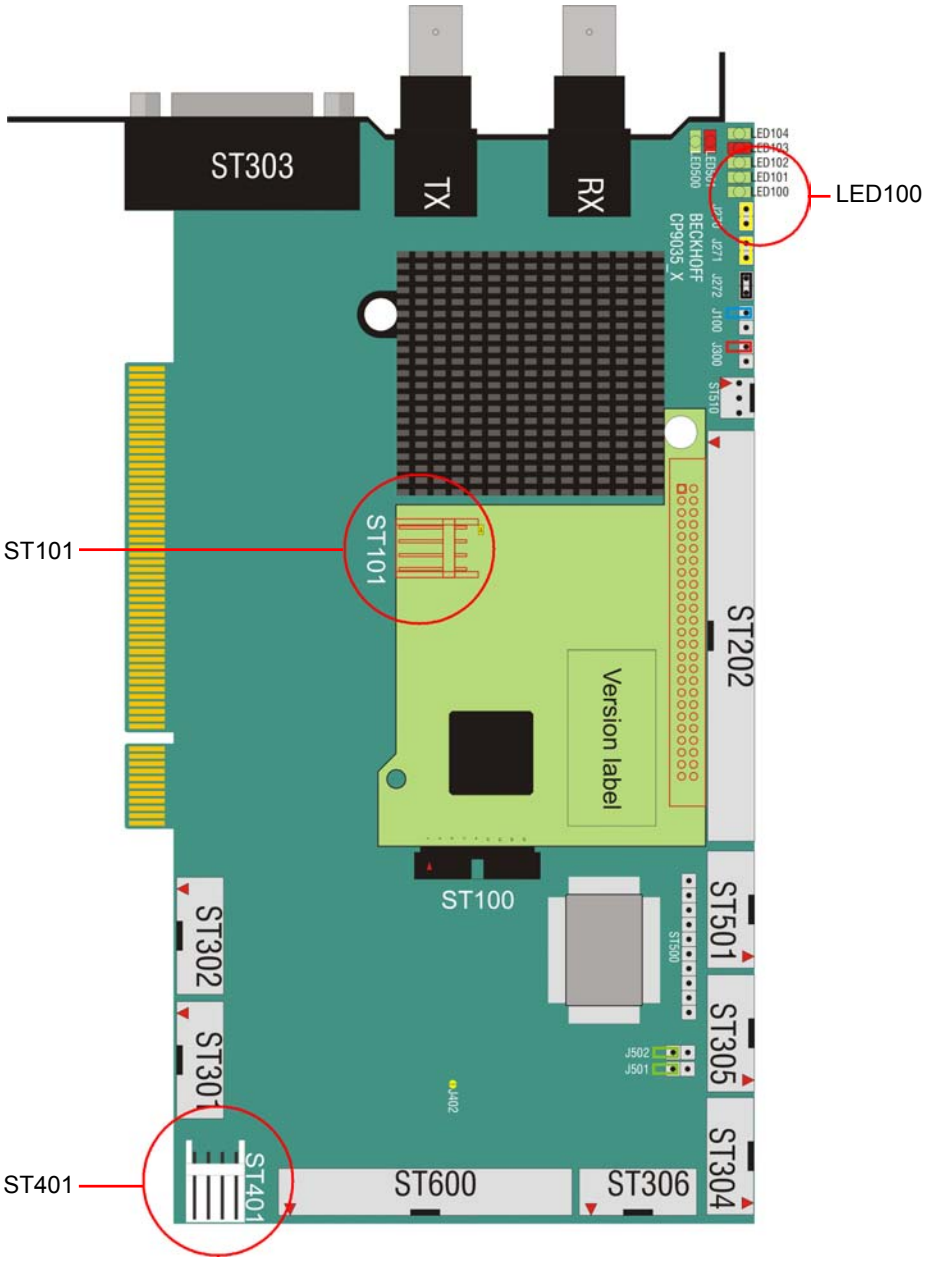
View of the CP9035 Slot Cover



Technical Data CP9035 with DVI-Add Card

Layout of the CP9035 with DVI-Add Card

Fig. 14



The technical data of the CP9035 CP-Link card with DVI-Add card correspond with the data of the CP9035 without DVI-Add card.

For operating the CP-Link card, the power supply has to be connected to ST101 and ST401.

Note	**Connect power supply** Take care that the connectors ST101 and ST401 are connected to the power supply.

ST101 and ST401 are connected via a Y-cable, which is included in delivery. The LED 100 indicates the correct power supply.

Multi CP-Link Cable-sets

One multi CP-Link cable set is needed to connect multiple Control Panel to a PC.

Multi CP-Link	Cable sets for installation of multiple CP-Link-Interface cards CP9030 into one PC
C9900-K240	cable set for multi CP-Link for installation of 2 CP-Link interface cards CP903x into C6140, C6150, C6240, C6250 or other PCs with PCI graphic adapter with LCD interface type Bayview 50 C9900-A600, C9900-A602, C9900-A604, C9900-A610, C9900-A612, C9900-A614
C9900-K244	cable set for multi CP-Link for installation of 2 CP-Link interface cards CP903x into C5101, C6110, C6120, C6130, C6220 or other PCs with slot motherboard with LCD interface type Boser HS6237
C9900-K245	cable set for multi CP-Link for installation of 2 CP-Link interface cards CP9035 into C3xxx, C5102, C6140, C6150, C6240, C6250 or other PCs with ATX motherboard for Intel® Celeron® and Pentium® 4 with on-board graphic and ADD card
C9900-K250	cable set for multi CP-Link for installation of 3 CP-Link interface cards CP903x into C6140, C6150, C6240, C6250 or other PCs with PCI graphic adapter with LCD interface type Bayview 50 C9900-A600, C9900-A602, C9900-A604, C9900-A610, C9900-A612, C9900-A614
C9900-K254	cable set for multi CP-Link for installation of 3 CP-Link interface cards CP903x into C5101, C6110, C6120, C6130, C6220 or other PCs with slot motherboard with LCD interface type Boser HS6237
C9900-K255	cable set for multi CP-Link for installation of 3 CP-Link interface cards CP9035 into C3xxx, C5102, C6140, C6150, C6240, C6250 or other PCs with ATX motherboard for Intel® Celeron® and Pentium® 4 with on-board graphic and ADD card

CP-Link connecting cable

One cable set is needed to connect a Control Panel to a PC. Request for other dimensions.

Coaxial cable-sets	CP-Link connecting cable
C9900-K114	CP-Link cable set with BNC connectors – length 3 m (cable type Belden H155, bending radius 35 mm), 2 cables included
C9900-K115	CP-Link cable set with BNC connectors – length 5 m (cable type Belden H155, bending radius 35 mm), 2 cables included
C9900-K116	CP-Link cable set with BNC connectors – length 10 m (cable type Belden H155, bending radius 35 mm), 2 cables included
C9900-K117	CP-Link cable set with BNC connectors – length 15 m (cable type Belden H155, bending radius 35 mm), 2 cables included
C9900-K118	CP-Link cable set with BNC connectors – length 20 m (cable type H155, bending radius 35 mm), 2 cables included
C9900-K119	CP-Link cable set with BNC connectors – length 30 m (cable type H2000FLEX, bending radius 50 mm), 2 cables included
C9900-K120	CP-Link cable set with BNC connectors – length 35 m (for ease of installation: 0.5 m Belden H155 + 35 m H2000FLEX, bending radius 50 mm), 2 cables included
C9900-K121	CP-Link cable set with BNC connectors – length 50 m (for ease of installation: 0.5 m Belden H155 + 50 m H2000FLEX, bending radius 50 mm), 2 cables included
C9900-K122	CP-Link cable set with BNC connectors – length 65 m (for ease of installation: 0.5 m Belden H155 + 65 m H2000FLEX, bending radius 50 mm), 2 cables included
C9900-K123	CP-Link cable set with BNC connectors – length 70 m (for easy installation at the PC and the mounting arm: 1 m Aircell7 + 61 m Cellflex + 8 m Aircell7), 2 cables included
C9900-K124	CP-Link cable set with BNC connectors – length 80 m (for easy installation at the PC and the mounting arm: 1 m Aircell7 + 71 m Cellflex + 8 m Aircell7), 2 cables included
C9900-K125	CP-Link cable set with BNC connectors – length 90 m (for easy installation at the PC and the mounting arm: 1 m Aircell7 + 81 m Cellflex + 8 m Aircell7), 2 cables included
C9900-K126	CP-Link cable set with BNC connectors – length 100 m (for easy installation at the PC and the mounting arm: 1 m Aircell7 + 91 m Cellflex + 8 m Aircell7), 2 cables included

Coaxial cable-sets	CP-Link cable sets, suitable as trailing cable
C9900-K140	CP-Link cable set with BNC connectors, suitable as trailing cable – length 3 m (cable type RG214 HIFLEX, bending radius 35 mm), 2 cables included
C9900-K141	CP-Link cable set with BNC connectors, suitable as trailing cable – length 5 m (cable type RG214 HIFLEX, bending radius 35 mm), 2 cables included
C9900-K142	CP-Link cable set with BNC connectors, suitable as trailing cable – length 10 m (cable type RG214 HIFLEX, bending radius 35 mm), 2 cables included
C9900-K143	CP-Link cable set with BNC connectors, suitable as trailing cable – length 15 m (cable type RG214 HIFLEX, bending radius 35 mm), 2 cables included
C9900-K144	CP-Link cable set with BNC connectors, suitable as trailing cable – length 20 m (cable type RG214 HIFLEX, bending radius 35 mm), 2 cables included

Appendix

Beckhoff Support & Service

Beckhoff and their partners around the world offer comprehensive support and service, guaranteeing fast and competent assistance with all questions related to Beckhoff products and system solutions.

Beckhoff branches and partner companies

Please contact your Beckhoff branch office or partner company for local support and service on Beckhoff products!

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