

# RFB-700 DSP DSA Retrofit

## Replacement Kit Brochure



### REPLACEMENT KIT

In partnership, Bender and Mega Resistors have developed a replacement kit for the discontinued and obsolete Federal Pioneer DSP-MKII and DSA systems.

If you are looking to replace your obsolete equipment, you've come to the right place. You will be upgrading to the most up-to-date and advanced ground fault protection system available today.

## History

Federal Pioneer Limited was originally incorporated as Pioneer Electric Limited in 1946. The company was engaged in the manufacture of electrical equipment primarily used in power distribution; one of their main lines included switchgear and low voltage distribution equipment. In 1990 the company was sold to Schneider Electric, who went on to sell the ground fault protection line of products to IPC resistors, known today as i-Gard.

As a leading supplier of ground fault protection products at the time, Federal Pioneer introduced the DSP-MKII (Delta System Protection) in the late 1970s, and later released the DSA (Delta System Alarm) as a variant of this system in 1981. As the original products become discontinued, i-Gard used the technology and developed the DSP-OHMNI system.

Today, we offer a significantly more advanced product based on new technologies coming with enhanced functionality, guaranteed reliability, and longevity.

## DSA VS. DSP-MKII VS. REPLACEMENT KIT – SYSTEM COMPARISON

The DSP-MK II system was designed to monitor multiple feeders and signal an alarm, indicating a faulted feeder. In the event of a second ground fault on a different feeder, it would selectively trip a lower priority feeder. The DSA system functioned in the same way as the DSP-MKII, but it was unable to perform selective tripping in the event of a second ground fault. It performed system-wide ground fault

Category	Sub-category	DSA	DSP-MKII	Replacement Kit
Specs	Grounding type	Ungrounded or high-resistance grounded	Ungrounded or high-resistance grounded	Ungrounded or high-resistance grounded
	System voltage	Up to 13.8 kV	Up to 13.8 kV	Up to 13.8 kV
	System voltage	Single phase 120VAC	Single phase 120VAC	Single phase 120VAC
Required accessories	Alarm resistors	> 600V	> 600V	> 600V
	Artificial neutrals	DDR2	DDR2	> 600V only
	Grounding resistors	Zig-zag for delta only	Zig-zag for delta only	Zig-zag for delta only
	Zero sequence	Optional	Optional	Optional
	current transformers Accuracy	T3A / T6A / T9A	T3A / T6A / T9A	W1 -S35 / W35AB or other
Alarm	Time Delay	+/- 10%	+/- 10%	+/- 1%
	Level	0.5 seconds +/- 10%	0.5 seconds +/- 10%	0 to 60 seconds
	Silence option	50% of NGR current	50% of NGR current	10 to 90%
	Reset option	Via push buttons	Via push buttons	Via HMI
		Via push buttons	Via push buttons	Via HMI
Feeder protection and priority	Second fault trip speed	No tripping	> 200 ms	< 100 ms
	Second fault trip speed	No tripping	80A +/- 20A	< 20A
	SIFT - selective instantaneous feeder trip	No tripping	16 numbered priorities	99 numbered priorities

Category	Sub-category	DSA	DSP-MKII	Replacement Kit
Feeder protection and priority	In-field programming of second fault trip priority on feeders	No tripping	Via toggle switches	<b>User programmable by PLC HMI</b>
	Memory of fault on phase and feeder indicator	Yes	Yes	Yes
	Simultaneous monitoring of all feeder and NGR currents	No	No	Yes
	Maximum feeders	152	35	240
General features	Nuisance tripping prevention	Yes	Yes	<b>Advanced harmonics filtering</b>
	Measurements	Leakage current only	Leakage current only	<b>Voltage, resistance, current</b>
	Blown fuse indicator	Lamp and alarm	Lamp and alarm	Optional
	Measurement of system or individual feeder leakage current	Yes	Yes	<b>Yes</b>
	NGR continuity monitoring	No	No	<b>Open and short protection (CEC 2018 compliant)</b>
	Communications	No	No	<b>RS-485 and Ethernet, wireless optional</b>
	Current monitoring	No	AC only	<b>AC standard, AC/DC optional</b>
	Feeder current transformer monitoring	No	No	<b>Open and shortened</b>
	Select non-latching alarms	No	No	<b>Yes</b>
	Harmonics analysis and filtering	No	No	<b>Yes</b>
Built in test capability	Only for alarm and indication functions	Only for alarm and indication functions	<b>Complete system testing</b>	
Setup and interface	Language	English	English	<b>English, French, Spanish, German</b>
	Password protection	No	No	Yes
	Interface	Toggle switches and push buttons	Toggle switches and push buttons	HMI touch screen
	Faulted phase indicator	Phase lamp	Phase lamp	Alarm and communications
	Faulted feeder indicator	Alarm	Alarm	Alarm and communications
	Meter calibration	Via toggle switches	Via toggle switches	Via HMI

## Item numbers

For systems with available neutral:

Voltage L/N	Current	with NGRM700 Item number by number of feeders <sup>2</sup>			With NGRM500 <sup>1</sup> Item number by number of feeders <sup>2</sup>		
		12 AC	6 AC + 6 AC/ DC	12 AC/DC	12 AC	6 AC + 6 AC/DC	12 AC/DC
277 Volts	5 Amps	140217	140220	140223	140226	140229	140232
	10 Amps	140218	140221	140224	140227	140230	140233
	1-5 Amps	140219	140222	140225	140228	140231	140234
347 Volts	5 Amps	140235	140238	140241	140244	140247	140250
	10 Amps	140236	140239	140242	140245	140248	140251
	1-5 Amps	140237	140240	140243	140246	140249	140252
1390 Volts	5 Amps	140253	140256	140259	140262	140265	140268
	10 Amps	140254	140257	140260	140263	140266	140269
	1-5 Amps	140255	140258	140261	140264	140267	140270
2400 Volts	5 Amps	140271	140274	140277	140280	140283	140286
	10 Amps	140272	140275	140278	140281	140284	140287
	1-5 Amps	140273	140276	140279	140282	140285	140288

<sup>1</sup>Does not include phase voltage monitoring.

<sup>2</sup>Call factory for other ratings and additional required features.

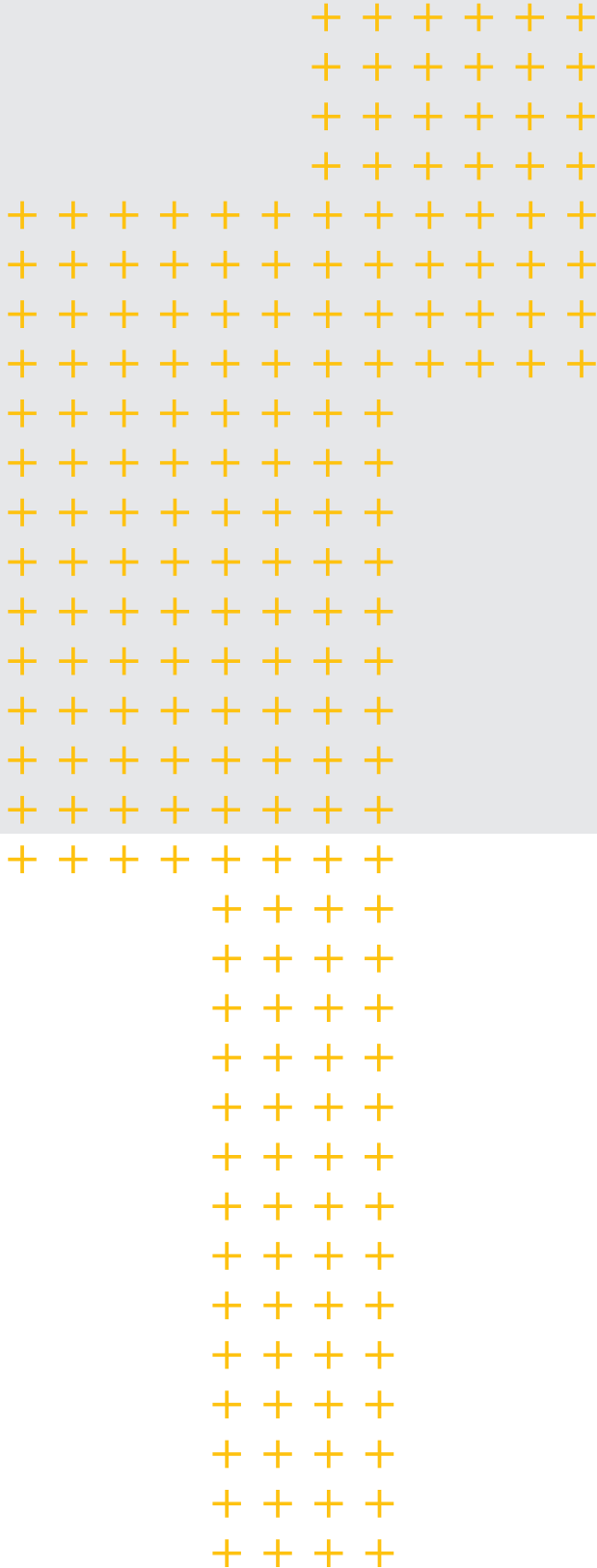
## Item numbers with zig-zag transformer

For systems with no available neutral:

Voltage L/N	Current	with NGRM700 Item number by number of feeders <sup>2</sup>			With NGRM500 <sup>1</sup> Item number by number of feeders <sup>2</sup>		
		12 AC	6 AC + 6 AC/ DC	12 AC/DC	12 AC	6 AC + 6 AC/ DC	12 AC/DC
277 Volts	5 Amps	140289	140292	140295	140298	140301	140304
	10 Amps	140290	140293	140296	140299	140302	140305
	1-5 Amps	140291	140294	140297	140300	140303	140306
347 Volts	5 Amps	140307	140310	140313	140316	140319	140322
	10 Amps	140308	140311	140314	140317	140320	140323
	1-5 Amps	140309	140312	140315	140318	140321	140324
1390 Volts	5 Amps	140325	140328	140331	140334	140337	140340
	10 Amps	140326	140329	140332	140335	140338	140341
	1-5 Amps	140327	140330	140333	140336	140339	140342
2400 Volts	5 Amps	140343	140346	140349	140352	140355	140358
	10 Amps	140344	140347	140350	140353	140356	140359
	1-5 Amps	140345	140348	140351	140354	140357	140360

<sup>1</sup>Does not include phase voltage monitoring.

<sup>2</sup>Call factory for other ratings and additional required features.



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