



**Interface Description for
FIBROTOR Rotary Tables with
Rockwell PowerFlex 525 Control System
via Add-On Instruction
for CompactLogix and ControlLogix
via Ethernet/IP**

Kat.3 /PLd SIL2

Original copy of the interface description

Without our express permission, this must not be provided to either third parties or competitors!

Subject to change without notice.

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Further information can be found in the PowerFlex 525 user manual [520-UM001](#) of Rockwell.

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Contact person

Contact person: H.-J. Schmitt Tel.: 0049(0)7134-73296
E-Mail: hj.schmitt@fibro.de

P. Neufeld Tel.: 0049(0)7134-73476
E-Mail: p.neufeld@fibro.de

FIBRO GmbH
Rotary Table Division
Postfach 11 20
DE-74183 Weinsberg

Weidachstr. 41-43
74189 Weinsberg, Germany

Service
E-Mail: rtservice@fibro.de
Tel. +49(0)7134 / 73 - 243
FAX +49(0)7134 / 73 - 344

Safety information

Safety	
Symbols used	
 DANGER	<p><i>Found on notices about a directly dangerous situation! In case of non-observance, death or severe injury will result.</i></p>
 WARNING	<p><i>Found on notices about a possibly dangerous situation! In case of non-observance, death or severe injury may result.</i></p>
 NOTE	<p><i>Found on notices, tips, and recommendations important for safety and perfect function.</i></p>

Safety information for electrical equipment for use in industrial high-voltage installations

Together with the warnings, this information sheet is considered to be a supplement to the product-specific operating instructions and must be particularly observed for safety reasons.



DANGER

DANGER!

The electrical machines and/or devices are equipment for use in industrial high-voltage installations. During operation, this equipment has dangerous, live, exposed parts, as well as moving and/or rotating parts. As a result, you could, for example, cause extremely severe injury or material damage when removing the required covers without authorisation and in case of improper or incorrect use or insufficient maintenance.

The people responsible for the safety of the plant must therefore guarantee that only qualified personnel are assigned work on the machines and/or devices, that the provide operating instructions and other parts of the product documentation are available to this personnel, that this personnel is obliged to observe these documents consistently, and that working on or in the vicinity of the machine and/or devices is prohibited to unqualified personnel.

Qualified personnel are people who, due to their education, experience, training, and knowledge of pertinent standards, provision, accident prevention regulations, and company conditions, have received authorisation from the people responsible for the safety of the system to perform the required tasks whilst recognising and preventing possible dangers (for the definitions of expert personnel, also see VDE 0105 or IEC 364).

Among other things, knowledge of first aid measures and local rescue facilities is required.

For work on high-voltage plants, the prohibition of the use of unqualified personnel is regulated in DIN VDE 0105 or IEC 364, for example.

 <p>DANGER</p>	<p>DANGER!</p> <ul style="list-style-type: none"> ▶ <i>It is required that the fundamental planning of the plant and all transport, assembly, installation, commissioning, maintenance, and repair work be performed by qualified personnel and/or by responsible experts.</i> ▶ <i>In the process, the following absolutely must be observed: Technical data and information regarding permissible use (assembly, connection, environmental, and operating conditions) contained in:</i> <ul style="list-style-type: none"> - the catalogue - the order documents - the operating instructions - the signs - other product documentation ▶ <i>This includes the general setup and safety regulations, the local plant-specific provisions and requirements, the proper use of tools, lifting and transport equipment, the use of personal protective equipment, and mounting conditions for devices delivered according to IP00 (without a cover), if pertinent.</i> ▶ <i>During operation, the required contact protection must be present and/or a dangerous approach must be prevented.</i>
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 <p>NOTE</p>	<p><i>For reasons of clarity, the operating instructions do not contain all detailed information on possible structural variants and cannot take every conceivable setup, operating, or maintenance situation into consideration.</i></p>
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According to the operating instructions essentially only contain information required for the proper use of the machine or devices in industrial applications for qualified personnel (see above).

If higher requirements are placed in special cases during the intentional use of the machines or devices in non-industrial areas (e.g., contact protection for children's fingers, etc.), these conditions must be guaranteed on the plant side during assembly with additional protective measures.

In case of any confusion in this regard, especially in case of missing product-specific detailed information, the situation must be clarified accordingly. For this purpose, specify the machine type designation and manufacturing number.

 <p>NOTE</p>	<p><i>We recommend that you take advantage of the support of the FIBRO service department for servicing tasks.</i></p>
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 NOTE	<p><i>For general work, such as checking of incoming deliveries (transport damage), long-term storage and preservation of machines, checking of the foundation, tightening of couplings, setup and alignment of machines, installation, and much more, detailed information can be found in the operating instructions, which can also be obtained from the Sales Department.</i></p>
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 WARNING	<p>WARNING!</p> <ul style="list-style-type: none"> ▶ <i>To prevent malfunctions, the required maintenance, inspection, and revision measures must be performed regularly by practised service personnel (see above).</i> ▶ <i>Changes in comparison with normal operation (higher power handling, temperatures, vibrations, noises, or the responding of monitoring equipment) may be an indication that the function is impaired. To avoid faults which could cause direct or indirect personal or material damage, the responsible maintenance personnel must be informed immediately.</i>
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 WARNING	<p>IN CASE OF DOUBT; SWITCH OFF THE RESPECTIVE EQUIPMENT IMMEDIATELY!</p>
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Please note that the content of the operating instructions and product documentation are not part of nor should it change any earlier or existing agreements, commitments, or legal relationships. All obligation of FIBRO arise from the respective purchasing agreement, which also contains the complete and solely valid warranty regulation. These contractual warranty provisions are neither expanded nor limited by the explanations and documentation.

 NOTE	<p><i>Note regarding the observance of accident prevention regulations</i></p>
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Since we do not provide machines or plants that are ready for operation, but rather only a structural element to such equipment, we cannot provide standard safety devices without knowledge of the environment of the rotary table.

In our accessories range, we have various covers for toothed belts, V-belts, chains, and limit switch mechanisms for all sizes and drive versions, either for contact protection or in a sealed design.

If you have ordered the rotary table without sufficient protective equipment, you absolutely must provide this equipment yourself.

For the reasons named above, please note that we do not accept any claims arising from the non-observance of the accident prevention regulations in question.

Shearing and crushing points that arise from bores or other breakouts that go through both the table top of the rotary table and any stationary worktop lying below or above lie completely outside of our area of responsibility.

This sheet was already sent to you together with the order confirmation.



WARNING

WARNING!

- ▶ *In the switch cabinet, certain parts of the electrical equipment inevitably have dangerous voltage during operation. Improper handling of this equipment can cause death, serious bodily injury and/or considerable property damage.*
- ▶ *Assembly and commissioning may be performed by qualified, trained, and instructed electricians only. These personnel must be thoroughly familiarised with the content of these instructions.*
- ▶ *The precise knowledge of the operating instructions, wiring diagram, and manuals of the control system and operating instructions of the rotary table before the commissioning of the plant is a prerequisite for malfunction-free, continuous operation.*

Rotational movement sequence

A rotational movement can take place when the hardware shown in the overview diagram is wired, the software in the parent control system is integrated, and the AOI rotary table software (after addressing/commissioning) has been prepared for the rotational movement!

Information on the indexing of the table, e.g., right or left, slow or fast, can be found in the "Interface" section of AOI "FB1" under Studio 5000 Logix Designer!

After you have made a preselection here and entered the speeds according to the specification, you can initiate a rotational movement via "Start."

If the rotary table is stopped during the rotation phase via the "Stop" input, the rotary table moves to the starting position at slow speed after receiving another start signal.

If the STO switches during the rotation phase, the motor is de-energised and the mechanical brake is applied. In this case, as well, the speed must be activated slowly to the starting position after another start within the rotation phase.

In case of faults, see the output parameters! The parameters include an error description.

Change IP-address

The following describes how to set the IP-address of a PF525 without using a computer.

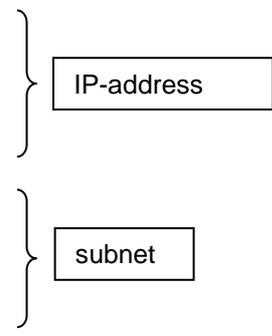
For the setup of the IP-address and subnet mask the parameters 128 to 136 are used..

Parameter 128 determines, if the address will be received automatically using BOOTP or if it is fixed using the following parameters

Parameters 129 bis 132 contain the IP-address and Parameters 133 bis 136 contain the Subnet-mask.

For the Testrack the following values have to be set:

parameter	value
128	1
129	192
130	168
131	10
132	96
133	255
134	255
135	255
136	0



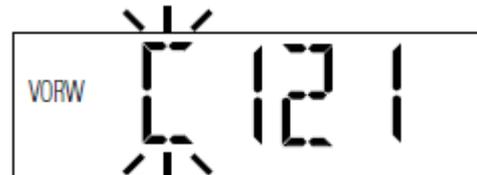
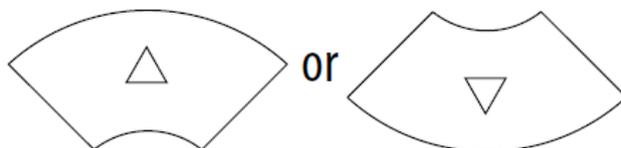
The table is annotated with two brackets on the right side. The first bracket groups parameters 129 through 132, with a box labeled 'IP-address' next to it. The second bracket groups parameters 133 through 136, with a box labeled 'subnet' next to it.

Method Step-by-Step:

1. Apply power to the PF525
2. At the display and control key section press „ESC“ to enter the parameter group list. The parameter group letter will flash.



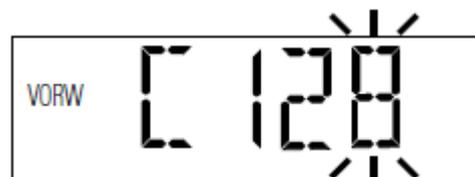
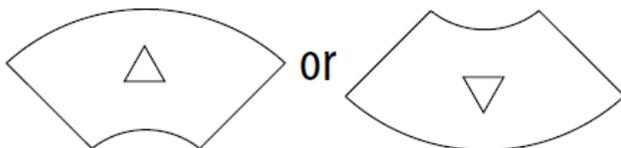
3. Press the Up Arrow or Down Arrow to scroll through the group list and highlight Group „C“.



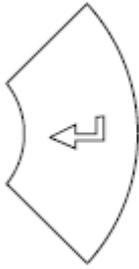
4. Press Enter or Sel to select the Group.



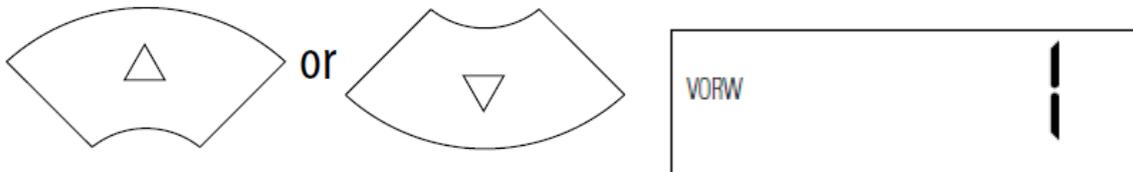
5. Press the Up Arrow or Down Arrow to scroll through the parameter list and highlight Parameter „C128“.



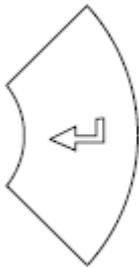
6. Press Enter to select the Parameter and to view the value.



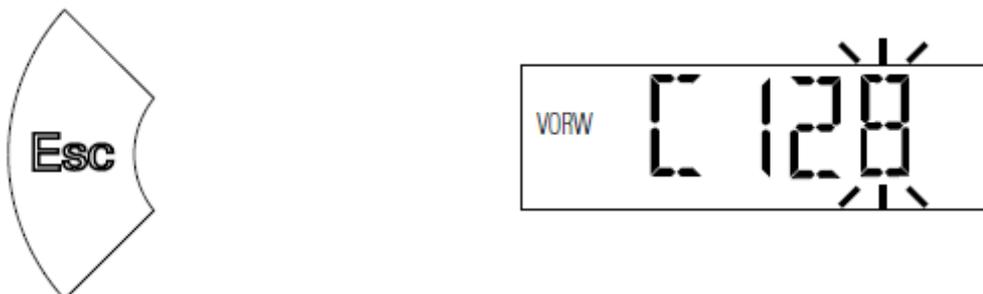
7. Press the Up Arrow or Down Arrow to change the value to „1“.



8. Press Enter to save the value.



9. Press ESC to return to the parameter list



10. Repeat steps 5 – 9 to change parameters C129 to C136 accordingly. Refer to the list at page 1.

11. Power down the drive for at least 4 sec, so the parameters can be activated after the power cycle.

Rockwell Add-On Instruction description

Foreword

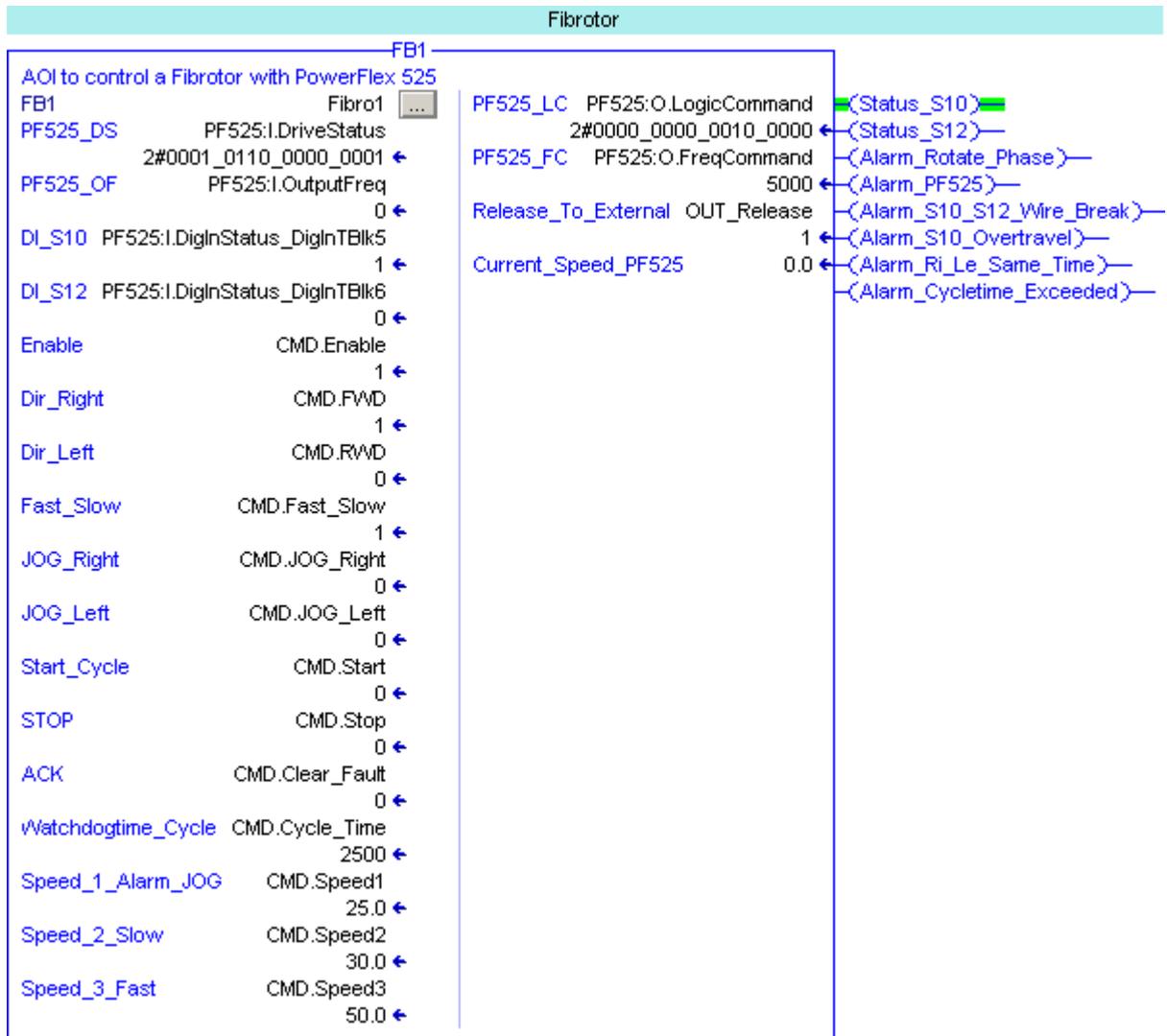
This description deals with an Add-On Instruction (AOI) for the actuation of the FIBRO rotary table with a PowerFlex 525, which is connected to a ControlLogix or CompactLogix via Ethernet/IP. Here, sensors S10 and S12 can be connected directly to PF525 DigIn5/DigIn6 or PLC inputs. The following pages contains a program overview / call structure including the required logic and a definition of the inputs and outputs of "FB1". Everything has been described for Studio 5000 Logix Designer.



The limitation of the speed of the motor can be found in the respective specification of the rotary table! The lowest speed must not lie under 10Hz. All motors are equipped with thermal protection.

Calling the „FB1“ Add On Instruction

The depiction shows the AOI call with the option „Show Input Operands on Left; Output Operands on Right“ activated under Studio 5000 Logix Designer – Tools – Options – Ladder Editor – Display.



Interface of „FB1“ AOI

Input parameter			
Parameter	Data type	Starting value	Description
PF525_DS	INT	0	PowerFlex 525 Drive Status
PF525_OF	INT	0	PowerFlex 525 Output Frequency [Hz x100]
DI_S10	BOOL	FALSE	Control input S10
DI_S12	BOOL	FALSE	Control input S12
Enable	BOOL	FALSE	Processing enable. Functions/faults are processed Active = 1
Dir_Right	BOOL	FALSE	Right sense of rotation Active = 1
Dir_Left	BOOL	FALSE	Left sense or rotation (reverse) Active = 1
Fast_Slow	BOOL	FALSE	Fast/slow setting 0 = slow 1 = fast
JOG_Right	BOOL	FALSE	Jogging of rotary table in the right sense of rotation Active = 1
JOG_Left	BOOL	FALSE	Jogging of rotary table in the left sense of rotation Active = 1
Start_Cycle	BOOL	FALSE	Starting of the rotary table cycle (For the cycle, the sense of rotation selected at the start of the cycle is used.) Active = 1
STOP	BOOL	FALSE	Stopping of the rotary table Active = 1
ACK	BOOL	FALSE	Acknowledgement of faults Active = 1
Watchdogtime_Cycle	DINT	0ms	Monitoring time for a cycle: When the parametrised time is up and the cycle is not yet at an end, the "Alarm_Cycletime_Exceeded" fault is generated.

Parameter	Data type	Starting value	Description
Speed_1_Alarm_JOG	REAL	0.00Hz	Speed 1 → fault + JOG Speed setting after a fault up to the zero position and during JOG mode.
Speed_2_Slow	REAL	0.00Hz	Speed 2 → slow Speed setting. Selection through "Fast_Slow" = 0 input parameter.
Speed_3_Fast	REAL	0.00Hz	Speed 3 → fast Speed setting. Selection through "Fast_Slow" = 1 input parameter.

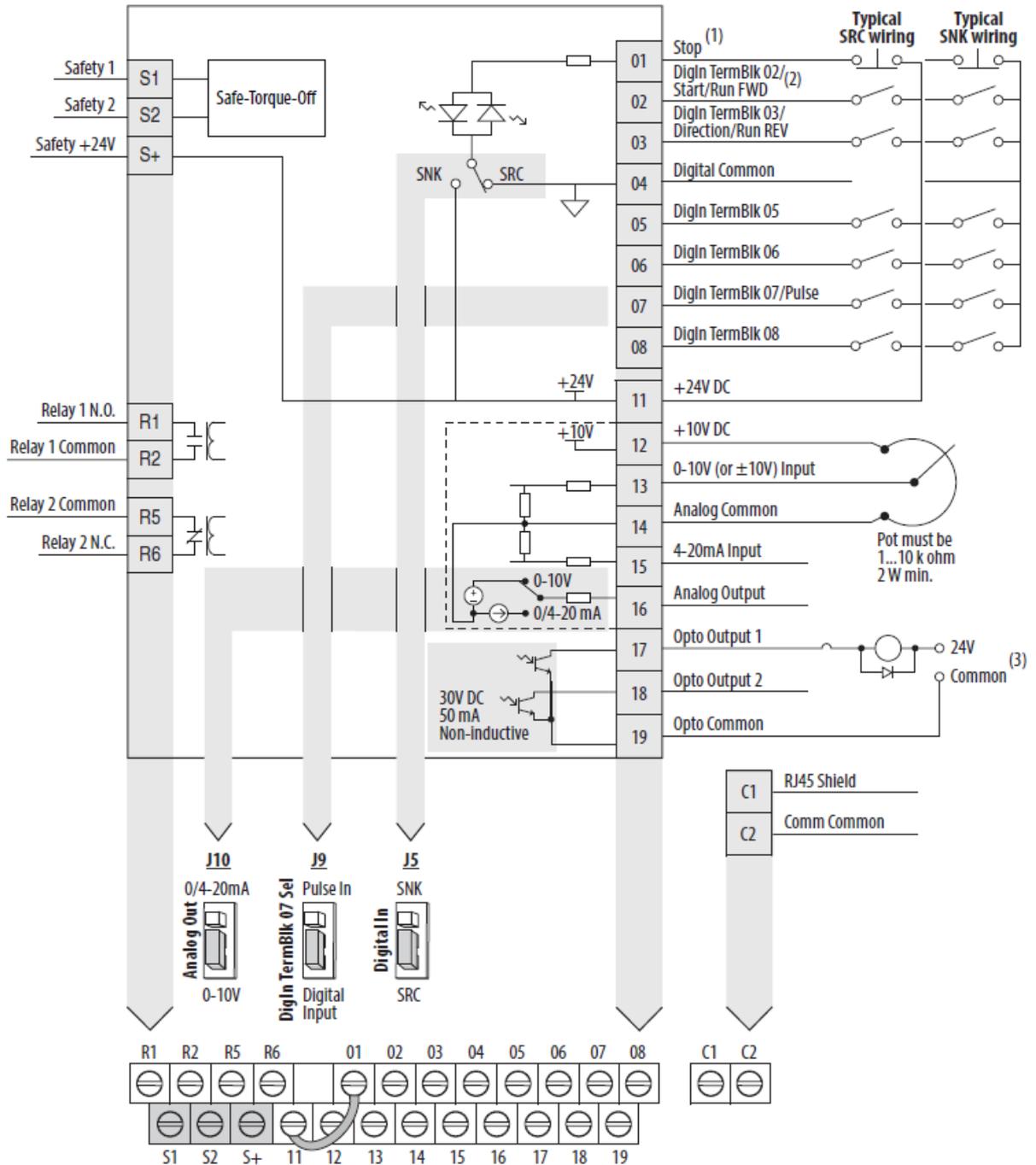
Starting parameter			
Status_S10	BOOL	FALSE	Status S10 Indicates the status of S10 if the processing enable is present.
Status_S12	BOOL	FALSE	Status S12 Indicates the status of S12 if the processing enable is present.
Alarm_Rotate_Phase	BOOL	FALSE	Fault during the rotation phase. 0 = OK 1 = Not OK If a fault occurs during the cycle or a stop is triggered, this fault is also generated. The fault is reset using "ACK".
Alarm_PF525	BOOL	FALSE	Fault of PowerFlex 525: 0 = OK 1 = Not OK The fault is reset using "ACK".
Alarm_S10_S12_Wire_Break	BOOL	FALSE	Fault S10 or S12 wire breakage: 0 = OK 1 = Not OK Only if both sensors deliver a 0 signal. The fault is reset using "ACK".
Alarm_S10_Overtravel	BOOL	FALSE	Fault S10 overrun at end of cycle: 0 = OK 1 = Not OK Monitoring whether sensor S10 overruns. Evaluation through the S10 0 signal and the S12 1 signal. The fault is reset using "ACK".
Alarm_Ri_Le_Same_Time	BOOL	FALSE	Fault - simultaneous right and left sense of rotation. 0 = OK 1 = Not OK The fault is generated when the right and left sense of rotation are in the same state. The fault is reset using "ACK".

Parameter	Data type	Starting value	Description
Alarm_Cycletime_Exceeded	BOOL	FALSE	Fault - the time monitoring of the cycle has triggered: 0 = OK 1 = Not OK As soon as the specified monitoring time has elapsed, a fault is output and the cycle is stopped. The fault is reset using "ACK".
Release_To_External	BOOL	FALSE	External operation enable. 0 = Enabled 1 = Not enabled Only if in the zero position and no fault is present.
Current_Speed_PF525	REAL	0.00Hz	Output of the current speed of the PowerFlex 525.

Terminal plan

PowerFlex 525 Control I/O Terminal Block

PowerFlex 525 Control I/O Wiring Block Diagram



Motortemperaturschutz

Analog Input, PTC For Drive Fault

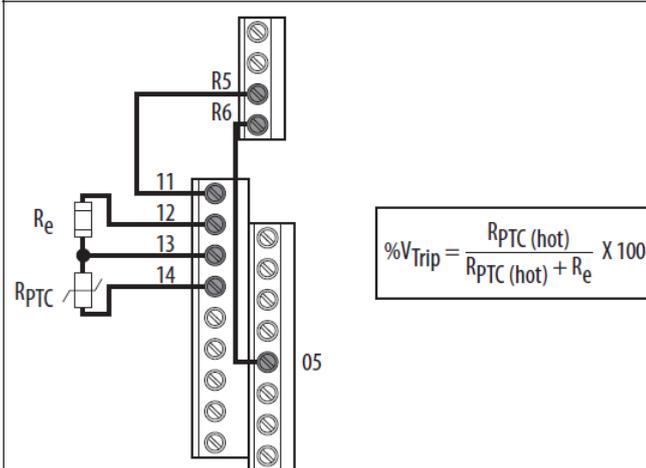
Wire the PTC and External Resistor (typically matched to the PTC Hot Resistance) to I/O Terminals 12, 13, 14.

Wire R2/R3 Relay Output (SRC) to I/O Terminals 5 & 11.

[t065](#) [DigIn TermBlk 05] = 12 "Aux Fault"

[t081](#) [Relay Out 2 Sel] = 10 "Above Anlg V"

[t082](#) [Relay Out 2 Level] = % Voltage Trip



The example above shows the wiring of a motortemperaturesensor (R_{PTC}) at a PowerFlex 525. The size of the resistor R_e depends on the sensortype. Parameter [t082](#) defines the triplelevel, when the motortemperature is too hot.

The preset of the frequencyconverter is for a motor with three PTC in the windings. In this case the resistor R_e is 1k Ω .

Motors with bimetal contacts don't require the resistorwiring. The bimetal contact is wired directly to terminal 11 and 5.

STO and brake

The PowerFlex 525 converters are equipped with the STO hardware at delivery! In the process it is important that the brake is switched in parallel with output DO 0, via output DO 1. When the STO is triggered, the motor is de-energised and the brake is applied mechanically!

As soon as the STO is released again, the brake is automatically released mechanically! The brake (100% ED) is released in an energised state during operation!

The STO testing time is set to 24 hours. The STO should be triggered once within 24 hours! If not, a message reminding you to trigger the STO is emitted after this time has elapsed!

Please make sure that the brake opens at the same moment the STO is released again!

The brake must be switched in parallel with the STO (see the overview diagram)!

The owner is responsible for the testing of the STO (according to machine guidelines)!

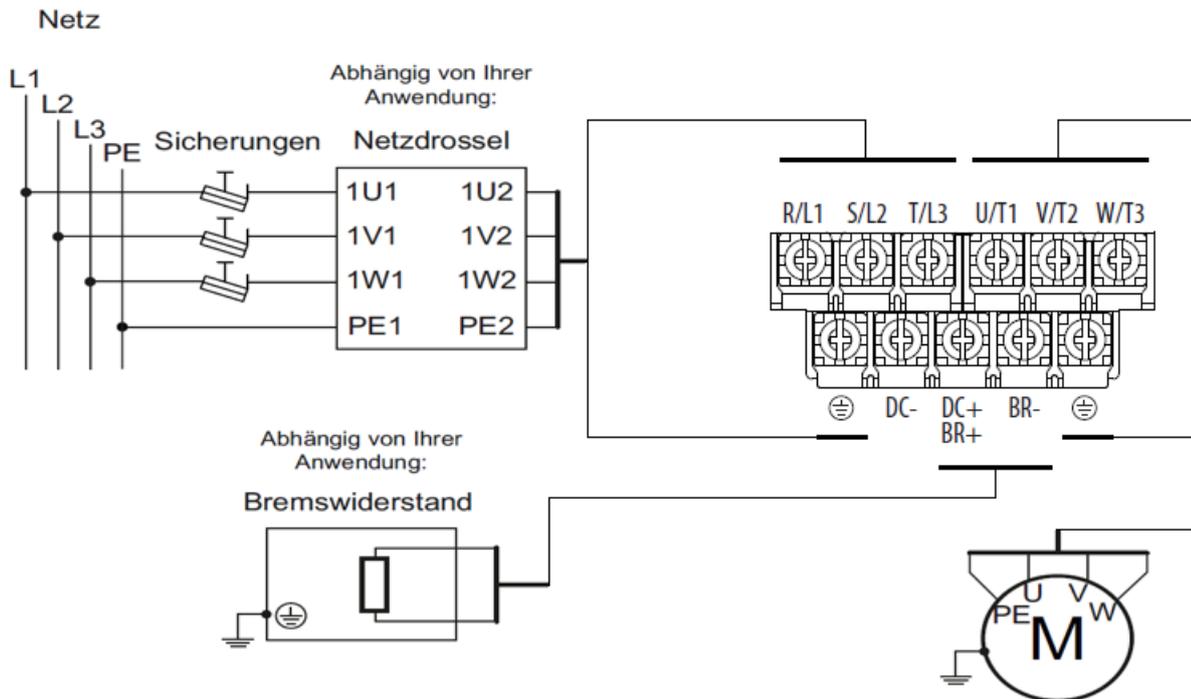
[PowerFlex 520-Series Adjustable Frequency AC Drive Quick Start](#)

[PowerFlex 520-Series Adjustable Frequency AC Drive User Manual](#)

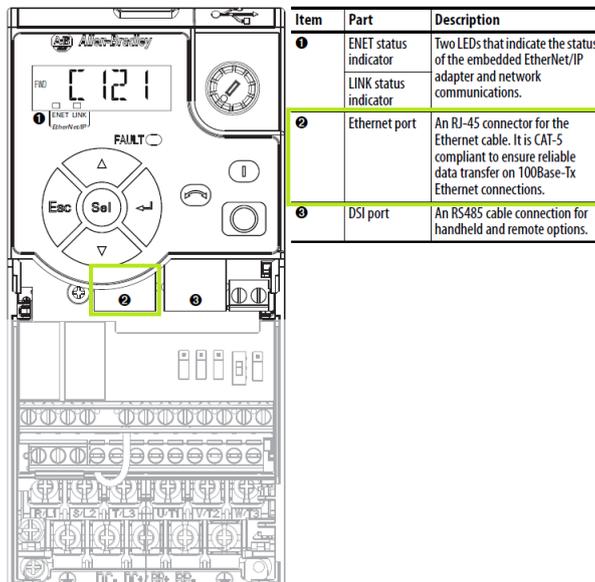
[PowerFlex 525 Embedded EtherNet/IP Adapter User Manual](#)

[External Dynamic Brake Resistor Installation](#)

Connection diagram



The RJ45-Connector for connection to the Ethernet/IP Network (2) is located beneath the cover. Please never plug the Ethernet cable into the DSI-Connector (3)!



Line cross-section, fuse protection

Power Terminal Block Wire Specifications

Frame	Maximum Wire Size ⁽¹⁾	Minimum Wire Size ⁽¹⁾	Torque
A	5.3 mm ² (10 AWG)	0.8 mm ² (18 AWG)	1.76...2.16 Nm (15.6...19.1 lb-in.)
B	8.4 mm ² (8 AWG)	2.1 mm ² (14 AWG)	1.76...2.16 Nm (15.6...19.1 lb-in.)
C	8.4 mm ² (8 AWG)	2.1 mm ² (14 AWG)	1.76...2.16 Nm (15.6...19.1 lb-in.)
D	13.3 mm ² (6 AWG)	5.3 mm ² (10 AWG)	1.76...2.16 Nm (15.6...19.1 lb-in.)
E	26.7 mm ² (3 AWG)	8.4 mm ² (8 AWG)	3.09...3.77 Nm (27.3...33.4 lb-in.)

(1) Maximum/minimum sizes that the terminal block will accept – these are not recommendations.

Control I/O Terminal Block Wire Specifications

Frame	Maximum Wire Size ⁽¹⁾	Minimum Wire Size ⁽¹⁾	Torque
A...E	1.3 mm ² (16 AWG)	0.13 mm ² (26 AWG)	0.71...0.86 Nm (6.2...7.6 lb-in.)

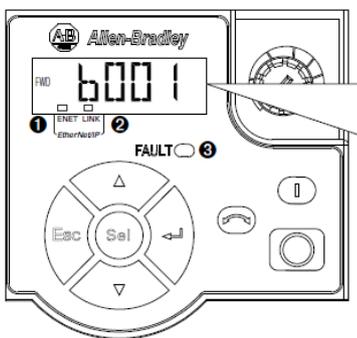
(1) Maximum/minimum sizes that the terminal block will accept – these are not recommendations.

380...480V 3-Phase Input Protection Devices – Frames A...E

Catalog No.	Output Ratings							Input Ratings	Frame Size	Contactor Catalog No.	IEC Applications (Non-UL)				UL Applications				
	ND		HD		Amps	kVA	Max Amps ⁽²⁾				Fuses (Rating)		Circuit Breakers		Fuses (Max. Rating)		Circuit Breakers		Min. Enclosure Vol. (in. ³)
	HP	kW	HP	kW							Min.	Max.	140U/140G	140M	Class / Catalog No.	140U/140G	140M ⁽³⁾⁽⁴⁾⁽⁵⁾		
25B-D1P4N104	0.5	0.4	0.5	0.4	1.4	1.7	1.9	A	100-C09	3	6	140U-D6D3-B30	140M-C2E-B25	CLASS RK5, CC, J, or T / DLS-R-6	— ⁽⁷⁾	140M-C2E-B25	—		
25B-D1P4N114	0.5	0.4	0.5	0.4	1.4	1.7	1.9	A	100-C09	3	6	140U-D6D3-B30	140M-C2E-B25	CLASS RK5, CC, J, or T / DLS-R-6	— ⁽⁷⁾	140M-C2E-B25	—		
25B-D2P3N104	1.0	0.75	1.0	0.75	2.3	2.9	3.2	A	100-C09	6	10	140U-D6D3-B60	140M-C2E-B40	CLASS RK5, CC, J, or T / DLS-R-10	— ⁽⁷⁾	140M-C2E-B40	—		
25B-D2P3N114	1.0	0.75	1.0	0.75	2.3	2.9	3.2	A	100-C09	6	10	140U-D6D3-B60	140M-C2E-B40	CLASS RK5, CC, J, or T / DLS-R-10	— ⁽⁷⁾	140M-C2E-B40	—		
25B-D4P0N104	2.0	1.5	2.0	1.5	4.0	5.2	5.7	A	100-C09	10	16	140U-D6D3-B60	140M-C2E-B63	CLASS RK5, CC, J, or T / DLS-R-15	— ⁽⁷⁾	140M-C2E-B63	—		
25B-D4P0N114	2.0	1.5	2.0	1.5	4.0	5.2	5.7	A	100-C09	10	16	140U-D6D3-B60	140M-C2E-B63	CLASS RK5, CC, J, or T / DLS-R-15	— ⁽⁷⁾	140M-C2E-B63	—		
25B-D6P0N104	3.0	2.2	3.0	2.2	6.0	6.9	7.5	A	100-C09	10	16	140U-D6D3-C10	140M-C2E-C10	CLASS RK5, CC, J, or T / DLS-R-15	— ⁽⁷⁾	140M-C2E-C10	—		
25B-D6P0N114	3.0	2.2	3.0	2.2	6.0	6.9	7.5	A	100-C09	10	16	140U-D6D3-C10	140M-C2E-C10	CLASS RK5, CC, J, or T / DLS-R-15	— ⁽⁷⁾	140M-C2E-C10	—		
25B-D010N104	5.0	4.0	5.0	4.0	10.5	12.6	13.8	B	100-C23	20	32	140U-D6D3-C15	140M-C2E-C16	CLASS RK5, CC, J, or T / DLS-R-30	— ⁽⁷⁾	140M-C2E-C16	—		
25B-D010N114	5.0	4.0	5.0	4.0	10.5	12.6	13.8	B	100-C23	20	32	140U-D6D3-C15	140M-C2E-C16	CLASS RK5, CC, J, or T / DLS-R-30	— ⁽⁷⁾	140M-C2E-C16	—		
25B-D013N104	7.5	5.5	7.5	5.5	13.0	14.1	15.4	C	100-C23	20	35	140U-D6D3-C25	140M-D8E-C20	CLASS CC, J, or T / 35	— ⁽⁷⁾	140M-D8E-C20	—		
25B-D013N114	7.5	5.5	7.5	5.5	13.0	14.1	15.4	C	100-C23	20	35	140U-D6D3-C25	140M-D8E-C20	CLASS CC, J, or T / 35	— ⁽⁷⁾	140M-D8E-C20	—		
25B-D017N104	10.0	7.5	10.0	7.5	17.0	16.8	18.4	C	100-C23	25	40	140U-D6D3-C25	140M-D8E-C20	CLASS CC, J, or T / 40	— ⁽⁷⁾	140M-D8E-C20	—		
25B-D017N114	10.0	7.5	10.0	7.5	17.0	16.8	18.4	C	100-C23	25	40	140U-D6D3-C25	140M-D8E-C20	CLASS CC, J, or T / 40	— ⁽⁷⁾	140M-D8E-C20	—		

Brief explanation of the display

PowerFlex 525

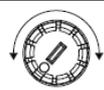


Menu	Parameter Group and Description
b	Basic Display Commonly viewed drive operating conditions.
P	Basic Program Commonly used programmable functions.
t	Terminal Blocks Programmable terminal functions.
C	Communications Programmable communication functions.
L	Logic (PowerFlex 525 only) Programmable logic functions.
d	Advanced Display Advanced drive operating conditions.
R	Advanced Program Remaining programmable functions.
N	Network Network functions that are shown only when a comm card is used.
M	Modified Functions from the other groups with values changed from default.
f	Fault and Diagnostic Consists of list of codes for specific fault conditions.
G	AppView and CustomView Functions from the other groups organized for specific applications.

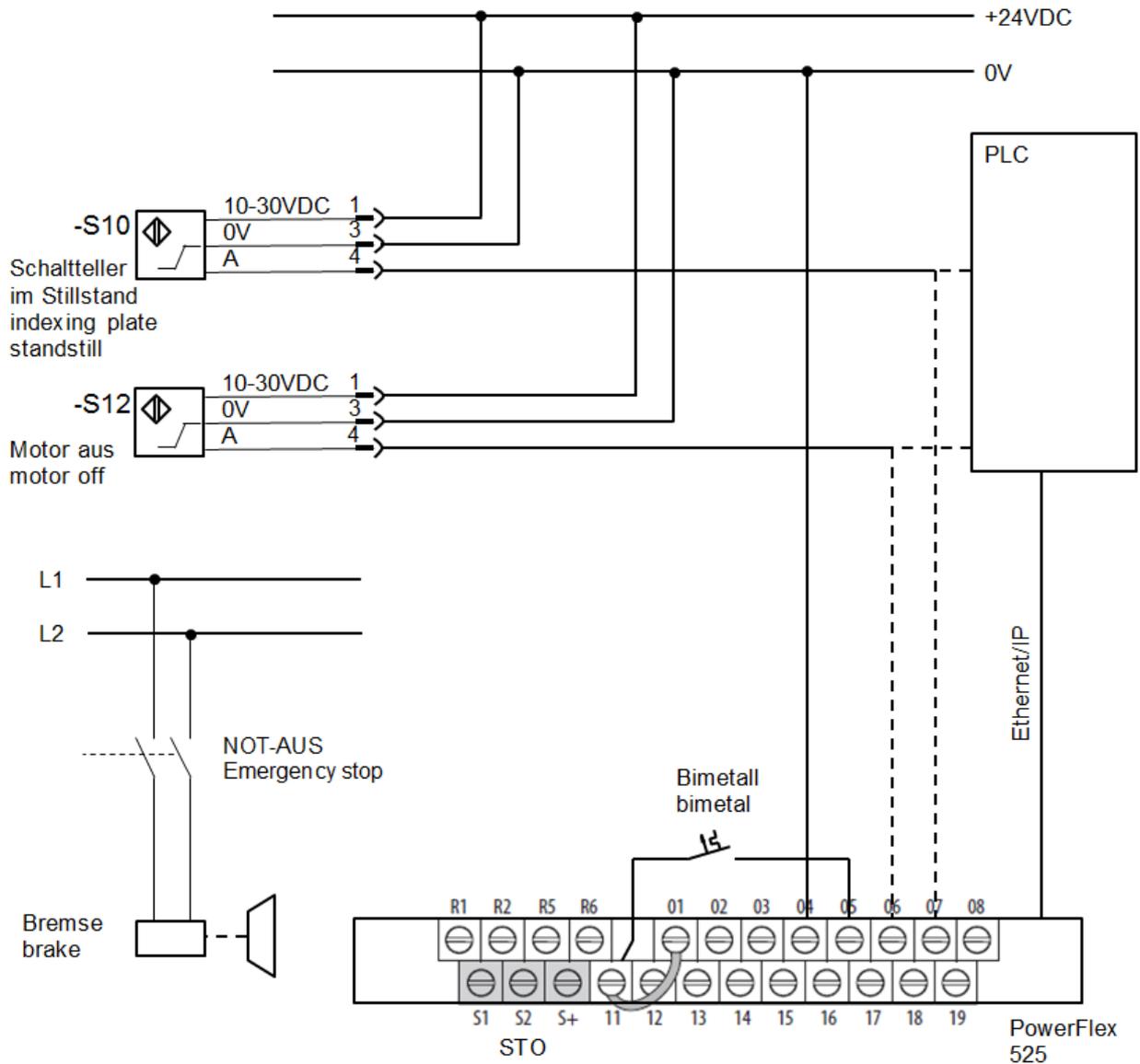
PowerFlex 525 Embedded EtherNet/IP Indicators

No.	Display	Display State	Description
❶	ENET	Off	Adapter is not connected to the network.
		Steady	Adapter is connected to the network and drive is controlled through Ethernet.
		Flashing	Adapter is connected to the network but drive is not controlled through Ethernet.
❷	LINK	Off	Adapter is not connected to the network.
		Steady	Adapter is connected to the network but not transmitting data.
		Flashing	Adapter is connected to the network and transmitting data.

No.	LED	LED State	Description
❸	FAULT	Flashing Red	Indicates drive is faulted.

Key	Name	Description	Key	Name	Description
	Up Arrow	Scroll through user-selectable display parameters or groups. Increment values.		Reverse	Used to reverse direction of the drive. Default is active. Controlled by parameters P046, P048, and P050 [Start Source x] and A544 [Reverse Disable].
	Down Arrow				
	Escape	Back one step in programming menu. Cancel a change to a parameter value and exit Program Mode.		Start	Used to start the drive. Default is active. Controlled by parameters P046, P048, and P050 [Start Source x].
	Select	Advance one step in programming menu. Select a digit when viewing parameter value.		Stop	Used to stop the drive or clear a fault. This key is always active. Controlled by parameter P045 [Stop Mode].
	Enter	Advance one step in programming menu. Save a change to a parameter value.		Potentiometer	Used to control speed of drive. Default is active. Controlled by parameters P047, P049, and P051 [Speed Referencex].

Overview diagram

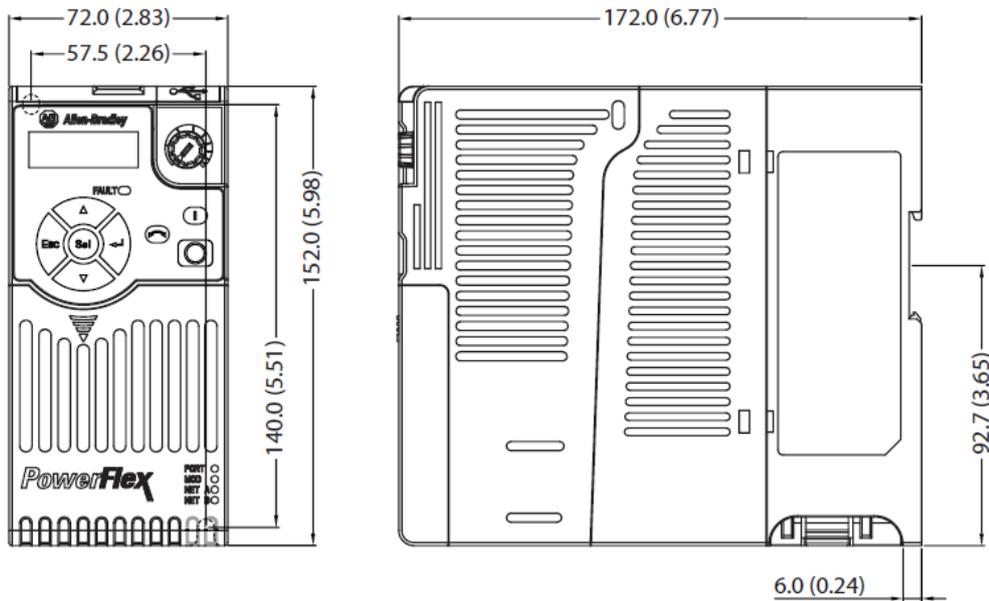


Dimensions

Frame size A, 0.4kW ... 2.2kW

IP 20/Open Type – Frame A

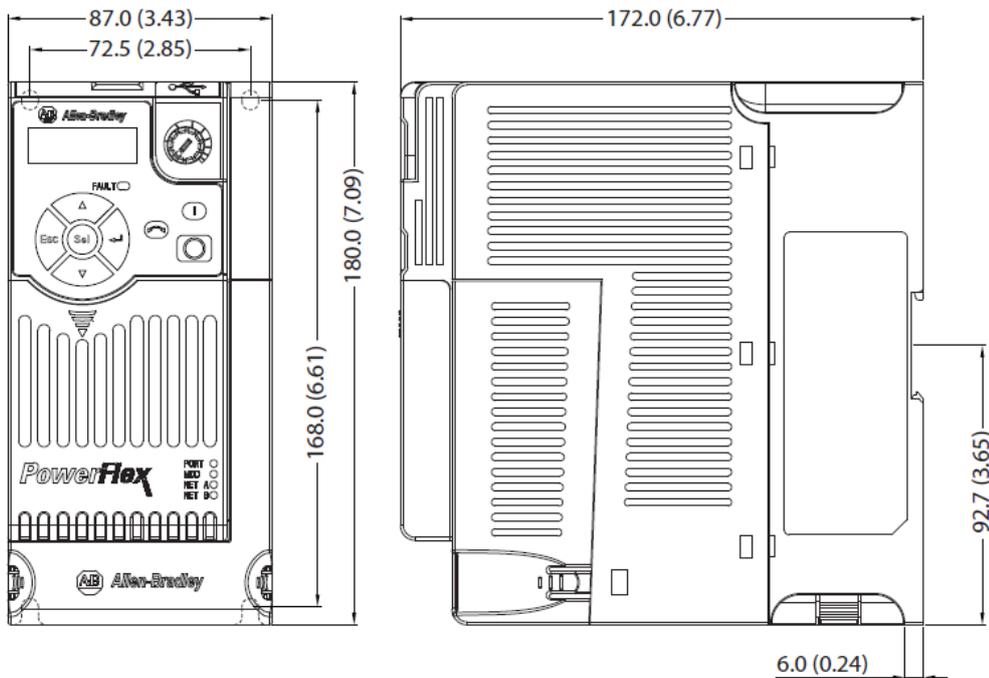
Dimensions are in millimeters and (inches)



Frame size B, 4.0kW

IP 20/Open Type – Frame B

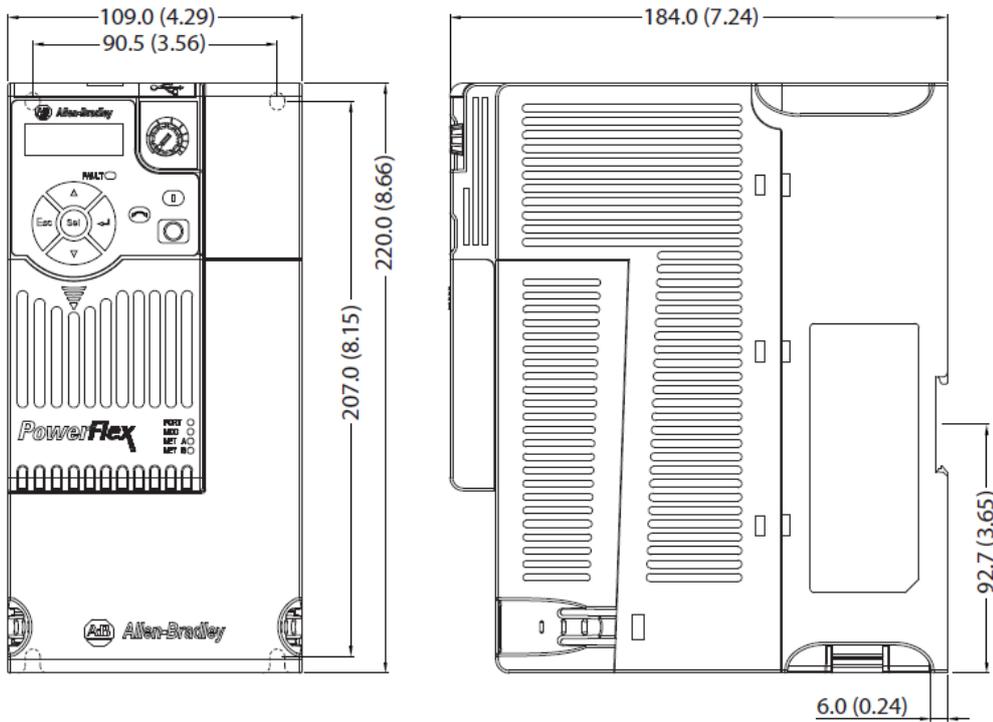
Dimensions are in millimeters and (inches)



Frame size C, 5.5kW ... 7.5kW

IP 20/Open Type – Frame C

Dimensions are in millimeters and (inches)



Brake resistance dimensions

