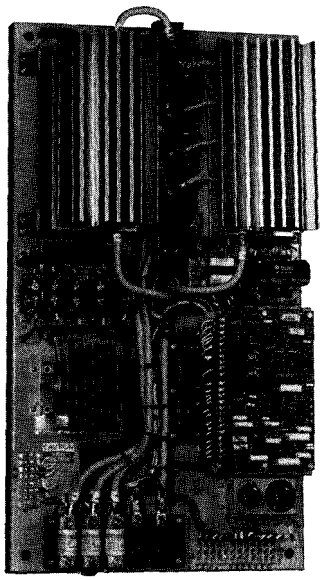
Class 100 Equipment

DSE 110, 220 STATIC EXCITER REGULATORS



APPLICATION:

The DSE Static Exciter/Regulator is the controlling element of a variable speed drive system consisting of a constant speed prime mover-dc generator driving a dc motor. The exciter receives a command signal from a hand or foot-operated throttle, then applies dc voltage to the generator field in response to the command signal. An adjustable current limit prevents the generator output current from exceeding safe limits. Motor speed indication is not required by the system. Power for the exciter is provided by a separate ac power source.

Parallel operation of two or more generators is made possible by an adjustable "droop" circuit, which ensures that the load is distributed between the generators.

Two modes of speed control are available: throttle controlled speed and current limit, (see figure 1), or throttle controlled speed with fixed current limit (see figure 2).

FEATURES:

- DC field excitation output current 100A continuous, 135A forcing.
- Two modes of speed control.
- Fast response to throttle commands.
- Parallel compensation.
- Reverse and forward current limited when throttle is rapidly retarded or advanced.
- Automatic current management during application of full throttle minimizes overloading of prime mover.
- Easily detachable controls for remote mounting.
- Rugged construction.

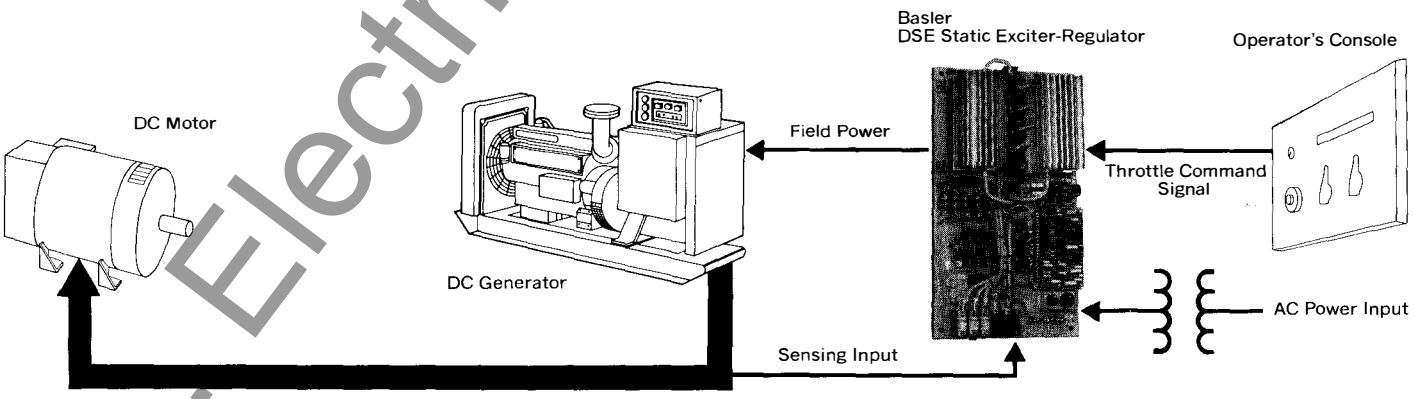


FIGURE 1 — TYPICAL APPLICATION

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DESCRIPTION:

The DSE static exciter/regulator is designed for behind-the-panel mounting with the parallel operation "droop" control and forward current limit control mounted on a removable panel for optional remote mounting. Electronic circuitry in the unit senses generator output voltage and current, via an external shunt, to control exciter output SCRs which provide excitation to the field of the generator. AC power for the SCRs is derived from an external source. The sensed generator voltage is compared with the input throttle command to control the firing time of the output SCRs, effectively providing the operator with control of the motor's speed. Included with the circuitry are forward and reverse current limiting adjustments for preventing the throttle from causing excessive forward or reverse current flow in the generator output, which could overload either the prime mover or the motor.

The exciter/regulator is equipped with an adjustable "droop" circuit for parallel operation on multiple generator sets, allowing load sharing and reduced circulating currents.

When throttle controlled speed and current limit (see figure 1) is required, the unit must receive a contact closure. For throttle controlled speed with fixed current limit (see figure 2), the unit must receive an open contact.

Two DSE models are available: DSE 110 for a 125 Vdc field; and DSE 220 for a 250 Vdc field.

SPECIFICATIONS:

MODEL	EXCITER INPUT VOLTAGE	OUTPUT POWER		DROOP ADJ. RANGE	BURDEN	MINIMUM RESISTANCE
		VOLTAGE	CURRENT			
DSE 110	120 Vac ± 10%, 3 Ø, 50/60 Hz	0-135 Vdc	0-100 A	0-25%*	17 KVA	1 ohm
DSE 220	240 Vac ± 10%, 3 Ø, 50/60 Hz	0-265 Vdc	0-100 A	0-25%*	34 KVA	2 ohms

* With 100 MV shunt

FUNCTION	CONTROL RANGE	FREQUENCY	BURDEN
Throttle Command	0-120 Vac	50/60 Hz	5VA
Current Sensing	0 ± 100 mV	dc	—
Voltage Sensing	0-900 V	dc	—

- **OPERATING TEMPERATURE RANGE:** −40°F (−40°C) to +140°F (+60°C)
- **STORAGE TEMPERATURE RANGE:** −85°F (−65°C) to +185°F (+85°C)
- **VIBRATION:** Withstand the following vibration spectrum:

Frequency	Acceleration
5 - 26 Hz	1.2 G
26 - 52 Hz	0.036 in. displacement
52 - 260 Hz	5 G

- **SHOCK:** Withstand up to 15 G's in each direction.
- **FINISH:** Chassis, gloss white
- **WEIGHT:** 68 lbs (30.8 kg)

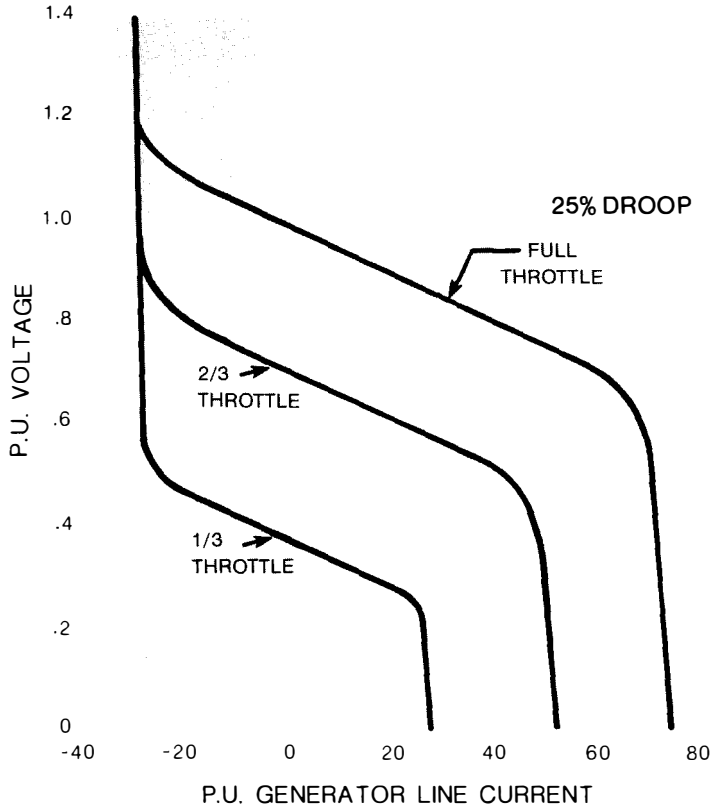


FIGURE 1 — VARIABLE SPEED AND CURRENT LIMIT (TYPICAL)

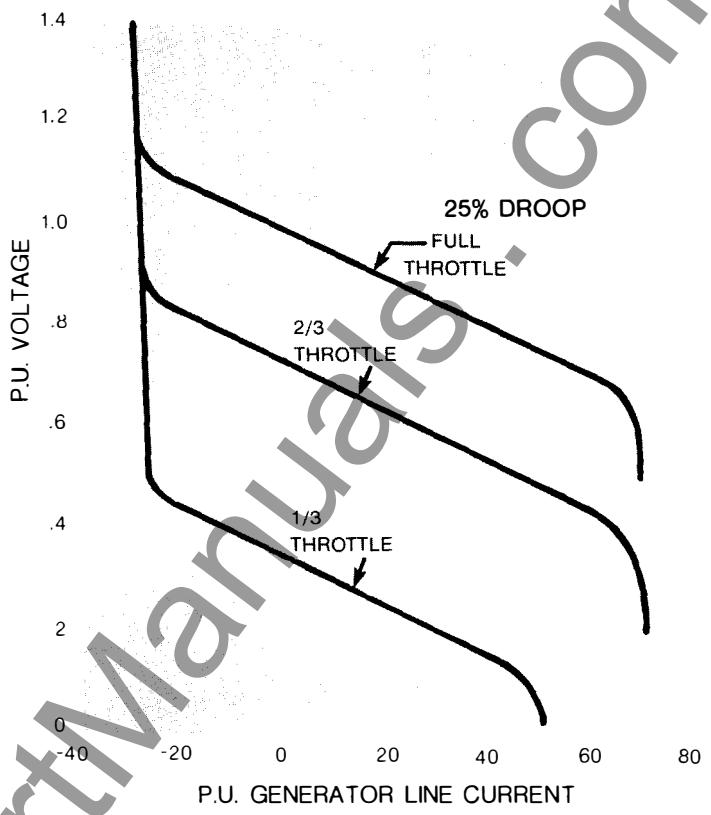
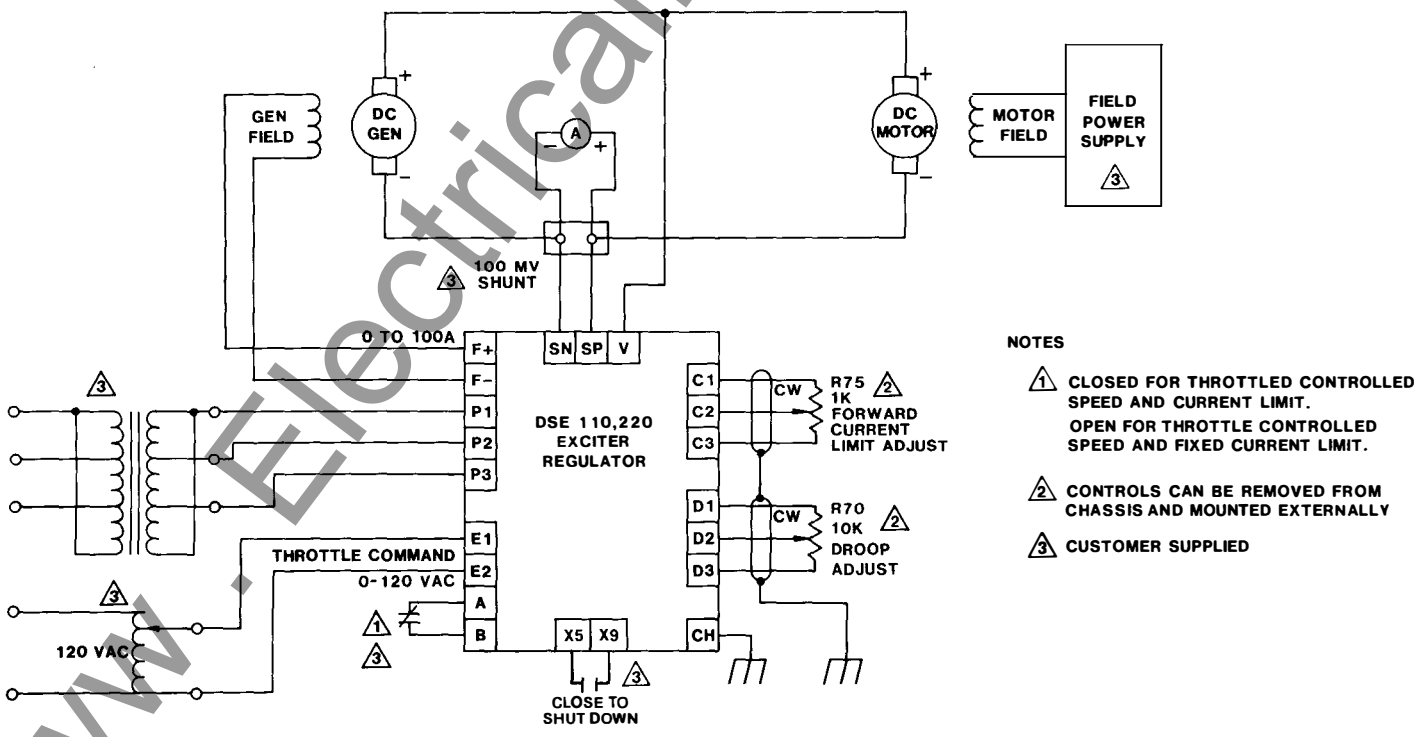


FIGURE 2 — VARIABLE SPEED CONTROL WITH FIXED CURRENT LIMIT (TYPICAL)



NOTES

1. CLOSED FOR THROTTLED CONTROLLED SPEED AND CURRENT LIMIT. OPEN FOR THROTTLE CONTROLLED SPEED AND FIXED CURRENT LIMIT.
2. CONTROLS CAN BE REMOVED FROM CHASSIS AND MOUNTED EXTERNALLY
3. CUSTOMER SUPPLIED

FIGURE 3 — INTERCONNECT DIAGRAM

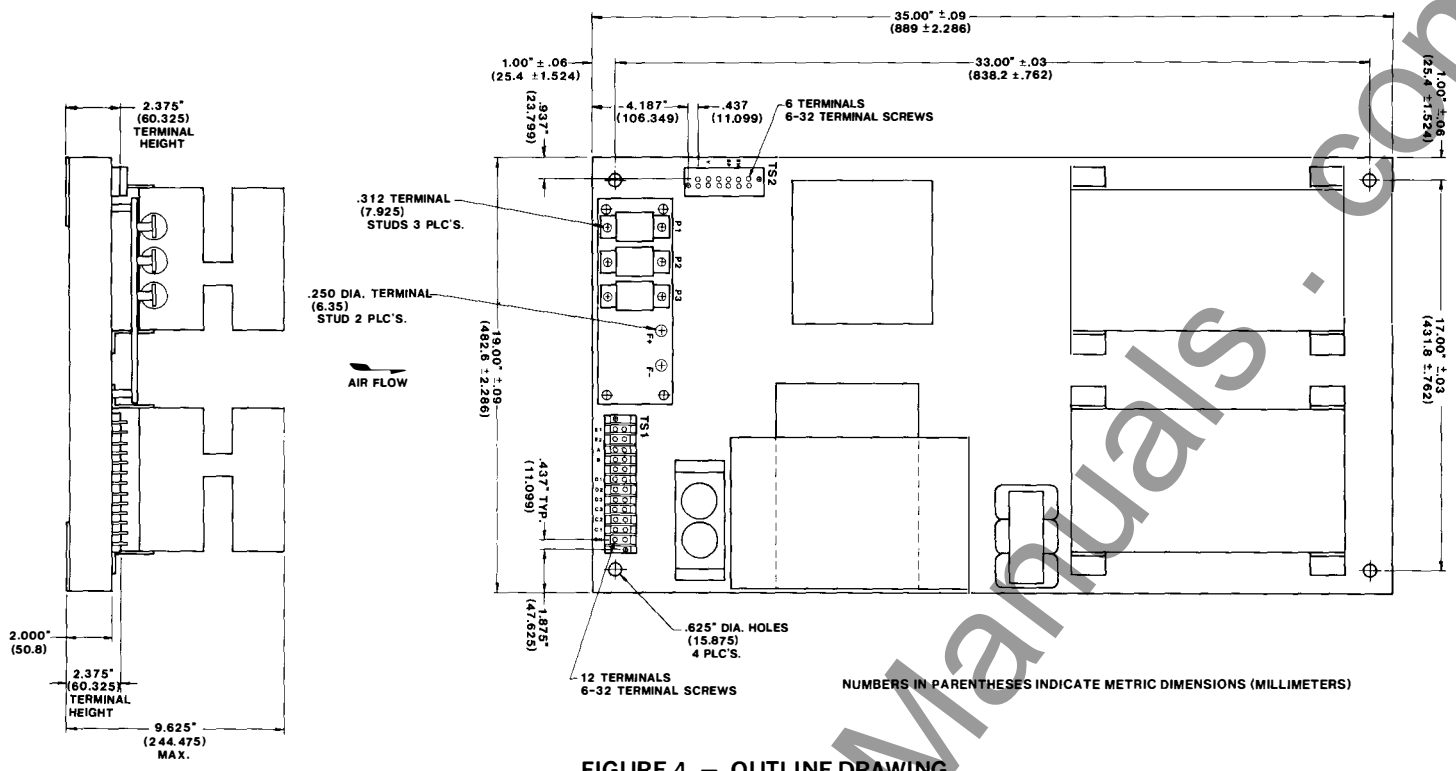


FIGURE 4 — OUTLINE DRAWING

SAMPLE SPECIFICATION:

The exciter/regulator shall allow throttle control of the excitation applied to a dc generator driving a dc motor, allowing full speed control of the motor.

The exciter/regulator shall be compatible with a 750 kW generator and motor system having a dc output voltage of 800 Vdc and including a one ohm generator field resistance with a maximum continuous field voltage of 100 Vdc. A command signal from a 0-120 Vac source shall control the speed setting of the motor. Forward and reverse current limiting shall be provided to control the amount of torque on the motor shaft. A 100 mV shunt shall be used to sense generator line current. Paralleling provisions shall be provided to allow multiple shunt field generators to be paralleled on a common dc bus, and the droop setting shall be 0-25% at generator full load.

The regulator shall accept a power input of 120 Vac, 3 Ø, 60 Hz.

Select Basler Static Exciter/Regulator Model DSE 110.

HOW TO ORDER:

DC generator output rating:

_____ kW
_____ Vdc

DC generator field resistance:

_____ ohms
_____ field amps

IF FIELD RESISTANCE IS	AND IF FIELD AMPERAGE IS	SELECT BASLER MODEL
more than 1.0 ohms	less than 100A	DSE 110
more than 2.0 ohms	less than 100A	DSE 220

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