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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**

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

**ADJUSTABLE PARAMETERS**

PARAMETER	ADJUSTMENT	EFFECT
Max speed	Up ramp	Max current
Min speed	Down ramp	IR comp
Maximum feedback		Stability

**SWITCHED FUNCTIONS**

FUNCTION	DESCRIPTION
Maximum feedback	Tacho feedback
Torque control	AV feedback

**JUMPER FUNCTIONS**

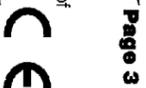
FUNCTION	DESCRIPTION
Dual supply voltage	Phase angle limit
4-20mA input	50% stall threshold

**PERFORMANCE FEATURES**

FEATURE	DESCRIPTION
Dual loop control	Precision tacho rectifier
Relay driver o/p	International compatibility
	Compact design
	Integral fusing

**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.

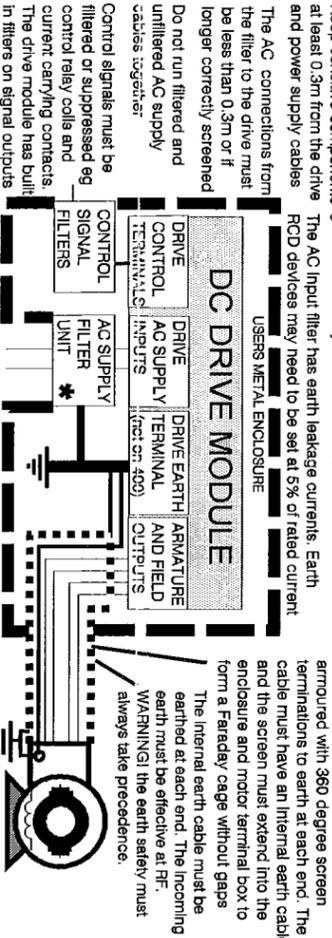


**EMV800-3 specifies 2 alternative operating environments. These are the domestic (1st environment) and industrial (2nd environment). There are no limits specified for conducted or radiated emissions in the industrial environment. Hence it is usual for the filter to be omitted in industrial systems.**

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**

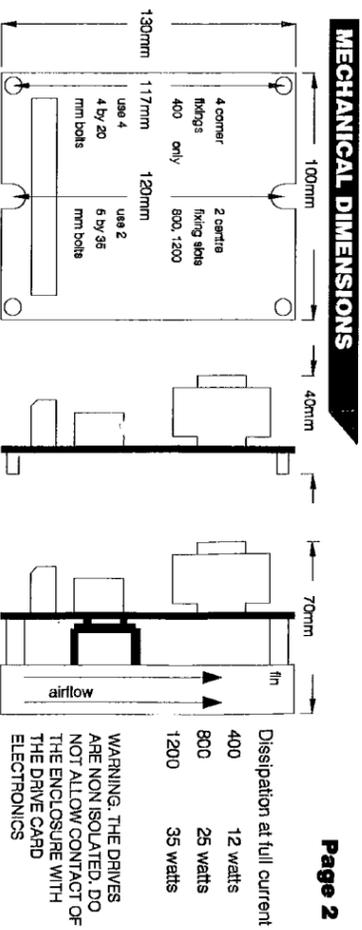
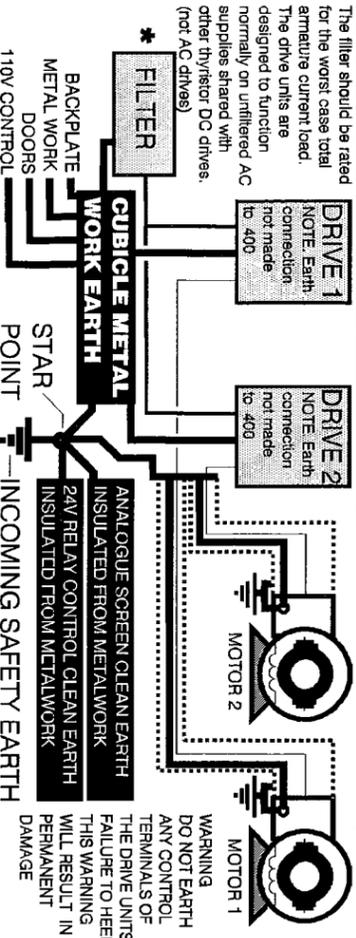
Keep parallel runs of power and control cables at least 0.3m apart. Crossovers must be at right angles. Keep sensitive components at least 0.3m from the drive and power supply cables. The AC connections from the filter to the drive must be less than 0.3m or if longer correctly screened. Do not run filtered and unfiltered AC supply cables together.



**IMPORTANT SAFETY WARNINGS**

- 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/socketes 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.

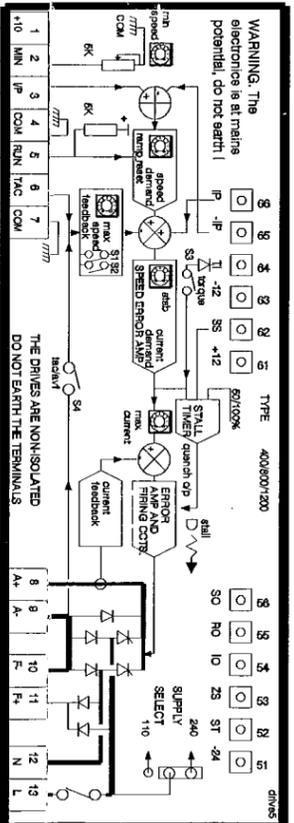
**MULTIPLE DRIVES WITH ONE FILTER AND EARTHING METHODS**



**MECHANICAL DIMENSIONS**

**TYPICAL APPLICATIONS**

**BASIC CONNECTION.**



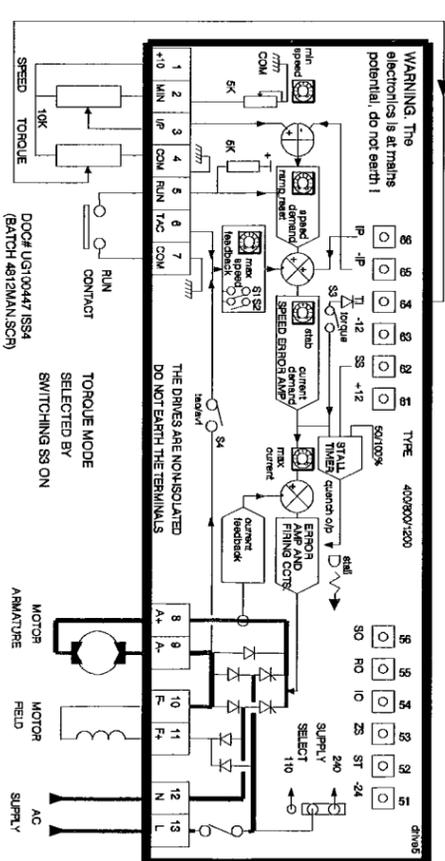
**WARNING:** The electronics is at mains potential, do not earth!

For frequent stopping or jogging it is not good practice to rely on switching the supply off and on to stop and start with the run contact permanently closed. This may result in an uncontrolled current pulse for one half mains cycle under certain conditions. Eg main contact bounce. This could lead to undefined motor movement or device damage. Use a spare NO contact on the main supply contractor in series with T5 in rapid start stop applications.

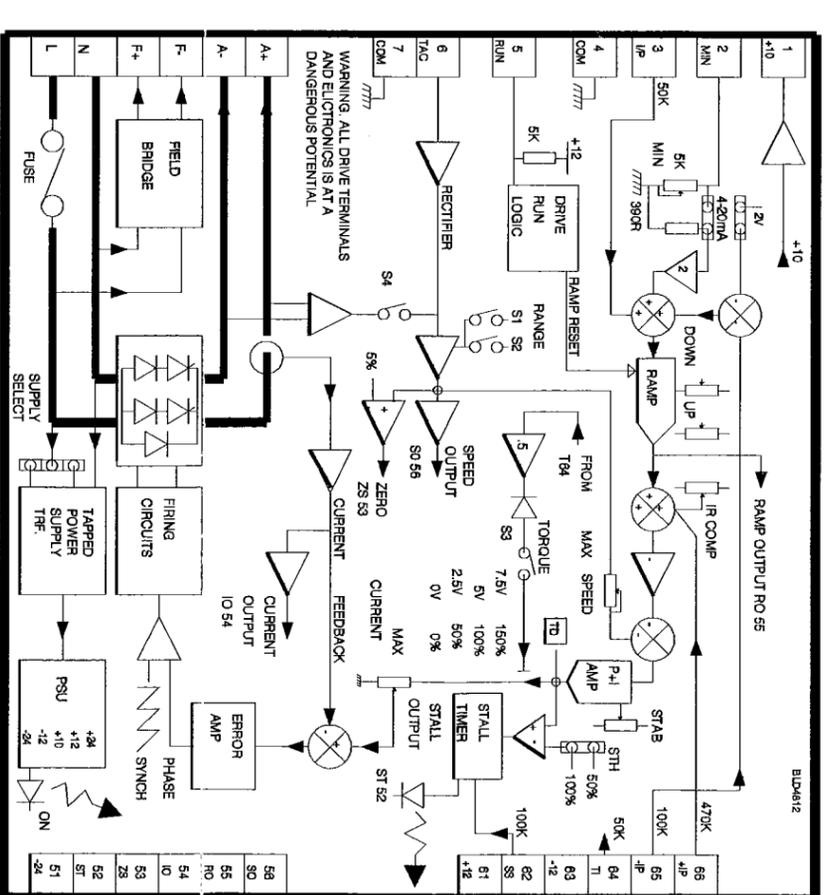
THE DRIVES ARE NON-ISOLATED DO NOT EARTH THE TERMINALS

**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 COIL FROM
  - 2 MINIMUM END OF SETPOINT POT OR 4-20 mA CURRENT LOOP I/P
  - 3 SPEED DEMAND INPUT 0-10V FOR 0-100% SPEED COMMON (4-20mA RETURN)
  - 4 COMMON TO RUN BOMS ON / 20ms OFF
  - 5 CONNECT TO COMMON TO RUN BOMS ON / 20ms OFF
  - 6 STOP/START INPUT. CLOSE TO -12V TO ACTIVATE STALL CONDITION. CLOSE TO +12V TO RELEASE STALL CONDITION
  - 7 COMMON
  - 8 TACHO INPUT 12-200V FULL SCALE + OR - POLARITY
  - 9 A1 + ARMATURE OUTPUT
  - 9 A2 ARMATURE OUTPUT
  - 10 F-2 FIELD OUTPUT
  - 11 F1 + FIELD OUTPUT
  - 12 N NEUTRAL AC SUPPLY I/P
  - 13 L LINE AC SUPPLY INPUT
- SIGNAL PADS ON TOP EDGE**
- 66 AUXILIARY SPEED INPUT 0 TO +10V FOR 0-100% RAMPED SPEED
  - 64 TORQUE INPUT 0 TO +10V FOR 0-100% CURRENT
  - 63 -12V OUTPUT 10mA MAX
  - 62 STOP/START INPUT. CLOSE TO -12V TO ACTIVATE STALL CONDITION. CLOSE TO +12V TO RELEASE STALL CONDITION
  - 61 +12V OUTPUT 10mA MAX
  - 58 SPEED OUTPUT. TYPICALLY 7.5V FULL SCALE. ADJUSTMENT OF MAX SPEED PRESSET WILL ALTER THE FULL SCALE READING FROM 4V (ACW) TO 9V (CW). 0V TO FULL SCALE REPRESENTS 0-100%. IMPEDANCE 1K
  - 55 SETPOINT RAMP OUTPUT 0-10V IMPEDANCE 1K OHMS
  - 54 CURRENT OUTPUT 0-5V FOR 0-100% CURRENT. IMPEDANCE 1K
  - 53 ZERO SPEED RELAY DRIVER O/P MAX 100mA
  - 52 STALL RELAY DRIVER O/P MAX 100mA
  - 51 -24V RELAY SUPPLY 25mA MAX. DO NOT SHORT FROM T5

