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Retrofit AVR for Air-cooled Generators using a Brushless Excitation system

1. Introduction

MITSUBISHI ELECTRIC can offer a retrofit solution (component replacement) for your AVR. Your existing AVR (See Fig-1&2) unit can be replaced with new **MEC700** digital AVR unit (See Fig-3) without major modification of the existing cubicle.

2. Application

Retrofit plan can be applied for following systems:

A) Type of Excitation system: **Brushless**

For static excitation, only "Full Replacement" is available.

B) Model of existing AVR unit (See Fig-1 and 2)

VRG-PMH (Analog, maximum field current is 20 amps)

DVRG (Digital, maximum field current is 20 amps)

Other necessary parts such as transducers and auxiliary relays will be replaced according to detailed design.
Please contact to us for your unit's specific details.

3. Benefit

- Existing AVR cubicle and external cables are re-used.
- Reduce removal/installation time compared to Full Replacement of the AVR cubicle.
- Reduce maintenance time
- Improved reliability & performance with the MEC700
- Addition of PSS (Power System Stabilizer) (ΔP , or $\Delta P+F$)
- Addition of limit & control functions
 - ▶ Minimum/Over Excitation Limiter
 - ▶ Volt/Hertz Limiter
 - ▶ SCL (Stator Current Limiter)
 - ▶ APFR (Auto Power Factor Regulator)
 - ▶ AQR (Auto reactive power (Q) Regulator)
- Easy trouble shooting

Please refer to Table-1 for specification, Fig-3 for front view and Fig-, 4 for dimensions.

4. Detailed Proposals

Actual system configuration and circuits differ from each project; therefore, we will submit customized proposals upon request from customer.

MELCO also offer "full" replacement plan i.e. replace existing complete AVR cubicle with new cubicle.

Please contact to us for details.



Fig-1. VRG-PMH



Fig-2 DVRG

AVR unit hardware specification Control/monitoring functions

CPU sampling time		5 ms	Additional functions ※ Supply of additional functions should be based on contract.	CCC (Cross Current Compensation)	Available
System configuration		Dual or Single		LDC (Line Drop Compensation)	Available
VT inputs		3 phases		MEL (Minimum Excitation)	Available
CT inputs		3 phases or single phase		OEL (Over Excitation Limiter)	Available
Inputs/Outputs	Digital inputs	32		VFL (Volt/freq. limiter)	Available
	Digital outputs	32		SCL (Stator Current Limiter)	Available
	Analogue inputs (±10V)	6	PSS (ΔP/ΔP+F)	Available	
	Analogue outputs	8	APFR (Auto Power Factor)	Available	
Thyristor rectifier output		20 Amps (*)	AQR (Auto Var (Q) Regulator)	Available	

Table-1 Specification of MEC700 D-AVR

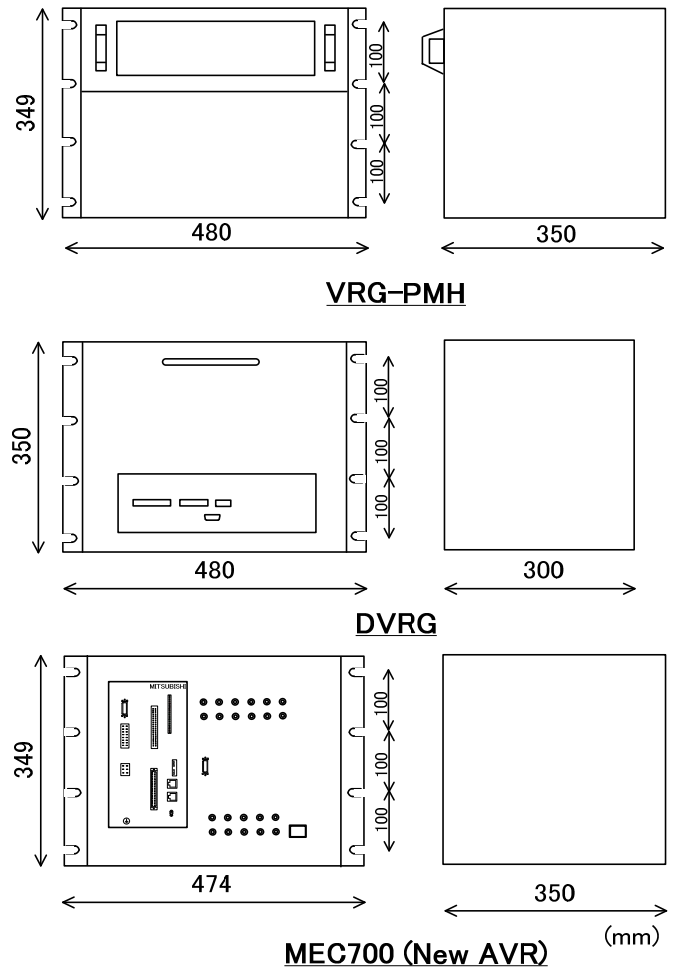
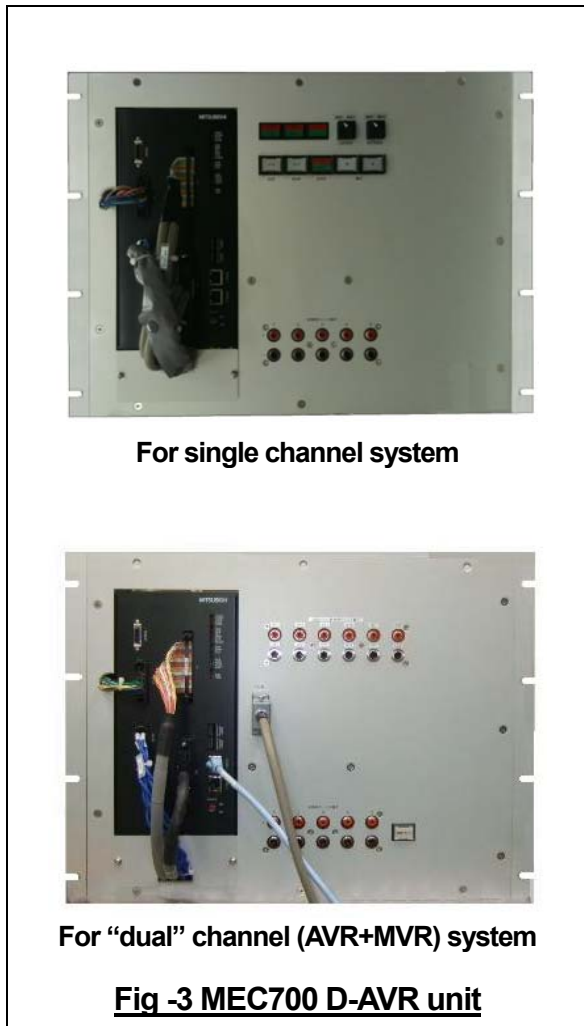


Fig-4 Dimensions