World Class Design | World Class Function | 30 Years Expertise in Industrial Motor Control

DC MOTOR DRIVE

200XLV

SPRINT ELECTRIC

Product Manual

HG105277EN00 Issue 1 (06/2022)

Please read this information before installing or using the product.

Install, use and maintain this product following the procedures provided.
The manual(s) cannot provide all details, variations and contingencies required for your installation, operation and maintenance of this product or the apparatus with this product installed. For further help or information, refer to your local Supplier sales office.

Application area

The equipment described is intended for industrial (non-consumer) motor speed control.

Intended users

To safely enable the user to obtain maximum benefit from the equipment:

- Ensure this information is available to all persons required to install, configure or service the described equipment or any other associated operation.
- Always store the manual in a conveniently accessible area for quick reference.
- Make it available for the next user/owner of the product.

This product is of the restricted sales distribution class according to IEC 61800-3 and has a "professional equipment" designation as defined in EN 61000-3-2.

Safety

Ensure all users and operators understand the included WARNINGS, CAUTIONS and NOTES, which alert the user to safety issues. COMPLY WITH WARNINGS AND CAUTIONS AT ALL TIMES. Each of these carries a special meaning and should be read carefully:

WARNING!

A WARNING is given when non-compliance with the warning may result in personal injury and/or equipment damage.

CAUTION!

A CAUTION is given when non-compliance with the caution may result in permanent equipment damage.

NOTE A note provides specific information to make important instructions clear.

Symbols

 **Attention**	 **Electrostatic Discharge (ESD)**	 **Electric Shock Hazard**
See the instructions for use. Specific warnings not found on the label.	This equipment contains ESD sensitive parts. Observe static control precautions when handling, installing and servicing this product.	Disconnect the mains supply before working on the unit. **Do not touch presets, switches and jumpers!** Always use the correct insulated adjustment tools.

WARNING!

Only qualified personnel must install, operate and maintain this equipment.
A qualified person is someone technically competent and familiar with all safety information, established safety practices, installation, operation, maintenance and the hazards involved with this equipment and any associated machinery.

Hazards

This equipment can endanger life through rotating machinery and high voltages.

WARNING!
PERSONAL INJURY AND/OR ELECTRICAL SHOCK HAZARD

- Always isolate all power supplies from the equipment before starting any work.
- Never perform high voltage resistance checks on the wiring without first disconnecting the product from the circuit under test.
- Use guarding and additional safety systems to prevent injury and electric shock.
- Metal parts may reach 90°C during operation.

CAUTION!
EQUIPMENT DAMAGE HAZARD

- We thoroughly test our products. However, before installation and start-up, inspect all equipment for transit damage, loose parts, packing materials, etc.
- Installation must observe the required environmental conditions for safe and reliable operation.
- In a domestic environment, this product may cause radio interference, requiring adequate measures to be taken. Obtain the permission of the supply authority before connecting to the low voltage supply.

General risks

Installation

- Ensure mechanically secure fixings are in use as recommended.
- Ensure cooling airflow around the product is as recommended.
- Ensure cables/wire terminations are as recommended and are torqued correctly.
- Ensure the product rating is correct - do not exceed the rating.

Application risk

Electromechanical safety is the responsibility of the user. The integration of this product into other apparatus or systems is not the manufacturer's or distributor of the product's responsibility. It is the user's responsibility to ensure the compliance of the installation with any regulations in force.

Health and safety at work

Electrical devices can constitute a safety hazard. Thorough personnel training is an aid to SAFETY and productivity. SAFETY awareness not only reduces the risk of accidents and injuries in your plant but also has a direct impact on improving product quality and costs. If you have any doubts about the SAFETY of your system or process, consult an expert immediately. Do not proceed without doing so. If in doubt, refer to the Supplier.

Weight

Consideration should be given to the weight of our heavier products when handling.

Risk assessment

Under fault conditions or conditions not intended: the motor speed may be incorrect; the motor speed may be excessive; the direction of rotation may be incorrect; the motor may be energised.

In all situations, the user should provide sufficient guarding and/or additional redundant monitoring and safety systems to prevent risk of injury.

NOTE: During a power loss event, the product will commence a sequenced shut-down procedure. Therefore, the system designer must provide suitable protection for this case.

Maintenance

Only qualified personnel should maintain and effect repair using only the recommended spares, alternatively return the equipment to the factory for repair. The use of unapproved parts may create a hazard and risk of injury.

WARNING!

PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD

When replacing a product, all user-defined parameters that define the product's operation must be installed correctly before returning to use. Failure to do so may create a hazard and risk of injury.

The packaging is inflammable and incorrect disposal may lead to the generation of lethal toxic fumes.

Repairs

Repair reports can only be given if the user makes sufficient and accurate defect reporting. Remember that the product without the required precautions can represent an electrical hazard and risk of injury, and that rotating machinery is a mechanical hazard.

Protective insulation

Extra low voltage (ELV) product

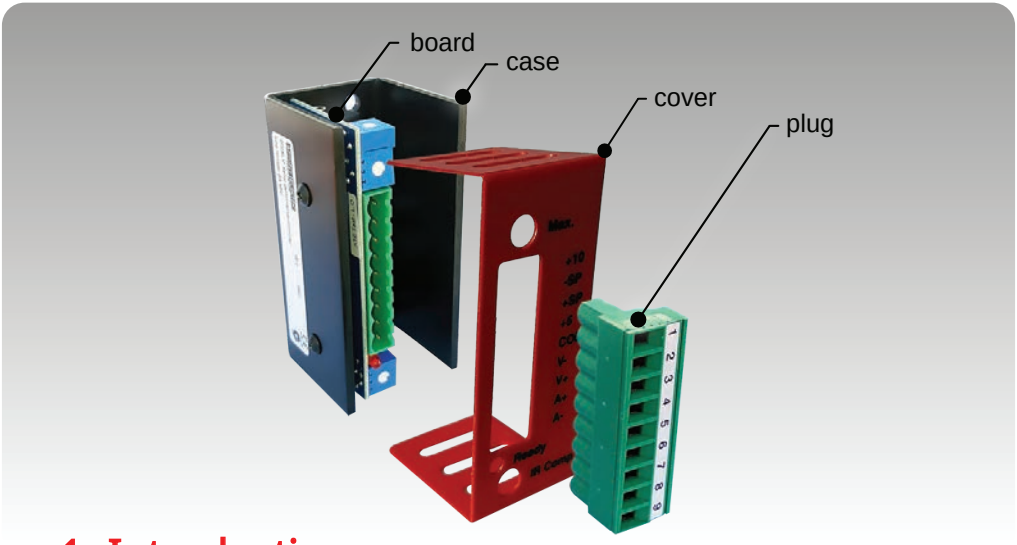
WARNING!

The motor must be connected to an appropriate safety earth.
Failure to do so presents an electrical shock hazard. Exposed metal work in this equipment is protected by basic insulation and bonding to a safety earth.

This product is classified as a component and must be used in a suitable enclosure.

1. The drive operates from an ELV (Extra Low Voltage) supply circuit which means it is inherently safe.

Contents:



1 Introduction

APPLICATION AREA: Industrial (non-consumer).

This component is hazardous. You must get expert help if you are not qualified to install this equipment. Make safety a priority. The 200XLV is a complex component and is for use by professional installers only.

CE This apparatus complies with the protection requirements of the relevant LOW VOLTAGE DIRECTIVE (LVD 73/23/EEC, amended 93/68/EEC).

1.1 Description

The Sprint Electric 200XLV is a small, fast-response, noise-free, linear dc motor speed controller for driving brushed dc motors and gear motors in both directions of rotation with positive and negative torque.

The unit operates from a single-polarity supply, either from a battery or an unregulated dc rectifier with a smoothing-capacitor to reduce the voltage ripple, offering high bandwidth and a linear, noise-free output ideal for the control of dc servo motors and linear actuators.

The 200XLV is quick and easy to install. It is very compact and can mount on a back panel or DIN rail, and all connections are accessible from the front of the product. This product conforms to IP00 protection.

Motor speed is regulated using armature voltage control, as standard, with adjustment to compensate for the IR drop (i.e. the voltage drop across the armature resistance). Armature voltage control mode (AV) offers low-cost speed control because a tachometer is not required.

SPRINT ELECTRIC LTD. does not accept any liability whatsoever for the installation, fitness for purpose or application of its products. It is the users responsibility to ensure that the unit is correctly used and installed.

Health and Safety at Work
Devices constitute a safety hazard. It is the responsibility of the user to ensure compliance with any Acts or By-Laws in force. **ONLY skilled persons should install this equipment.**

The unit has +10 V and +5 V precision references and positive and negative differential speed demand inputs.

The output stage has built-in thermal protection and a current limit, plus a built-in automatic re-settable trip to provide further protection. For extra low-current applications, you can fit an additional low-current re-settable trip.

The unit incorporates a PID controller for implementing speed control with tachometer feedback or position control using a linear actuator.

This is configurable to provide Proportional (P), Proportional/Integral (PI) or Proportional/ Integral/Differential (PID) control features.

The 200XLV also has a speed setpoint ramp facility that limits the rate of change of output current in applications **where rapid response is uneccessary or undesirable**.

The thermal dissipation of the unit may be very high when providing maximum output current at low armature voltages. For protection, the linear control element has an internal current limit and built-in thermal protection that can cause the unit to shut down. If this occurs, extra cooling is required by fixing the 200XLV to a metal surface, a heatsink, or by fan cooling. Refer to "1.1.3 Power output and heatsink" on page 4.

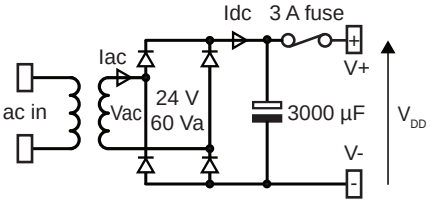
1.1.1 External DC Power Supply Considerations

Power the 200XLV from a battery source or an AC-derived power supply.

In specifying the dc power supply to the 200XLV, consider the following parameters:

1. **Minimum V_{DD} for full speed**
   The 200XLV needs an overhead of 8 V on the dc supply to operate correctly. Thus for an armature voltage (Va) of 24 V, the nominal dc voltage V_{DD} must be 32 V.
2. L**imit V_{DD} to minimise dissipation**
   A higher voltage dc supply than calculated in **1.** above will provide correct operation. However, the excess voltage will increase power dissipation unnecessarily and might result in nuisance tripping.
3. **Maximum allowable voltage of 60 V must not be exceeded.**
   Ripple on an unregulated nominal dc supply may be the cause for exceeding the maximum allowable voltage.
4. **Duty Cycle of the motor when specifying the current rating of the dc supply.**
5. **Supply regulation and tolerance.**
   Ensure that the dc supply voltage does not fall below the minimum V_{DD} when on load or during incoming supply voltage variations.
6. **Additional voltage may be added to the armature voltage Va to allow for I_aR_a drop.**

NOTE: V_{DD}= external dc supply voltage



Power supply formulae:

- $V_{ac} = 0.7 \times V_{DD}$
- $I_{ac} = 1.7 \times I_{dc}$
- Transformer VA needed = $V_{ac} \times I_{ac}$
- Average current per diode = $0.5\ I_{dc}$
- Diode reverse volts = $2 \times V_{ac}$

Figure 1 Unregulated DC rectifier power supply example

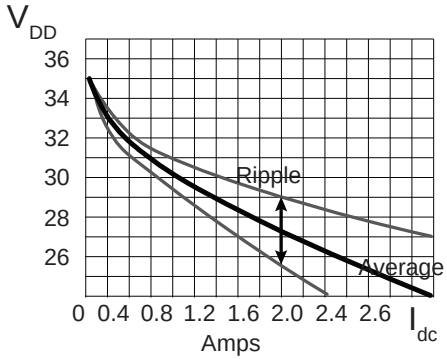


Figure 2 shows the dc output of a 60 W non-regulated supply.

Fitting a larger filter capacitor will help to reduce the ripple limits.

Figure 2 Typical power supply performance

1.1.2 Output current and supply voltage

The 200XLV provides a maximum of ±2 A of continuous current, depending on the armature (AV) and supply voltage (V_{DD}).

It requires a supply of at least (8 V + AVmax) to deliver the maximum output current.

The supply voltage can be 12 to 48 V, ±25%, with an absolute maximum of 60 Vdc. NOTE: The optimum supply is the lowest voltage to supply a fault-free operation.

The short-term current limit overload capability is 150% of the continuous current, for example, 2 A continuous current, 3 A peak.

1.1.3 Power output and heatsink

WARNING!
PERSONAL INJURY HAZARD
The unit casing acts as a heatsink and may become too hot to touch.

The 200XLV has an automatic thermal limiting device that prevents excess dissipation from damaging the unit. When motoring, the output capability depends on the dissipation (WD) in the drive, where WD = Amps x (V_{DD} – armature volts). The maximum allowed dissipation from the 200XLV is 40 W at a base plate temperature of 75°C.

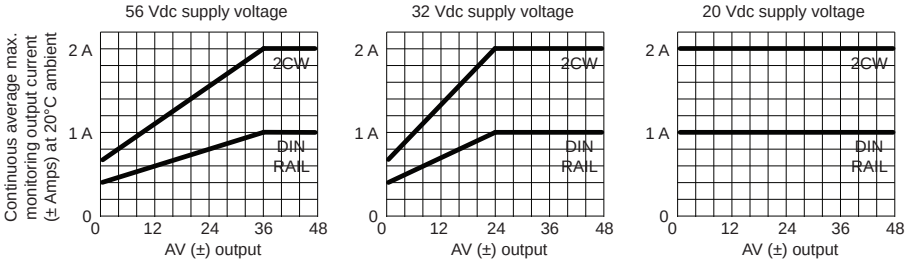


Figure 3 Performance graphs

- The upper traces in the graphs (Figure 3) show the performance with a 2°C/W heatsink (a unit fixed to a panel of approximately 200 x 200 mm).
- The lower traces show the performance with the unit mounted on a DIN rail.

Continuous duty produces high dissipation when operating at low speeds with high current/ torque and high supply voltages. The worst dissipation performance happens during continuous or repetitive braking at high speeds, but this occurs infrequently, and most applications are satisfied with the unit mounted conventionally.

The typical thermal loads on the unit are listed below:

Function	Dissipation
Continuous braking with motor being overhauled by external force and the 200XLV trying to hold it back	Extremely high
Continuous repetitive braking to stop with high inertia loads	Very high
Continuous motoring at low speeds and high torques	Very high
Continuous motoring at medium speeds and high torques	High
Continuous motoring at high speeds and high torques	Quite high
Continuous motoring with light loads and occasional stopping	Medium
Occasional motoring and braking with periods of resting	Low

When incorporating the unit into a machine or system for the first time, run a test at the 200XLV's maximum operating ambient temperature to confirm that the cooling arrangements are adequate.

1.1.4 Overload trip

The 200XLV has an overload-inverse time-trip device (Figures 4 and 5).

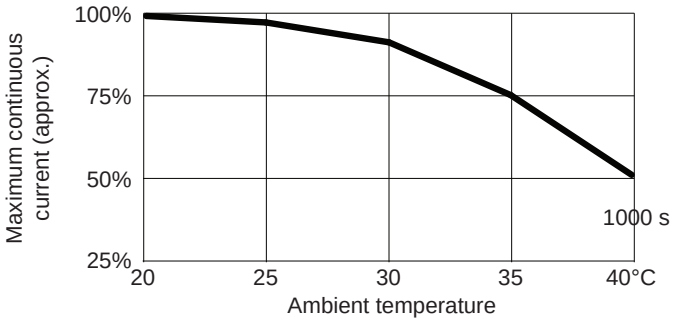


Figure 4 Maximum continuous current vs ambient temperature

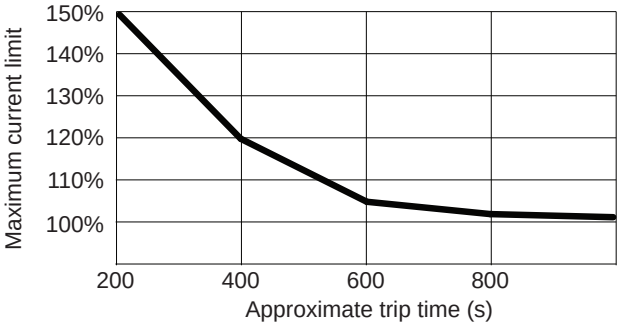


Figure 5 Trip time vs maximum current limit

Excessive overload will trigger the device, causing the READY lamp to switch off. To reset the trip, remove the power from the unit for a few seconds.

NOTE: Fit a multi-fuse to provide a lower threshold if small motors are used (refer to "8.3 Auxiliary trip" on page 15).

2 Installation

2.1 Motor installation

- Foot-mounted motors must be level and secure.
- Ensure accurate alignment of the motor shaft and couplings.
- Do not hammer pulleys or couplings onto the motor shaft.
- Protect the motor from ingress of foreign matter during installation.

2.2 Drive Installation

WARNING!

ELV / PERSONAL INJURY HAZARD

The drive's supply voltage is less than 60 Vdc, therefore there is only a low risk of electric shock.
If incorrectly configured, the drive can produce a high current causing the load motor and associated machinery to run at high speeds, generate significant heat, or both.

Requirements during installation and operation:

- Avoid vibration.
- Protect the drive from pollutants.
- The ambient operating temperature must be within -10ºC and +40ºC.
- Ensure an adequate supply of clean, cool air for ventilating the unit and the mounting enclosure. Refer to "1.1.3 Power output and heatsink" on page 4.

LOAD
The 200XLV drive will control the armature current and shaft speed of a permanent magnet dc servo motor:

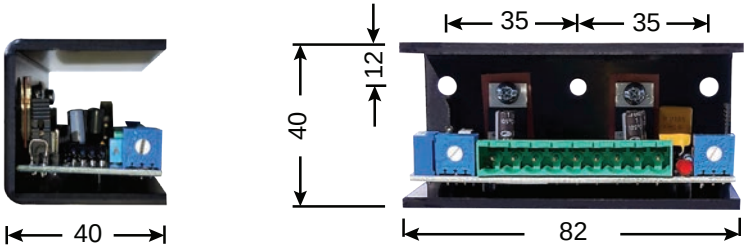
- If the motor's current rating exceeds the current rating of the 200XLV drive, the rated torque is not achievable.
- If the armature voltage rating exceeds the 200XLV drive voltage, the motor's rated speed becomes unachievable.

You can also use the 200XLV drive to control the current in other inductive loads (e.g. linear actuators). Typically, this requires the drive to be operating in the Unipolar Current Control mode (refer to "4 Typical applications" on page 8).

FUSING
Connect to the dc supply via a 3 A fuse.

3 Mechanical dimensions

Dimensions are in millimetres



CAUTION!

EQUIPMENT DAMAGE HAZARD

This product conforms to IP00 protection. Consider the installations environmental conditions for safe and reliable operation.

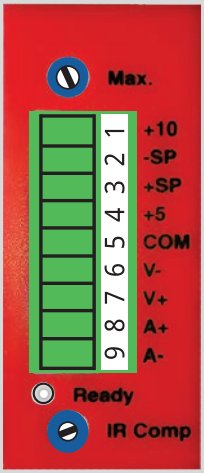
To access the three M4 fixing holes, remove the plug from the terminals and lift away the plastic cover.

- Use the central hole to mount the drive on a DIN rail fixing bracket (part no. FE101969).
- Use the upper and lower holes to mount the unit on a flat metal back panel (to improve its thermal performance). For optimum thermal connection, ensure the back panel is flat and that both mating surfaces are in good thermal contact.

The heatsink casing is isolated from the electronics.

If earthing is required, use a ring terminal on the lower fixing.

The maximum voltage allowed between the isolated heatsink and the drive V- supply on terminal 6 is 50 V rms.



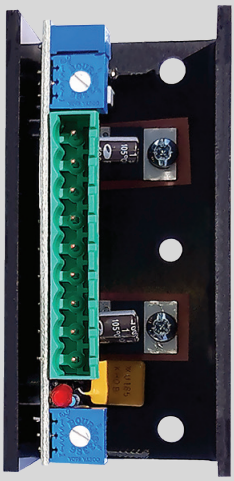


Figure 6 Fixing and connection details

4 Typical applications

4.1 Speed control

NOTE: The **A** and **B** diagrams below have the same functionality, except that diagram **B** has an external potentiometer for adjusting the output voltage to a precise zero. The zero drift over the entire temperature range is less than ±100 mV and is usually less than the motor starting voltage.

It is also possible to trim to zero speed without using external components. To do this, remove the cover from the unit and adjust the potentiometer on the top edge of the PC to zero the output voltage with a zero speed reference.

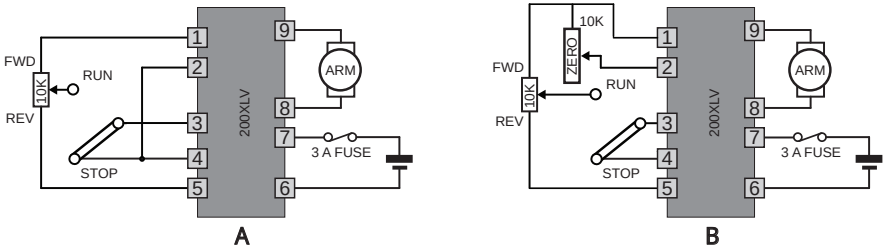


Figure 7 BASIC CONNECTION - Forward/stop/reverse by centre zero

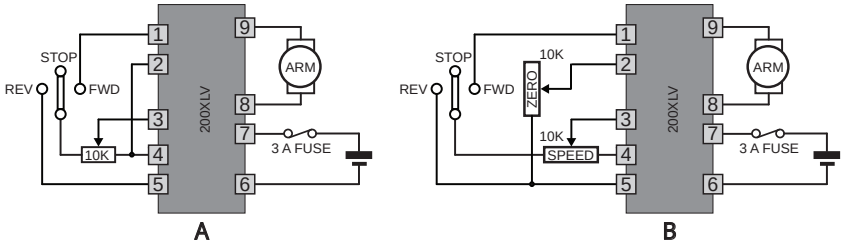


Figure 8 Forward/stop/reverse by switch

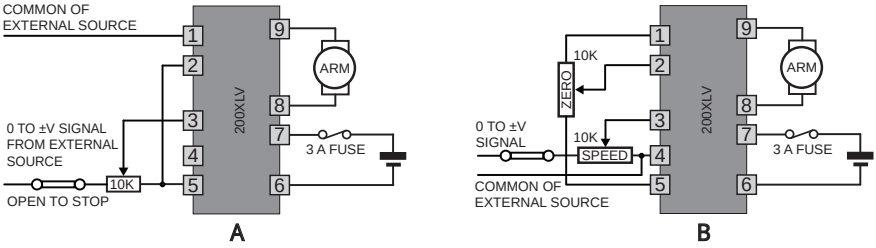


Figure 9 0 to ±V (V>10 V) signal from external source

In Figure 7 A, adjust the 10K potentiometer for ±5 V full-scale.
In Figure 7 B, adjust the SPEED potentiometer for ±5 V full-scale.
In Figure 7 B, the external source common is not at the same potential as the supply 0 V.

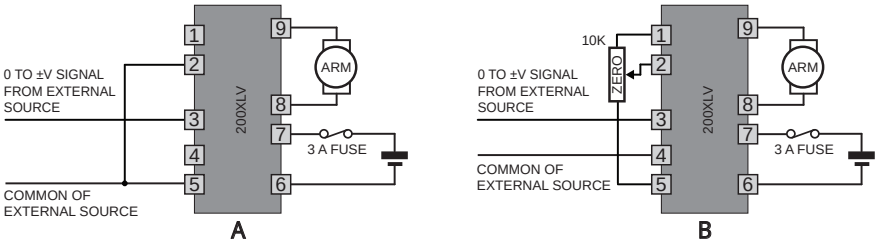


Figure 10 0 to ±5 V or ±10 V speed signal

In Figure 10 B, the external source common is not at the same potential as the supply 0 V.

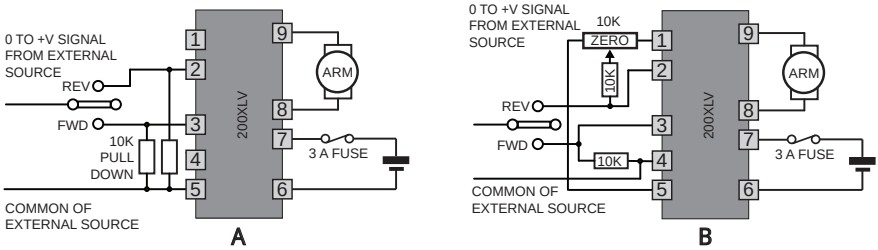


Figure 11 0 to +V signal with direction change switch

In Figure 11 B, the external source common is not at the same potential as the supply 0 V.

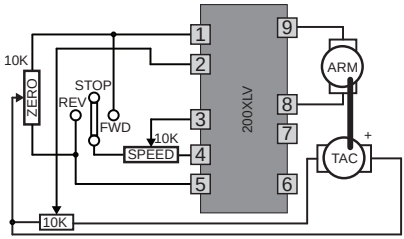


Figure 12 Tacho feedback with unit in PI mode

The 10K scaling potentiometer sets the full-scale speed.

4.2 Torque control

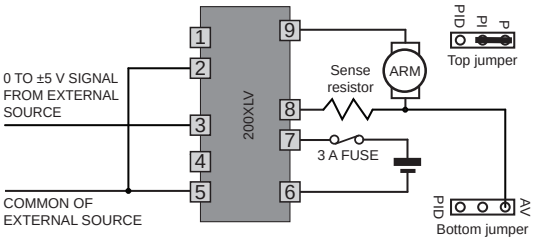


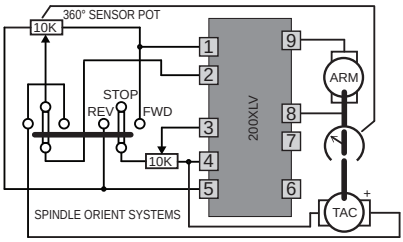
Figure 13 Torque circuit control

Insert a sense resistor in the A+ output, terminal 8. Reposition the bottom jumper to the AV pin for the sense signal (the jumper pin is 0.8 mm square). The unit now outputs current in proportion to the input voltage.

Turn the **MAX** preset fully anti-clockwise and set the scaling by the sense resistor as shown in the table. Use the **MAX** preset for fine adjustment of the scaling factor.

Input signal	Sense resistor	Output current
±5 V	1 Ω 6W	±2 A
±5 V	2 Ω 3W	±1 A
±5 V	4 Ω 1.5W	±0.5 A
±5 V	10 Ω 1W	±0.2 A

4.3 Position control



NOTE: If the Tacho is omitted, the speed is 100%.

Figure 14 Position and speed feedback with unit in PID mode

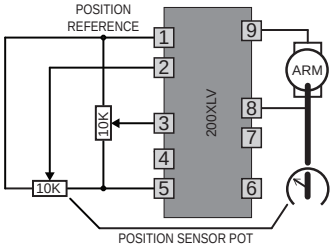


Figure 15 Position feedback with unit in PID mode

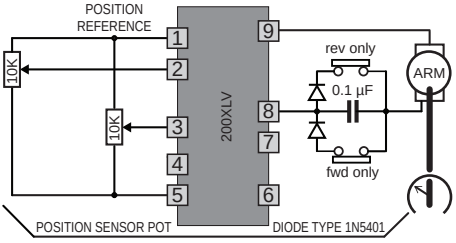


Figure 16 Position feedback with end of travel limit

5 Terminal descriptions

WARNING!
PERSONAL INJURY AND/OR
EQUIPMENT DAMAGE HAZARD

Never work on any control equipment without first isolating all power supplies.
You MUST provide protection by fitting a correctly rated fuse upstream of the drive.

Control cable	1.5 mm^2
DC+/DC-, A+/A-	Use correctly rated cable suitable for 1.5 x armature current
External control options:	Speed setpoint from external 10 kΩ potentiometer

TERMINALS - tightening torque: 0.5 Nm (4.4 lbf.in)

The control terminals are all referenced to the negative dc supply to the drive (dc-).
All interface signals must be referenced to the same potential.

1	+10 V Reference
2	-SP Inverting speed input
3	+SP Non-inverting speed input
4	+5 V Reference
5	Common electronics 0 V. Also on T6
6	V- Negative dc power supply input
7	V+ Positive dc power supply input
8	A+ Armature connection
9	A- Armature connection

6 Block diagram

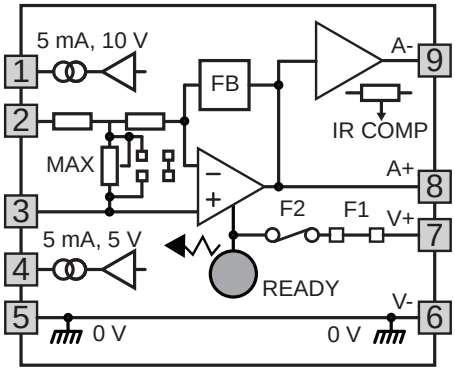


Figure 17 200XLV block diagram

7 Commissioning

The suggested Commissioning strategy starts in the safest possible mode of operation and progressively exercises each element of the system to achieve full functionality. For this reason, we ship all drive units to run using:

- The highest supply option
- At nominal speed
- ARMATURE VOLTAGE control mode

1. Therefore, this commissioning procedure requires the drive set-up shown in "Figure 7 BASIC CONNECTION - Forward/stop/reverse by centre zero" on page 8.
2. Ensure the BOTTOM jumper is factory set to **AV** (ARMATURE VOLTAGE control) and TOP jumper to select **P** (Proportional). Refer to "8.1 PID feedback" on page 14.

7.1 Pre-operation motor checklist

3. **With no power applied, complete the following checklist:**
   - All power and control connections are secure, and the dc supply voltage is correct.
   - The motor rating (armature current and voltage (plus 8 V)) is within the drive rating.
   - Check for the correct insulation between individual motor elements and between these elements and the earthed motor frame. Disconnect all drive cables before testing. The motor elements are armature winding, temperature sensors*, tachogenerator* (* where applicable).
   - Check inside the motor connection box for foreign objects, damaged terminals, etc.
   - Check that motor brushes are in good condition, correctly seated and free to move in brush boxes.
   - Check for the correct action of brush springs.
   - Check motor vents are free of any obstruction and remove any protective covers.

7.2 Initial settings - without power

4. For an initial start, disconnect the armature and adjust the following presets for safety:

Max.	Fully anti-clockwise	**IR Comp**	Fully anti-clockwise

5. **Apply power to the drive.** Check the READY lamp lights.
6. Set the Stop switch to the RUN position.
7. Rotate the external demand potentiometer fully clockwise and monitor the output voltage between terminals 8 and 9 with a voltmeter. Increase the clockwise rotation of the **MAX** preset until the meter shows the maximum forward armature voltage required.
8. Rotate the external demand potentiometer fully anti-clockwise and monitor the output voltage between terminals 8 and 9 with a voltmeter. Check that the voltmeter indicates the maximum reverse armature voltage. Do not move the **MAX** preset.
9. If using a STOP contact, check this reduces the armature voltage to approximately 0 V.
10. Set the external speed demand to zero (refer to "8.1 PID feedback" on page 14 for the PG links to set the voltage range to either ±4 to ±25 V or ±8 to ±50 V).
11. **Turn off the power supply.** Reconnect the motor armature.

7.3 Operating the drive

12. **Apply power to the drive.** Slowly increase the external demand.
13. **Is the motor turning in the required direction?** If not, reverse the system by transposing the A+ and A- motor armature connections.

CAUTION!

When reversing the system: To prevent damage, do not transpose the motor armature connections until the motor has stopped rotating.

14. Increase demand to the maximum and confirm that the motor speed is approximately correct for both directions of rotation.
15. Fine adjust the speed using the **MAX** preset.
16. **IR COMP**: Speed droop on heavy loads may occur where armature voltage control mode is in use. Turn the IR comp preset clockwise to compensate for this.
    1. Run the motor at full speed and monitor the armature voltage.
    2. When the motor is fully loaded, increase the **IR COMP** preset (rotate clockwise) to restore the original speed.
    3. The motor should now hold the same speed with or without load.

WARNING!

EQUIPMENT DAMAGE HAZARD

Excessive rotation of IR COMP can cause instability. Do NOT allow this to occur as it may lead to damage.

NOTE: The IR COMP system works by adding extra volts to the armature:

V_{extra} = Amps x armature resistance

The drive is now fully commissioned in ARMATURE VOLTAGE control mode.

8 Options

The 200XLV provides the following extra functions (that may require you to supply additional parts). Access these by removing the terminals and cover from the unit.

8.1 PID feedback

Change the input amplifier feedback network to P (Proportional), PI (proportional + integral) or PID (proportional + integral + derivative) mode by using the 3-position top jumper.

When using PI or PID mode, the feedback time constant is approximately 100 ms, and the proportional gain is 3.

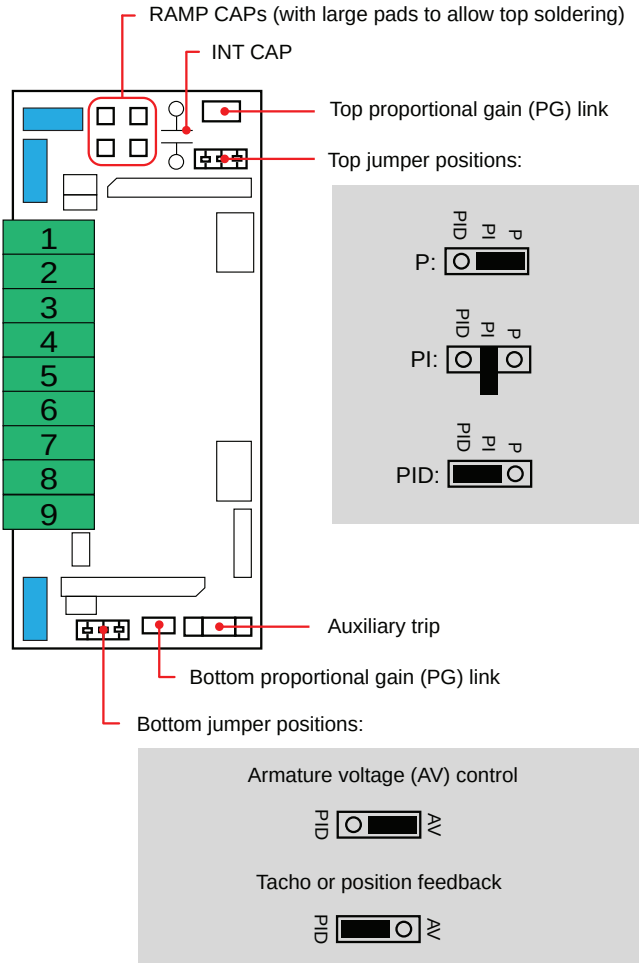


Figure 18 Jumper and link positions

To improve performance during PI operation:

- Adjust the GAIN using the **MAX** preset.
- Increase the INTEGRAL term by adding capacitors to the INT CAP location. Adding 100 nF increases the integral term by 100 ms.
- Double the PROPORTIONAL term by removing the PG links.

Set the bottom jumper position to select the feedback type: ARMATURE VOLTAGE (AV) or TACHO POSITION (PID). Note that for supply voltages >30 V, the jumper may have to be parked on one pin to achieve full-range operation in the PID mode.

For speed feedback using a tachogenerator, select the top jumper to PI mode or PID mode for increased response.

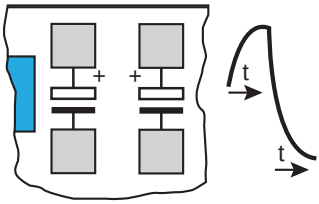
For position feedback, use the PID mode. Use a square wave input and oscilloscope to observe the response. Use the **MAX** preset to fine-tune the response. Make sure all feedback transducers are free from backlash. If feedback is lost, the armature voltage is automatically limited to within a few volts of the supply voltage.

8.2 Setpoint ramp (RAMP CAPS)

The 200XLV is capable of rapid response to step demand changes.

However, you can use this facility to limit the motor slew rate if rapid speed changes or high peak current are undesirable. It limits acceleration and deceleration current during reversing.

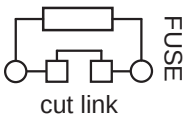
Fit two electrolytic capacitors to the RAMP CAP positions. The speed will ramp exponentially to the new value in the time indicated below. It takes the same time for the speed demand to reset when removing power from the unit.



Time to ramp to new speed	Two caps value
200 ms	1 µF
1 second	10 µF
5 seconds	33 µF
15 seconds	100 µF

8.3 Auxiliary trip

If a lower protection limit is required when using a small motor, fit a multi-fuse into the FUSE position after cutting the FUSE link. The table below shows BOURNS multi-fuse types according to armature current:



MF-R025	250 mA
MF-R050	500 mA
MF-R075	750 mA
MF-R135	1.35 A

9 MAX preset adjustment

9.1 ARMATURE VOLTAGE control mode (speed control)

Refer to "Figure 18 Jumper and link positions" on page 14.

When using AV mode, the **MAX** preset operates as a speed control:

- With the top and bottom proportional gain links fitted, the **MAX** preset range adjustment is ±4 V to ±25 V for a 5 V speed demand.
- With the top and bottom proportional gain links NOT fitted, the **MAX** preset adjustment is from ±8 V to ±50 V.

9.2 PID feedback (gain control)

When using PID feedback, the **MAX** preset becomes a gain control.

10 Trouble shooting

Problem	Remedy
The unit gets too hot and shuts down (refer to "1.1.4 Overload trip" on page 5).	• Either mount the unit on a (large) heatsink with an efficient thermal connection, reduce the supply to armature voltage differential, or both. • If space is limited, forced venting with a small dc fan may be a solution.
The unit keeps tripping, even without a motor connected.	The unit has an internal fault. Replace the unit and contact Sprint Electric.
The motor cannot reach full speed.	• Check that the unit is not at the current limit (i.e. current < 2 A). • Check that the supply voltage is sufficiently high to achieve full speed (rated motor voltage plus 8 V).
The motor rotates in the wrong direction.	Reverse the connections to the armature.

10.1 Trips and alarms

To restart the drive after a trip occurs, correct the cause for the trip and then restart.

A trip can occur during commissioning and normal operation, causing the drive to stop. If the trip condition persists, it will not be possible to restart the drive. Return the 200XLV to Sprint Electric Ltd.

NOTE: The drive does not have a motor over-temperature trip. To protect from overheating, attach a thermal protection device to the motor. Interlock it with the drive's dc supply.

11 Specifications

All specifications in this document are nominal.

This product conforms to IP00 protection.

Specification	
Voltage limit	For dc motors with a maximum armature voltage ratings from ±6 V to ±48 Vdc
Current limit	0 to ±2 A continuous; ±3 A peak
Input supply	12 to 48 Vdc ±25%; Current = Iarm + 100 mA
Presets	Maximum speed limit; IR compensation 0 to 6 Ω
References	Precision current limited voltage references: +10 V or +5 V, 5 mA maximum (both short-circuit proof)
Speed inputs	Differential inputs. 300 kΩ input impedance; accepts speed demand inputs ±5 V or ±10 V; input signal range to ±10 V outside the supply
Control action	P or P+I or PID, armature, Tacho or position feedback
Protection	Thermal protection by automatic power limiting; 150% current limit with inverse time re-settable trip
Dimensions	H82 x D40 x W50 mm (3.2 x 1.6 x 2 inches) Note: The depth is 50 mm (2 inches) with the plug-in terminals

Disposal

This product contains materials that are consignable waste under the Hazardous Waste Regulations 2005. Metal and plastic materials can be recycled, however, disposal of the printed circuit board requires compliance with all valid environmental control laws.

Products that must be recycled in accordance with the WEEE Regulations are marked with the symbol opposite. Contact us when recyling the product.

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