Allen-Bradley 22B-B024N104

Complete Product Information

Product role

This variable-frequency drive controls a three-phase AC motor from a 200-240 V three-phase supply. An integral keypad and RS-485 interface provide local and network control paths.

Motor interface	The B voltage code belongs to the 240 V three-phase input class; it is not the 480 V D-code version.
Panel integration	The N enclosure is open type, so the surrounding cabinet must provide the required protection.
EMC arrangement	The unfiltered selection needs installation-specific filtering and grounding review.

Configuration and nearby choices

22B-B024N104 is the 24 A member of the PowerFlex 40 240 V three-phase class. A 22B-D024 drive has a different supply class and motor-power assignment despite sharing the 024 current code. A proposed PowerFlex 525 replacement is an engineering migration that must reconcile wiring, parameters and network behavior.

Operating relationship

The start source and frequency reference are selected independently. P036 controls the command path, while P038 controls the speed source; changing only one can leave a drive responding to a different control location than the machine expects. Motor nameplate voltage, base frequency and overload current remain motor-specific settings.

Integration implications

The integral brake IGBT provides the switching element for a properly selected braking arrangement; it does not supply the external braking resistor. Regenerative loads and aggressive deceleration must be reviewed together with the bus regulator, stopping requirements and resistor selection, rather than judging the drive only by its motor kilowatt value.

Technical data

Parameter	Value / condition
Supply voltage	200-240 V AC, 3-phase
Permitted input range	180-264 V AC
Rated output current	24.0 A
Motor power	5.5 kW / 7.5 HP
Frame	C
Enclosure	IP20 / NEMA Type Open

Technical data - continued

Parameter	Value / condition
Power factor	0.98
Brake transistor	Included
Output frequency	0-400 Hz, programmable
Voltage-reference input	0-10 V DC; 100 kOhm
Current-reference input	4-20 mA; 250 Ohm
Digital-input current	6 mA
Analog-output resolution	10 bit
Opto output	30 V DC, 50 mA; non-inductive
Relay resistive rating	3 A at 30 V DC / 125 V AC / 240 V AC
Carrier frequency	2-16 kHz; rating based on 4 kHz
Acceleration/deceleration	0-600 s; 0.1 s increments
Operating ambient	-10 to +50 deg C, IP20 open type
Altitude without derating	1000 m maximum
Relative humidity	0-95%, non-condensing
Serial interface	RS-485 / DSI
Built-in EMC filter	Not fitted

Parameter applicability

Exact voltage, current, frame and installed options are established by the model cutsheet. Family electrical and FRN 3.xx parameter data apply with the stated installation and firmware conditions.

Applications and compatibility

Motor-speed retrofit

Retain the 240 V motor/supply relationship and validate the connected motor current before transferring an existing variable-speed application.

Terminal-based control

Match source/sink wiring and the actual stop circuit to P036 and P037; preserve the selected analog or preset-speed reference.

DSI/Modbus RTU network

Use the RS-485 DSI wiring and supported Modbus functions; the RJ45 interface must not be treated as Ethernet.

Controlled deceleration

Coordinate the load inertia, braking resistor and bus-regulator behavior with the required stopping response.

Installation precautions

Review field	Technical interpretation
Isolate the stored-energy circuit	Isolate the line supply and follow the applicable PowerFlex discharge and voltage-verification procedure before touching power terminals; a dark display is not proof of discharge.
Separate line and motor wiring	Match the incoming phases to the line terminals and the motor leads to the output terminals. Verify protective earth and the supply grounding arrangement before energizing.
Restore motor settings first	Set P031, P032 and P033 from the connected motor; check minimum/maximum frequency before enabling a run command.
Prove control ownership	Test the intended stop circuit and command/reference sources with the machine in its approved test state; review restart behavior before restoring production control.
Inspect the unfiltered installation	Review cable routing, cabinet bonding and any external EMC filter for the actual supply system. An open-type unfiltered order does not establish machine EMC compliance.
Diagnose deceleration overvoltage	For an F5 event, compare incoming voltage, regeneration and deceleration timing before replacing hardware. Use an approved braking solution where the application requires it.

Lifecycle and replacement

Review field	Technical interpretation
Manufacturing phase	22B-B024N104 was discontinued on June 30, 2025.
Engineering replacement	25B-B024N104 is designated as an engineering replacement; matching current and power do not establish direct wiring or parameter interchangeability.
Installed-base support	Preserve the PowerFlex 40 firmware identity, parameter backup, motor data and DSI configuration when planning maintenance. Apter Power availability is confirmed independently of the discontinued manufacturing status.

Technical questions

Question	Engineering answer
Why can 22B-B024N104 run from the keypad but ignore the machine speed command?	Compare P036 Start Source and P038 Speed Reference separately. Prove the selected analog, preset or DSI source at a controlled test point; changing the run-command source does not automatically change the frequency reference.
What should be checked before moving motor parameters into 22B-B024N104?	Read the connected motor voltage, frequency and allowable current, then reconcile P031-P033 and the frequency limits with the saved file. A parameter backup from another motor can retain an unsuitable overload setting even when the drive rating matches.

Technical questions - continued

Question	Engineering answer
How should an F5 overvoltage during stopping on 22B-B024N104 be investigated?	Record the event and review line voltage, regenerative energy and the commanded deceleration. Extending deceleration or using a correctly sized braking arrangement addresses different causes; do not assume an included brake transistor means that a resistor is already connected.
Can the RJ45 connector on 22B-B024N104 be connected to an Ethernet switch?	The installed interface is RS-485 DSI. Use the documented DSI pinout and network accessories; the connector shape is not an Ethernet compatibility indication. Check network termination and node settings before applying serial control.
Why can a Modbus master read 22B-B024N104 but fail to start it?	Read and write access do not select control ownership. Verify the DSI start and reference selections, the stop input state and the master addressing convention; some masters offset the published register address by one.
How should sink/source input wiring be checked when replacing 22B-B024N104?	Compare the existing control circuit with the selected SNK/SRC configuration and its common connection. Test the stop and run states in an approved machine test mode; a shared common arrangement suitable for source wiring must not be assumed suitable for sink wiring.
Does the unfiltered selection of 22B-B024N104 determine the machine EMC result?	No. Cabinet bonding, motor cable routing, shielding, supply grounding and any external filter form the installation-level EMC arrangement. Confirm the applicable installation requirements instead of treating the drive order code as a machine compliance result.
Is the proposed 25B replacement for 22B-B024N104 a direct exchange?	It is an engineering replacement. Review the physical installation, terminal functions, motor control setup, serial integration and braking arrangement, then commission the changed system rather than copying the PowerFlex 40 settings without comparison.

Technical basis

PowerFlex 40 Product Cutsheet 22B-B024N104; PowerFlex 40 User Manual 22B-UM001D-EN-E, FRN 3.xx

Related product references

Brand and complete reference	Selection role; not automatic substitution
Allen-Bradley 25B-B024N104	Manufacturer-designated engineering replacement; requires wiring, parameter and application review.
Allen-Bradley 22B-D024N104	480 V-class comparison; the shared current code does not establish supply compatibility.

Engineering contact



Discuss the complete unit and installed application with Apter Power.
sales13@apterpower.com | +86 18030235313