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Please read and understand this manual prior to installing the unit. Please obtain expert help if you are not qualified to install this equipment. Make the safety of your installation a priority. This component is hazardous.

Introduction

SPRINT offers a family of D.C. THYRISTOR drive modules all with the same features and terminals. The user selects the appropriate model depending on required power output. The drives are all NON-ISOLATED.

DRIVE TYPE	AC SUPPLY VOLTAGE	NOMINAL OUTPUT	MAX. CURRENT	NOMINAL POWER
400LV	30/60	24/48V	4 AMPS	200 W
400	110/240	90/180V	4 AMPS	0.55 KW
800LV	30/60	24/48V	8 AMPS	400 W
800	110/240	90/180V	8 AMPS	1.2 KW
1200LV	30/60	24/48V	12 AMPS	600 W
1200	110/240	90/180	12 AMPS	2.0 KW

All types are of open chassis construction. Enclosed versions available as follows: 400E, 400ER, 800E, 800ER, 1200E, 1200ER. E=enclosed, R=reversing

GENERAL DESCRIPTION

The units employ closed loop control of both armature current and feedback voltage to give precise control of the motor torque and speed. The motor and drive are protected by a stall timer which automatically removes power after 30 seconds if the required speed cannot be achieved. The drives will provide up to 150% of the preset maximum current for up to 30 seconds allowing high short term torques during acceleration etc. Independent control of either the current or speed loops by external inputs allows torque or speed control applications with overspeed or overcurrent protection. The demand signal may be derived from a potentiometer, 0-10V signal or 4-20mA loop. The speed feedback signal may be selected to be the ARMATURE VOLTAGE or a shaft mounted TACHOMETER.

INPUTS AND OUTPUTS

+aux input	speed output	rail outputs
-aux input	current output	+12V regulated output
current input	ramp output	+10V precision reference
4-20mA input	stall relay driver	-12V regulated output
0 to 10V input	zero speed driver	-24V unregulated output

ADJUSTABLE PARAMETERS	Max speed Min speed	Up ramp Down ramp	Max current IR comp	Stability
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SWITCHED FUNCTIONS	Maximum feedback Torque control	Tacho feedback AV feedback
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JUMPER FUNCTIONS	Dual supply voltage 4-20mA input	Phase angle limit 50% stall threshold
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PERFORMANCE FEATURES	Dual loop control Relay driver o/p	Precision tacho rectifier International compatibility	Compact design Integral fusing
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INSTALLATION GUIDE FOR SYSTEMS USED IN THE EUROPEAN UNION

Special consideration must be given to installations in member states of the European Union regarding noise suppression and immunity. According to IEC 1800-3 (EN6800-3) the drive units are classified as complex components only for professional assemblers, with no CE marking for EMC. The drive manufacturer is responsible for the provision of installation guidelines. The resulting EMC behaviour is the responsibility of the manufacturer of the system or installation. The units are subject to the LOW VOLTAGE DIRECTIVE 73/23/EEC and are CE marked accordingly.

Following the procedures outlined below will normally be required for the drive system to comply with the European regulations, some systems may require different measures. Installers must have a level of technical competence to correctly install. Although the drive unit itself is not subject to the EMC directive, considerable development work has been undertaken to ensure that the noise emissions and immunity are optimised.

* EN6800-3 specifies 2 alternative operating environments. These are the domestic (1st environment) and industrial (2nd environment). There are no limits specified for conducted or radiated emissions in the industrial environment, hence it is usual for the filter to be omitted in industrial systems.

Definition of an industrial environment. All establishments other than those directly connected to a low-voltage power supply network, which supplies buildings used for domestic purposes.

DRIVE INSTALLATION REQUIREMENTS FOR EMC COMPLIANCE

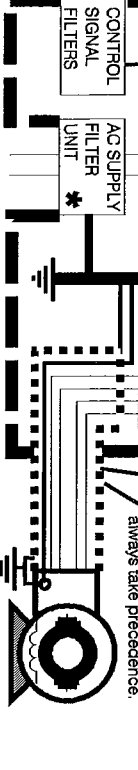
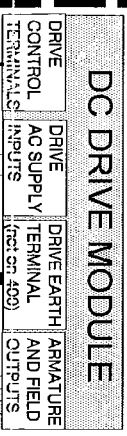
Keep parallel runs of power and control cables at least 0.3m apart. Crossovers must be at right angles. Keep sensitive components at least 0.3m from the drive and power supply cables. The AC input filter has earth leakage currents. Earth RCD devices may need to be set at 5% of rated current.

The AC connections from the filter to the drive must be less than 0.3m or if longer correctly screened

The AC supply filter must have a good earth connection to the enclosure and motor cable screen back plane. Take care with painted metal to ensure good conductivity.

The AC input filter has earth leakage currents. Earth RCD devices may need to be set at 5% of rated current.

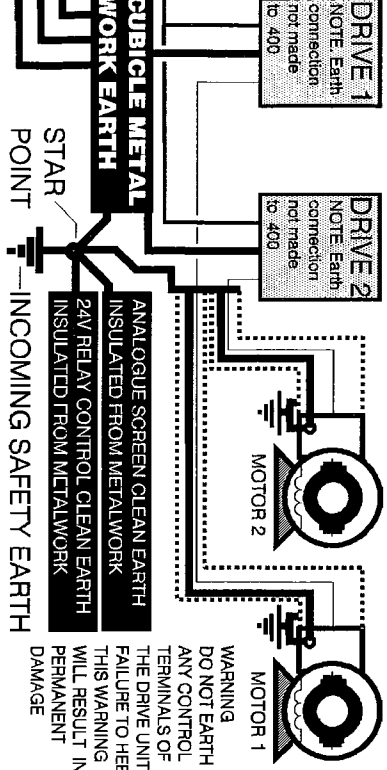
USERS METAL ENCLOSURE



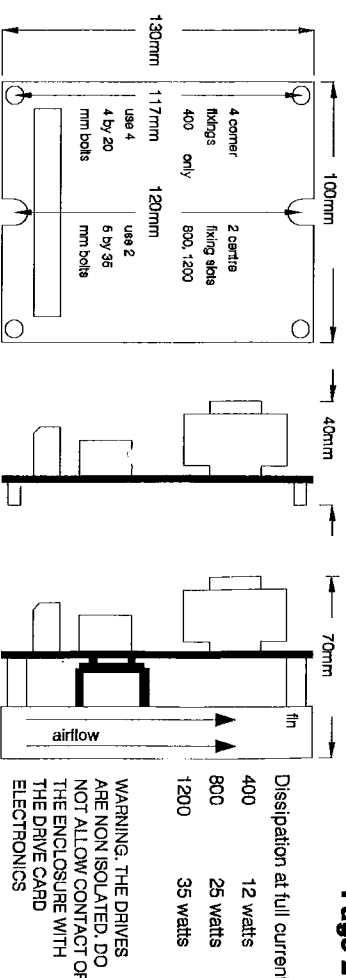
IMPORTANT SAFETY WARNINGS

DANGER The AC supply filters must not be used on supplies that are un-balanced or float with respect to earth. The drive and AC filter must only be used with a permanent earth connection. No plugs/sockets are allowed in the AC supply. The AC supply filter contains high voltage capacitors and should not be touched for a period of 20 seconds after the removal of the AC supply.

MULTIPLE DRIVES WITH ONE FILTER AND EARTHING METHODS



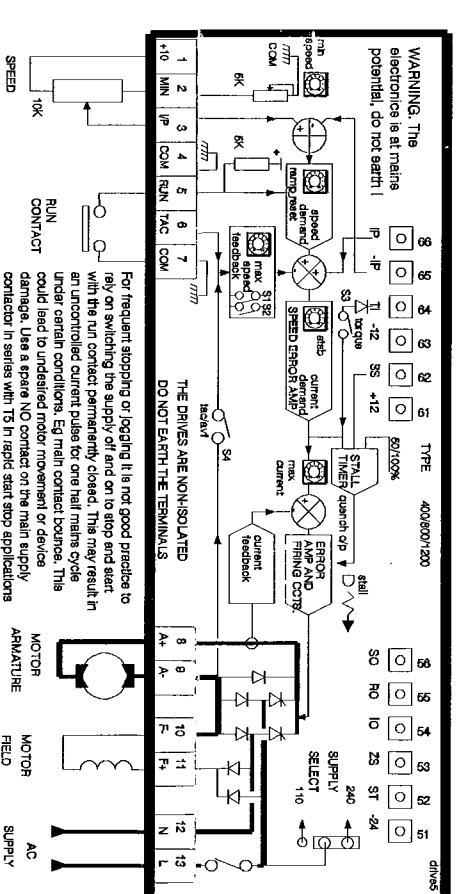
MECHANICAL DIMENSIONS



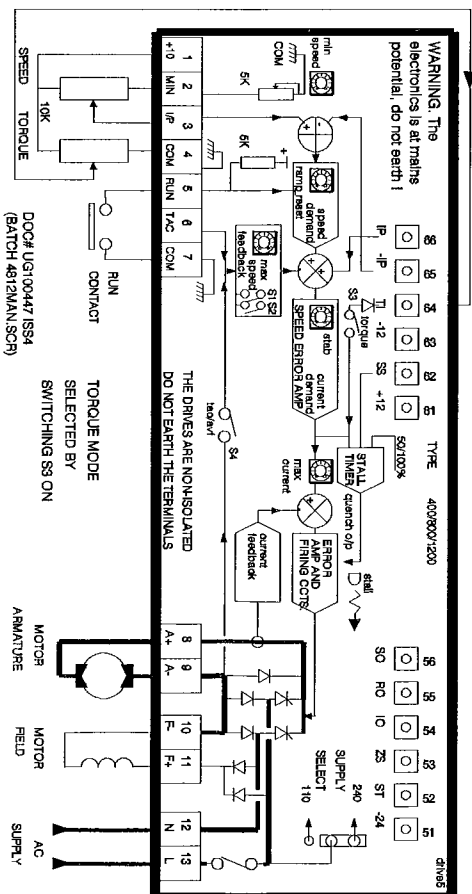
TYPE 400
TYPE 800, 1200
TYPE 800/1200 HEAT-SINK MUST BE EARTHED VIA SCREW PROVIDED

TYPICAL APPLICATIONS

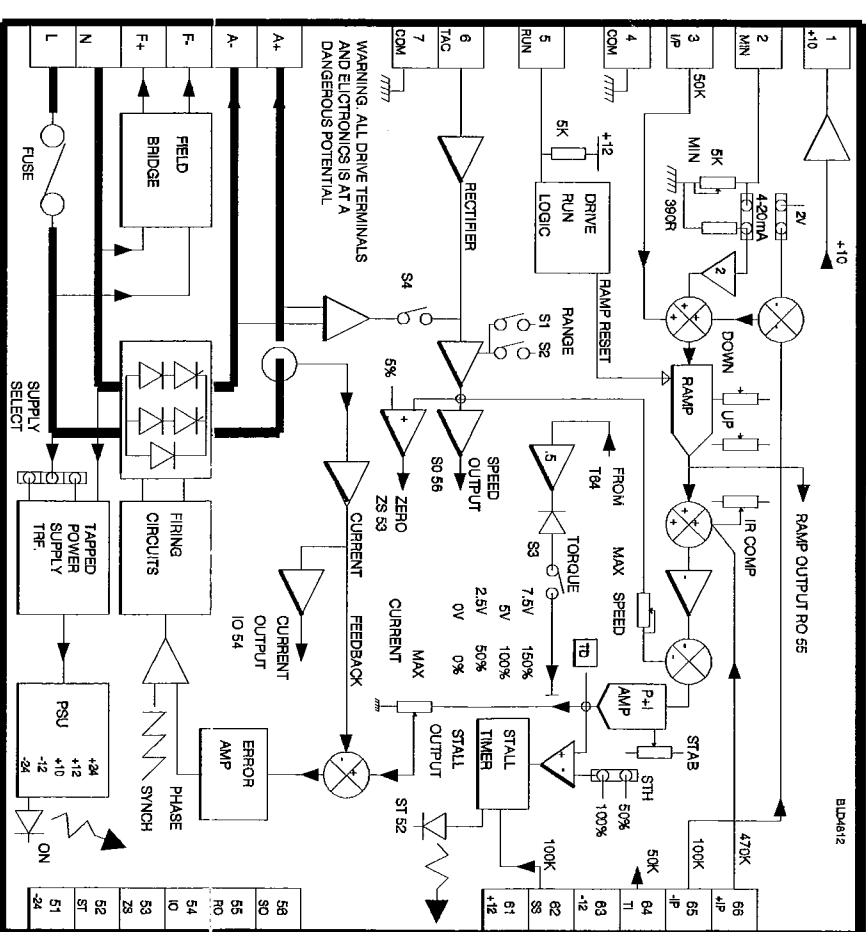
BASIC CONNECTION.



TORQUE CONTROL WITH OVERSPEED LIMITING BY SEPARATE SPEED SETPOINT.
If the speed exceeds the level programmed by the speed setpoint, then the speed loop takes control.



BLOCK DIAGRAM AND TERMINAL SPECIFICATION



- 1 +10V PRECISION REFERENCE 10mA MAX. SHORT COT. PROOF
- 2 MINIMUM END OF SETPOINT POT OR +20 mA CURRENT LOOP IP
- 3 SPEED DEMAND INPUT 0-10V FOR 0-100% SPEED 4 COMMON. (4-20mA RETURN)
- 5 CONNECT TO COMMON TO RUN 80ms ON / 20ms OFF (WARNING: RUN is an electronic inhibit function. The field remains energised, and all power terminals remain 'live'. RUN must not be relied upon during hazardous operations)
- 6 TACHO INPUT 12-200V FULL SCALE + OR - POLARITY 7 COMMON
- 8 A1 + ARMATURE OUTPUT 9 A2 ARMATURE OUTPUT 10 F 2. FIELD OUTPUT 11 F+ FIELD OUTPUT 12 N NEUTRAL AC SUPPLY IP 13 L LINE AC SUPPLY INPUT

