Sommario

P1P51FD30 - 001 : Connections and Setup

1. Information

Release

This document is fully valid except for errors and ommissions.

Release	Description	Date
1.0	New manual	29/03/12

2. Description

The **P1P51FD30 - 001 application,** installed on the *Qmove J1-P51-FD30* hardware, is designed to control a bundling machine. The main

characteristics of the **P1P51FD30 - 001** software are provided below.

In this document great attention has been made to distinguish between standard characteristics that are readily available and characteristics for future and optional developments.

Characteristics implemented in this hardware and software version

- Control of 2 analog axes
- Touch-screen functionalities for data entry and mechanical function keys
- Operator support messages
- Alarm messages
- Semi-automatic commands
- Management of partial piece and hour counters

3. Hardware and connections

Base card

Power unit

The controller must be supply by 24Vdc. There is no built-in fuse.

Connectivity

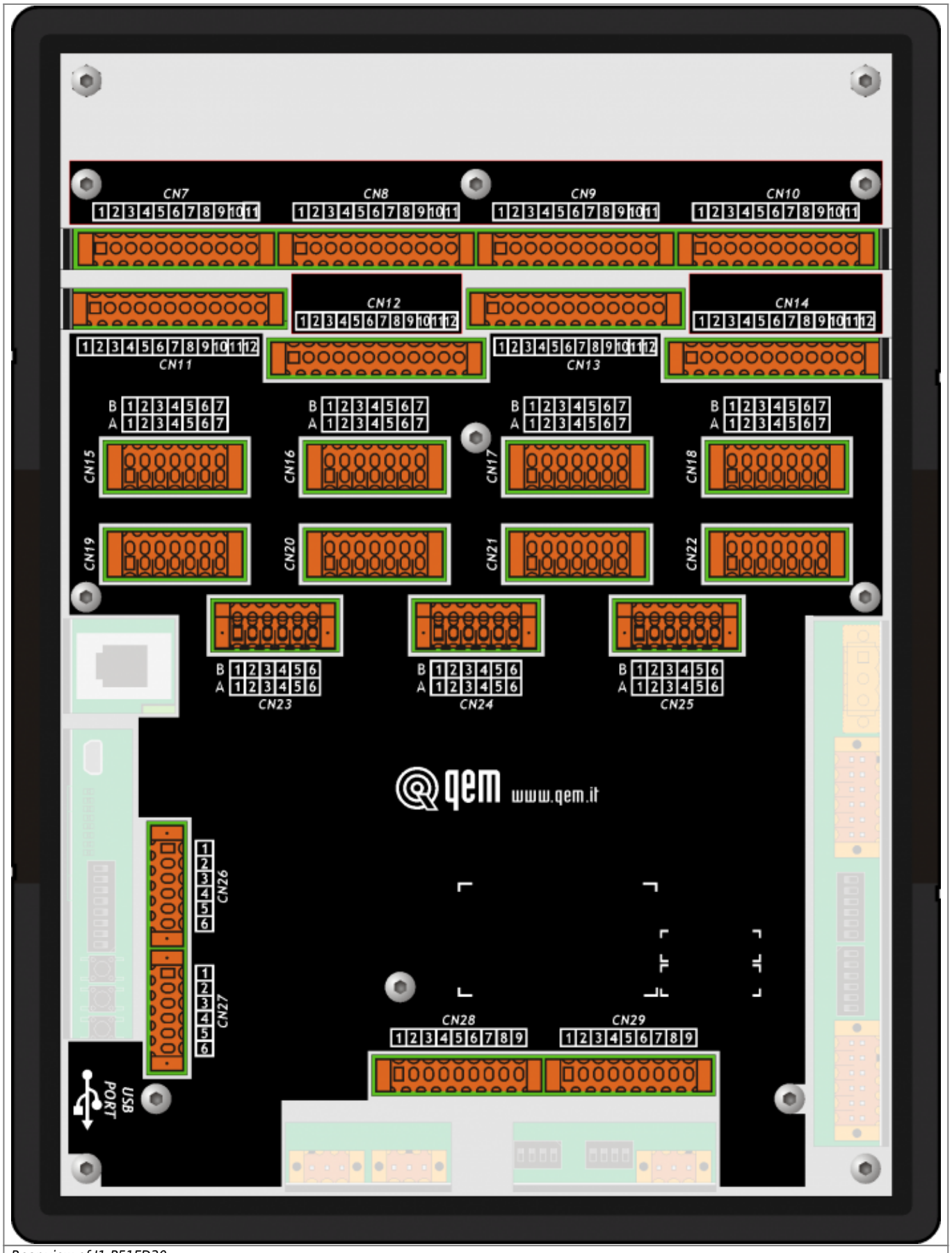
The “standard version” has 2 serial ports:

- PROG PORT → Serial port with TTL logic standard for programming.
- USER PORT → Multistandard serial port (RS232, RS422, RS485).
- CAN PORT → Canbus type “field bus”.

1 MMC slot for data saving/loading from external mass storage.

J1-P51-FD30

J1-P51FD30 with standard QEM film



Rear view of J1-P51FD30

I/O List

This section will list the I/O's used, divided by connector. For more details on the I/O's, see below where each connector is described.

Digital inputs (n. 32)

NAME	DESCRIPTION	TERMINAL	HARDWARE
I1	Emergency Stop Emerjans	CN11	J1P51-FD30
I2	Housing - Door 1 Kapi 1		
I3	Housing - Door 2 Kapi 2		
I4	Housing - Door 3 Kapi 3		
I5	Housing - Door 4 Kapi 4		
I6	Film Feed Driver Fault Servo 1 Fault		
I7	Film Cut Driver Fault Servo 2 Fault		
I8	Infeed Conveyor Inverter Fault Giris Band motor Ariza		
I9	Main Conveyor Inverter Fault Ana Tahrik motor Ariza	CN12	J1P51-FD30
I10	Outfeed Conveyor Inverter Fault Cikis Band motor Ariza		
I11	Cardboard Present Photocell Karton gorme fotocell		
I12	Material Infeed Photocell Giris Band motor fotocell		
I13	Material Photocell Bayrak fotocell		
I14	Outfeed Fallen Material Photocell Cikis Sise dustu fotocell		
I15	No Film Photocell Film Bitti fotocell		
I16	Start Bundling Cycle Photocell Naylon verici fotocell		
I17	Film Slack Photocell (brake lock) Naylon gergi fotocell	CN13	J1P51-FD30
I18	Camme Zero-set Photocell Encoder Sifirlama fotocell		
I19	Broken Film Photocell Nylon Tasiyici kopuk fotocell		
I20	Doors Open Kapirlar acik		
I21	Infeed Fallen Material Control Photocell Giris Sise dusme fotocell		
I22	Stop Button Stop buton		
I23	*Not used*		
I24	*Not used*		
I25	*Not used*	CN14	J1P51-FD30
I26	*Not used*		
I27	*Not used*		
I28	*Not used*		
I29	*Not used*		
I30	*Not used*		
I31	*Not used*		
I32	*Not used*		

Fast inputs (n. 1)

NAME	DESCRIPTION	TERMINAL	HARDWARE
I03	Film spot photocell Mark Okuyucu fotocell	CN13	J1P51-FD30

Digital outputs (n. 32)

NAME	DESCRIPTION	TERMINAL	HARDWARE
O1	Infeed Conveyor START command Giris Band motor start	CN7	J1P51-FD30
O2	Main Conveyor START command Ana Tahrik motor start		
O3	Outfeed Conveyor START command Cikis Band motor start		
O4	Vacuum Pump solenoid valve Vakum salyangoz motor		
O5	Red signal light Kirmizi alarm lambasi		
O6	Green signal light Yesil alarm lambasi		
O7	Separator 1 gate solenoid vale Seperator 1		
O8	Separator 2 gate solenoid valve Seperator 2		
O9	Reel cylinder brake Film solenoid	CN8	J1P51-FD30
O10	Driver reset Servo reset		
O11	“Sarsak” solenoid valve Sarsak		
O12	External Start machine consensus Mak. giris konver feetback		
O13	*Not used*		
O14	*Not used*		
O15	*Not used*		
O16	*Not used*		
O17	*Not used*	CN9	J1P51-FD30
O18	*Not used*		
O19	*Not used*		
O20	*Not used*		
O21	*Not used*		
O22	*Not used*		
O23	*Not used*		
O24	*Not used*		
O24	*Not used*		
O25	*Not used*	CN10	J1P51-FD30
O26	*Not used*		
O27	*Not used*		
O28	*Not used*		
O29	*Not used*		
O30	*Not used*		
O31	*Not used*		
O32	*Not used*		

Two-way count inputs (n° 4)

Name	Description	Connector	Hardware
PHA1 PHB1	Main Conveyor encoder Encoder Besleme	CN15	J1P51-FD30
PHA2 PHB2	Film Feed encoder Naylon Servo	CN16	
PHA3 PHB3	Film Cut encoder Bicak Servo	CN17	
PHA4 PHB4	*Not used*	CN18	

Analog inputs (n. 4)

Name	Description	Connector	Hardware
AI1	*Not used*	CN28	J1P51-FD30
AI2	*Not used*		
AI3	*Not used*	CN29	
AI4	*Not used*		

Analog outputs (n. 8)

Name	Description	Connector	Hardware
AO1	0-10Vdc reference Infeed Conveyor 0-10Vdc Analog Giris Band motor	CN26	J1P51-FD30
AO2	0-10Vdc reference Main Conveyor 0-10Vdc Analog Ana Tahrik motor		
AO3	0-10Vdc reference Outfeed Conveyor 0-10Vdc Analog Cikis Band motor		
AO4	*Not used*		
AO5	+/-10Vdc reference Film Feed +/-10Vdc Analog Naylon surme motor	CN27	J1P51-FD30
AO6	+/-10Vdc Film Cut 0-10Vdc Analog Bicak motor		
AO7	*Not used*		
AO8	*Not used*		

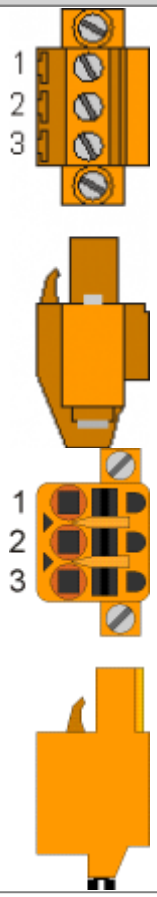
Function keys

Name	Description	Hardware
F1	*To decide*	J1P51-FD30
F2	*To decide*	
F3	*To decide*	
F4	*To decide*	
F5	*To decide*	
F6	*To decide*	

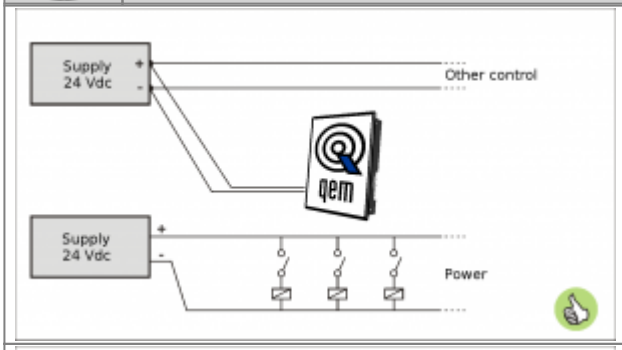
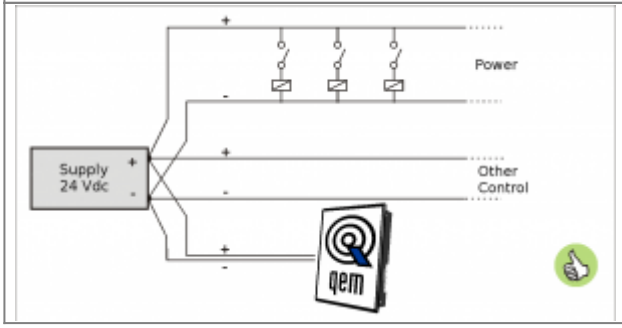
4. Electrical Connections

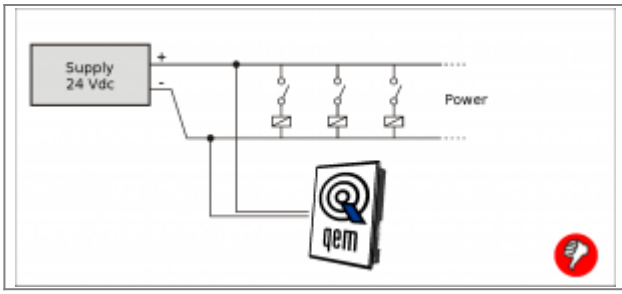
The cabling must be carried out by specialist personnel and fitted with suitable anti-static precautions.
Before handling the controller, disconnect the power and all parts connected to it.
To guarantee compliance with EC regulations, the power supply must have a galvanic isolation of at least 1500Vac.

Power supply	**24 Vdc**
Voltage range	22 - 27 Vdc
Max. absorption	30W

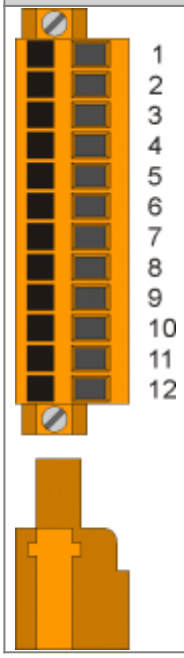
CN1	Terminal	Symbol	Description
	1	L1/+	DC power positive
	2	GROUND	Gnd-PE (signals)
	3	L2/-	DC power 0V

Connection examples for 24Vdc power supply

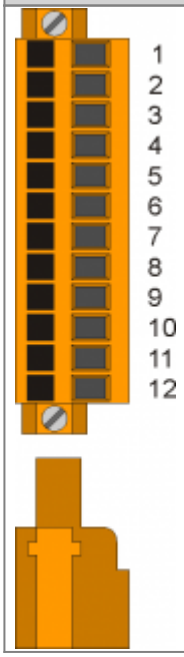
	**Use an isolated power unit with 24Vdc +/-5% output conform to EN60950-1.**
	Use two separate power units: one for the control circuit and one for the power circuit
	For a single power unit, use two separate lines: one for the control and one for the power

	DO NOT use the same lines for the power circuit and the controller

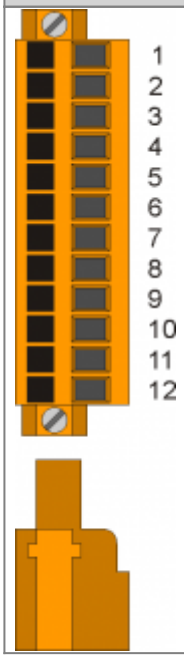
The electrical features are given in paragraph Electrical Features.
The wiring examples are given in paragraph Connection examples

CN11	Terminal	Symbol	Description		Address
	1	I01(PNP)	PNP type fast input I01	External terminal configuration[1]	FREQ1[2]
	2	I01(NPN)	PNP type fast input I01		
	3	0V	Common for digital inputs		
	4	I1	Input I1		3.INP01
	5	I2	Input I2		3.INP02
	6	I3	Input I3		3.INP03
	7	I4	Input I4		3.INP04
	8	I5	Input I5		3.INP05
	9	I6	Input I6		3.INP06
	10	I7	Input I7		3.INP07
	11	I8	Input I8		3.INP08
	12	0V	Common for digital inputs		

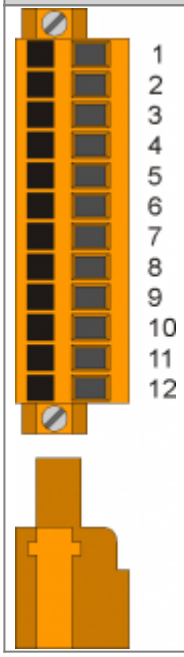
[1] **NPN type fast input configuration**:
Terminal 1: connect to 12-24Vdc of the power unit
Terminal 2: input
PNP type fast input configuration:
Terminal 1: input
Terminal 2: connect to 0V (terminal 3)
[2] can be used as frequency input for a FREQ device, indicating 1 in the device declaration

CN12	Terminal	Symbol	Description		Address
	1	I02(PNP)	PNP type fast input I02	External terminal configuration[1]	FREQ2[2]
	2	I02(NPN)	NPN type fast input I02		
	3	0V	Common for digital inputs		
	4	I9	Input I9		3.INP09
	5	I10	Input I10		3.INP10
	6	I11	Input I11		3.INP11
	7	I12	Input I12		3.INP12
	8	I13	Input I13		3.INP13
	9	I14	Input I14		3.INP14
	10	I15	Input I15		3.INP15
	11	I16	Input I16		3.INP16
	12	0V	Common for digital inputs		

[1] **NPN type fast input configuration**:
Terminal 1: connect to 12-24Vdc of the power unit
Terminal 2: input
PNP type fast input configuration:
Terminal 1: input
Terminal 2: connect to 0V (terminal 3)
[2] can be used as frequency input for a FREQ device, indicating 2 in the device declaration

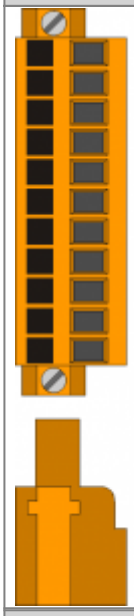
CN13	Terminal	Symbol	Description		Address
	1	I03(PNP)	PNP type fast input I03	External terminal configuration[1)]	1.INT09
	2	I03(NPN)	NPN type fast input I03		
	3	0V	Common for digital inputs		
	4	I17	Input I17		3.INP17
	5	I18	Input I18		3.INP18
	6	I19	Input I19		3.INP19
	7	I20	Input I20		3.INP20
	8	I21	Input I21		3.INP21
	9	I22	Input I22		3.INP22
	10	I23	Input I23		3.INP23
	11	I24	Input I24		3.INP24
	12	0V	Common for digital inputs		

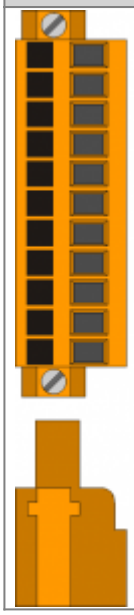
[1)] **NPN type fast input configuration**:
Terminal 1: connect to 12-24Vdc of the power unit
Terminal 2: input
PNP type fast input configuration:
Terminal 1: input
Terminal 2: connect to 0V (terminal 3)

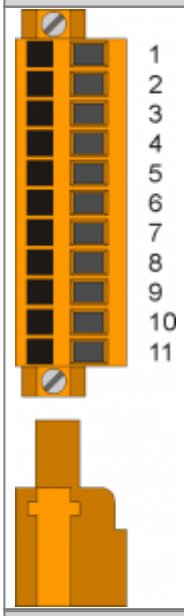
CN14	Terminal	Symbol	Description		Address
	1	I04(PNP)	PNP type fast input I04	External terminal configuration[1)]	1.INT10
	2	I04(NPN)	NPN type fast input I04		
	3	0V	Common for digital inputs		
	4	I25	Input I25		3.INP25
	5	I26	Input I26		3.INP26
	6	I27	Input I27		3.INP27
	7	I28	Input I28		3.INP28
	8	I29	Input I29		3.INP29
	9	I30	Input I30		3.INP30
	10	I31	Input I31		3.INP31
	11	I32	Input I32		3.INP32
	12	0V	Common for digital inputs		

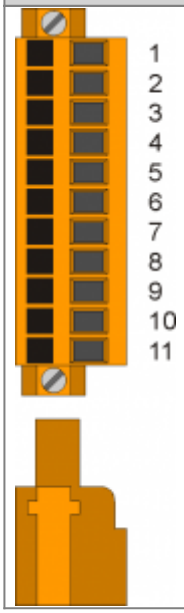
[1)] **NPN type fast input configuration**:
Terminal 1: connect to 12-24Vdc of the power unit
Terminal 2: input
PNP type fast input configuration:
Terminal 1: input
Terminal 2: connect to 0V (terminal 3)

The electrical features are given in paragraph Electrical features.
The connection examples are given in paragraph Connection examples

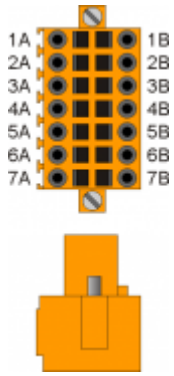
CN7	Terminal	Symbol	Description	Address
	1	V+	Output supply in (12÷28Vdc)	
	2	O1	Digital output 1	3.OUT01
	3	O2	Digital output 2	3.OUT02
	4	V-	Common for output supply	
	5	O3	Digital output 3	3.OUT03
	6	O4	Digital output 4	3.OUT04
	7	V-	Common for output supply	
	8	O5	Digital output 5	3.OUT05
	9	O6	Digital output 6	3.OUT06
	10	O7	Digital output 7	3.OUT07
	11	O8	Digital output 8	3.OUT08

CN8	Terminal	Symbol	Description	Address
	1	V+	Output supply in (12-28Vdc)	
	2	O9	Digital output 9	3.OUT09
	3	O10	Digital output 10	3.OUT10
	4	V-	Common for output supply	
	5	O11	Digital output 11	3.OUT11
	6	O12	Digital output 12	3.OUT12
	7	V-	Common for output supply	
	8	O13	Digital output 13	3.OUT13
	9	O14	Digital output 14	3.OUT14
	10	O15	Digital output 15	3.OUT15
	11	O16	Digital output 16	3.OUT16

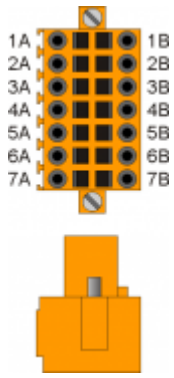
CN9	Terminal	Symbol	Description	Address
	1	V+	Output supply in (12-28Vdc)	
	2	O17	Digital output 17	3.OUT17
	3	O18	Digital output 18	3.OUT18
	4	V-	Common for output supply	
	5	O19	Digital output 19	3.OUT19
	6	O20	Digital output 20	3.OUT20
	7	V-	Common for output supply	
	8	O21	Digital output 21	3.OUT21
	9	O22	Digital output 22	3.OUT22
	10	O23	Digital output 23	3.OUT23
	11	O24	Digital output 24	3.OUT24

CN10	Terminal	Symbol	Description	Address
	1	V+	Output supply in (12-28Vdc)	
	2	O25	Digital output 25	3.OUT25
	3	O26	Digital output 26	3.OUT26
	4	V-	Common for output supply	
	5	O27	Digital output 27	3.OUT27
	6	O28	Digital output 28	3.OUT28
	7	V-	Common for output supply	
	8	O29	Digital output 29	3.OUT29
	9	O30	Digital output 30	3.OUT30
	10	O31	Digital output 31	3.OUT31
	11	O32	Digital output 32	3.OUT32

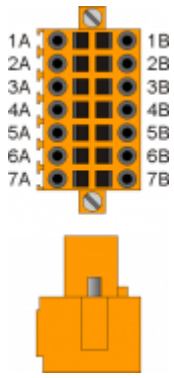
The electrical features are given in paragraph Electrical features.
The wiring examples are given in paragraph Connection examples

CN15	Terminal	Symbol	Description		Address	
	1A		Internal bridge 1A -1B [1]			
	2A	PHA1	Phase A	Count 1 PNP Push-Pull[2]	3.INP33	3.CNT01
	3A	PHB1	Phase B		3.INP34	
	4A	Z1	Z		1.INT01	
	5A	0V	Common for count inputs			
	6A	0V				
	7A	0V				
	1B		Internal bridge 1A -1B[3]			
	2B	PHA1+	+ PHA	Count 1 Line Driver	3.INP33	3.CNT01
	3B	PHB1+	+ PHB		3.INP34	
	4B	Z1+	+ Z		1.INT01	
	5B	PHA1-	- PHA			
	6B	PHB1-	- PHB			
	7B	Z1-	- Z			

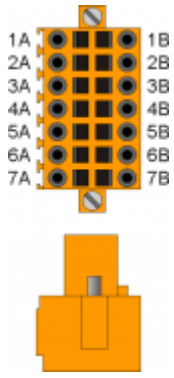
[1], [3] Used to power the encoder. See Connection examples.
[2] **PNP/Push-Pull type count input configuration**:
Terminal 5B: connect to terminal 5A
Terminal 6B: connect to terminal 6A
Terminal 7B: connect to terminal 7A

CN16	Terminal	Symbol	Description		Address	
	1A		Internal bridge 1A -1B [1]			
	2A	PHA2	Phase A	Count 2 PNP Push-Pull[2]	3.INP35	3.CNT02
	3A	PHB2	Phase B		3.INP36	
	4A	Z2	Z		1.INT02	
	5A	0V	Common for count inputs			
	6A	0V				
	7A	0V				
	1B		Internal bridge 1A -1B[3]			
	2B	PHA2+	+ PHA	Count 2 Line Driver	3.INP35	3.CNT02
	3B	PHB2+	+ PHB		3.INP36	
	4B	Z2+	+ Z		1.INT02	
	5B	PHA2-	- PHA			
	6B	PHB2-	- PHB			
	7B	Z2-	- Z			

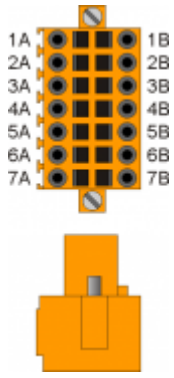
[1], [3] Used to power the encoder. See Connection examples.
[2] **PNP/Push-Pull type count input configuration**:
Terminal 5B: connect to terminal 5A
Terminal 6B: connect to terminal 6A
Terminal 7B: connect to terminal 7A

CN17	Terminal	Symbol	Description		Address	
	1A		Internal bridge 1A -1B [1]			
	2A	PHA3	Phase A	Count 3 PNP Push-Pull[2]	3.INP37	3.CNT03
	3A	PHB3	Phase B		3.INP38	
	4A	Z3	Z		1.INT03	
	5A	0V	Common for count inputs			
	6A	0V				
	7A	0V				
	1B		Internal bridge 1A -1B[3]			
	2B	PHA3+	+ PHA	Count 3 Line Driver	3.INP37	3.CNT03
	3B	PHB3+	+ PHB		3.INP38	
	4B	Z3+	+ Z		1.INT03	
	5B	PHA3-	- PHA			
	6B	PHB3-	- PHB			
	7B	Z3-	- Z			

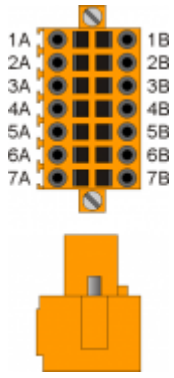
[1], [3] Used to power the encoder. See Connection examples.
[2] **PNP/Push-Pull type count input configuration**:
Terminal 5B: connect to terminal 5A
Terminal 6B: connect to terminal 6A
Terminal 7B: connect to terminal 7A

CN18	Terminal	Symbol	Description		Address	
	1A		Internal bridge 1A -1B [1]			
	2A	PHA4	Phase A	Count 4 PNP Push-Pull[2]	3.INP39	3.CNT04
	3A	PHB4	Phase B		3.INP40	
	4A	Z4	Z		1.INT04	
	5A	0V	Common for count inputs			
	6A	0V				
	7A	0V				
	1B		Internal bridge 1A -1B[3]			
	2B	PHA4+	+ PHA	Count 4 Line Driver	3.INP39	3.CNT04
	3B	PHB4+	+ PHB		3.INP40	
	4B	Z4+	+ Z		1.INT04	
	5B	PHA4-	- PHA			
	6B	PHB4-	- PHB			
	7B	Z4-	- Z			

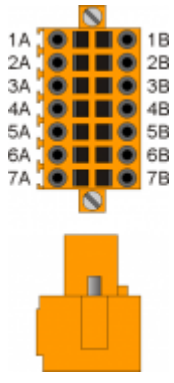
[1], [3] Used to power the encoder. See Connection examples.
[2] **PNP/Push-Pull type count input configuration**:
Terminal 5B: connect to terminal 5A
Terminal 6B: connect to terminal 6A
Terminal 7B: connect to terminal 7A

CN19	Terminal	Symbol	Description		Address	
	1A		Internal bridge 1A -1B [1]			
	2A	PHA5	Phase A	Count 5 PNP Push-Pull[2]	3.INP41	3.CNT05
	3A	PHB5	Phase B		3.INP42	
	4A	Z5	Z		1.INT05	
	5A	0V	Common for count inputs			
	6A	0V				
	7A	0V				
	1B		Internal bridge 1A -1B[3]			
	2B	PHA5+	+ PHA	Count 5 Line Driver	3.INP41	3.CNT05
	3B	PHB5+	+ PHB		3.INP42	
	4B	Z5+	+ Z		1.INT05	
	5B	PHA5-	- PHA			
	6B	PHB5-	- PHB			
	7B	Z5-	- Z			

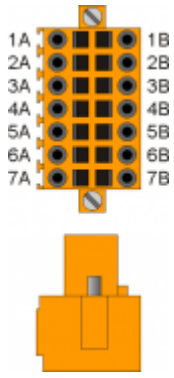
[1], [3] Used to power the encoder. See Connection examples.
[2] **PNP/Push-Pull type count input configuration**:
Terminal 5B: connect to terminal 5A
Terminal 6B: connect to terminal 6A
Terminal 7B: connect to terminal 7A

CN20	Terminal	Symbol	Description		Address	
	1A		Internal bridge 1A -1B [1]			
	2A	PHA6	Phase A	Count 6 PNP Push-Pull[2]	3.INP43	3.CNT06
	3A	PHB6	Phase B		3.INP44	
	4A	Z6	Z		1.INT06	
	5A	0V	Common for count inputs			
	6A	0V				
	7A	0V				
	1B		Internal bridge 1A -1B[3]			
	2B	PHA6+	+ PHA	Count 6 Line Driver	3.INP43	3.CNT06
	3B	PHB6+	+ PHB		3.INP44	
	4B	Z6+	+ Z		1.INT06	
	5B	PHA6-	- PHA			
	6B	PHB6-	- PHB			
	7B	Z6-	- Z			

[1], [3] Used to power the encoder. See Connection examples.
[2] **PNP/Push-Pull type count input configuration**:
Terminal 5B: connect to terminal 5A
Terminal 6B: connect to terminal 6A
Terminal 7B: connect to terminal 7A

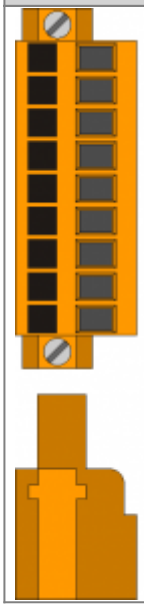
CN21	Terminal	Symbol	Description		Address	
	1A		Internal bridge 1A -1B [1]			
	2A	PHA7	Phase A	Count 7 PNP Push-Pull[2]	3.INP45	3.CNT07
	3A	PHB7	Phase B		3.INP46	
	4A	Z7	Z		1.INT07	
	5A	0V	Common for count inputs			
	6A	0V				
	7A	0V				
	1B		Internal bridge 1A -1B[3]			
	2B	PHA7+	+ PHA	Count 7 Line Driver	3.INP45	3.CNT07
	3B	PHB7+	+ PHB		3.INP46	
	4B	Z7+	+ Z		1.INT07	
	5B	PHA7-	- PHA			
	6B	PHB7-	- PHB			
	7B	Z7-	- Z			

[1], [3] Used to power the encoder. See Connection examples.
[2] **PNP/Push-Pull type count input configuration**:
Terminal 5B: connect to terminal 5A
Terminal 6B: connect to terminal 6A
Terminal 7B: connect to terminal 7A

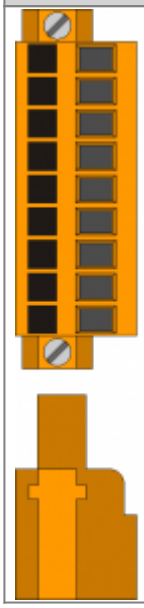
CN22	Terminal	Symbol	Description		Address	
	1A		Internal bridge 1A -1B [1]			
	2A	PHA8	Phase A	Count 8 PNP Push-Pull[2]	3.INP47	3.CNT08
	3A	PHB8	Phase B		3.INP48	
	4A	Z8	Z		1.INT08	
	5A	0V	Common for count inputs			
	6A	0V				
	7A	0V				
	1B		Internal bridge 1A -1B[3]			
	2B	PHA8+	+ PHA	Count 8 Line Driver	3.INP47	3.CNT08
	3B	PHB8+	+ PHB		3.INP48	
	4B	Z8+	+ Z		1.INT08	
	5B	PHA8-	- PHA			
	6B	PHB8-	- PHB			
	7B	Z8-	- Z			

[1], [3] Used to power the encoder. See Connection examples.
[2] **PNP/Push-Pull type count input configuration**:
Terminal 5B: connect to terminal 5A
Terminal 6B: connect to terminal 6A
Terminal 7B: connect to terminal 7A

The electrical features are given in paragraph Electrical features.
The wiring examples are given in paragraph Connection examples

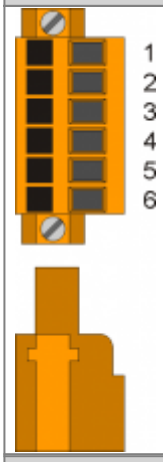
CN28	Terminal	Symbol	Description	Address
	1	GAI	Common for analog inputs	
	2	IA1	analog input 1	3.AI01
	3	SEL1V	Analog input selector 1 voltmetric 0-10V[1)]	
	4	SEL1C	Analog input selector 1 amperometric 0-20mA[2)]	
	5	GAI	Common for analog inputs	
	6	IA2	analog input 2	3.AI02
	7	SEL2V	Analog input selector 2 voltmetric 0-10V[3)]	
	8	SEL2C	Analog input selector 2 amperometric 0-20mA[4)]	
	9	VREF	Reference voltage	

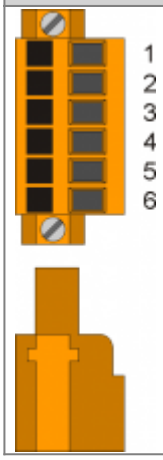
[1), 3)] Connecting this terminal to GAI, the input functions as voltmetric 0-10V
[2), 4)] Connecting this terminal to GAI, the input functions as amperometric 0-20mA

CN29	Terminal	Symbol	Description	Address
	3	GAI	Common for analog inputs	
	2	IA3	analog input 3	3.AI03
	3	SEL3V	Analog input selector 3 voltmetric 0-10V[1)]	
	4	SEL3C	Analog input selector 3 amperometric 0-20mA[2)]	
	5	GAI	Common for analog inputs	
	6	IA4	analog input 4	3.AI04
	7	SEL4V	Analog input selector 4 voltmetric 0-10V[3)]	
	8	SEL4C	Analog input selector 4 amperometric 0-20mA[4)]	
	9	VREF	Reference voltage	

[1), 3)] Connecting this terminal to GAI, the input functions as voltmetric 0-10V
[2), 4)] Connecting this terminal to GAI, the input functions as amperometric 0-20mA

The electrical features are given in paragraph Electrical features.
The wiring examples are given in paragraph Connection examples

CN26	Terminal	Symbol	Description	Address
	1	GAO	Common for analog outputs	
	2	AO1	Analog output 1	3.AN01
	3	AO2	Analog output 2	3.AN02
	4	GAO	Common for analog outputs	
	5	AO3	Analog output 3	3.AN03
	6	AO4	Analog output 4	3.AN04

CN27	Terminal	Symbol	Description	Address
	1	GAO	Common for analog outputs	
	2	AO5	Analog output 5	3.AN05
	3	AO6	Analog output 6	3.AN06
	4	GAO	Common for analog outputs	
	5	AO7	Analog output 7	3.AN07
	6	AO8	Analog output 8	3.AN08