



PAGE 17-2

**DCRK SERIES**

- Digital programming
- 5 or 7 step configuration in 96x96mm housing
- 8 or 12 step configuration in 144x144mm housing
- Capacitor overload protection
- Internal panel temperature sensor
- TTL/RS232 programming interface
- Automatic set-up function
- Configurable alarms.



PAGE 17-3

**DCRJ SERIES**

- Digital programming
- 8 or 12 step configuration in 144x144mm housing
- Dual displays
- Independent voltage measure input
- Capacitor overload protection
- Internal-external panel temperature sensor
- RS232 programming and supervision interface
- RS485 supervision interface
- Voltage and current harmonics measurements
- Event log
- Automatic set-up function (adjustable)
- Configurable alarms
- Suitable for medium voltage systems.



PAGE 17-3

**DCRJF TYPE (STATIC OUTPUTS)**

- Digital programming
- 11 step + 1 alarm configuration in 144x144mm housing
- Dual displays
- Independent voltage measure input
- Capacitor overload protection
- Internal-external panel temperature sensor
- RS232 programming and supervision interface
- Voltage and current harmonics measurements
- Event log
- Configurable alarms.

**DESCRIPTION**

	<b>DCRK</b>	<b>DCRJ</b>	<b>DCRJ12F</b>
<b>Front plate</b>			
3-digit display	●	●	●
4-digit display supplement		●	●
4 operation keys	●	●	●
1 function key		●	●
7 LED indicators for main functions and measures	●		
14 LED indicators for main functions and measures		●	●
<b>Control - Functions</b>			
Automatic recognition of current flow	●	●	●
4-quadrant operation	●	●	●
Independent voltage input		●	●
Three-phase voltage control		●	●
Medium-voltage usage		●	●
Phase-Neutral connection in 3-phase systems		●	●
Programmable input as functional or remote temperature sensor		●	●
Keypad lock	●	●	●
TTL/RS232 communication interface	●		
RS232 communication interface		●	●
Isolated RS485 communication interface		●	●
Automatic set-up function (adjustable)	●	●	●
Easy current transformer setting function	●	●	●
Set-up and automatic panel test software	●	●	●
Remote supervision software		●	●
Real time clock with back-up battery		●	●
Current and voltage waveform captures, related to harmonic events		●	●
Events logging such as: alarms, power ON, power OFF, set-up changes, etc.		●	●
<b>Measurements</b>			
Instantaneous displacement power factor (cosφ)	●	●	●
Instantaneous and average weekly power factor	●	●	●
Voltage and current	●	●	●
Reactive power to reach set-point value	●	●	●
Total reactive power	●	●	●
Capacitor overload	●	●	●
Electric panel temperature	●	●	●
Maximum voltage and current value	●	●	●
Maximum capacitor overload value	●	●	●
Maximum panel temperature value	●	●	●
Maximum capacitor temperature value	●	●	●
Active and apparent power	●	●	●
Current and voltage harmonic analysis	●	●	●
Current and voltage harmonic waveform logged at overload events	●	●	●
Step "var" value	●	●	●
Number of switching measures per step	●	●	●
<b>Protection functions</b>			
Voltage too high and too low	●	●	●
Current too high and too low	●	●	●
Over compensation (capacitors disconnected and cosφ higher than set-point)	●	●	●
Under compensation (capacitors connected and cosφ lower than set-point)	●	●	●
Capacitor overload	●	●	●
Capacitor overload on all 3 phases	●	●	●
Over temperature	●	●	●
No-voltage release protection	●	●	●
Capacitor bank failure	●	●	●
Over maximum harmonic distortion level limit	●	●	●
Programmable alarm properties (enable, trip delay, relay energising, etc.)	●	●	●

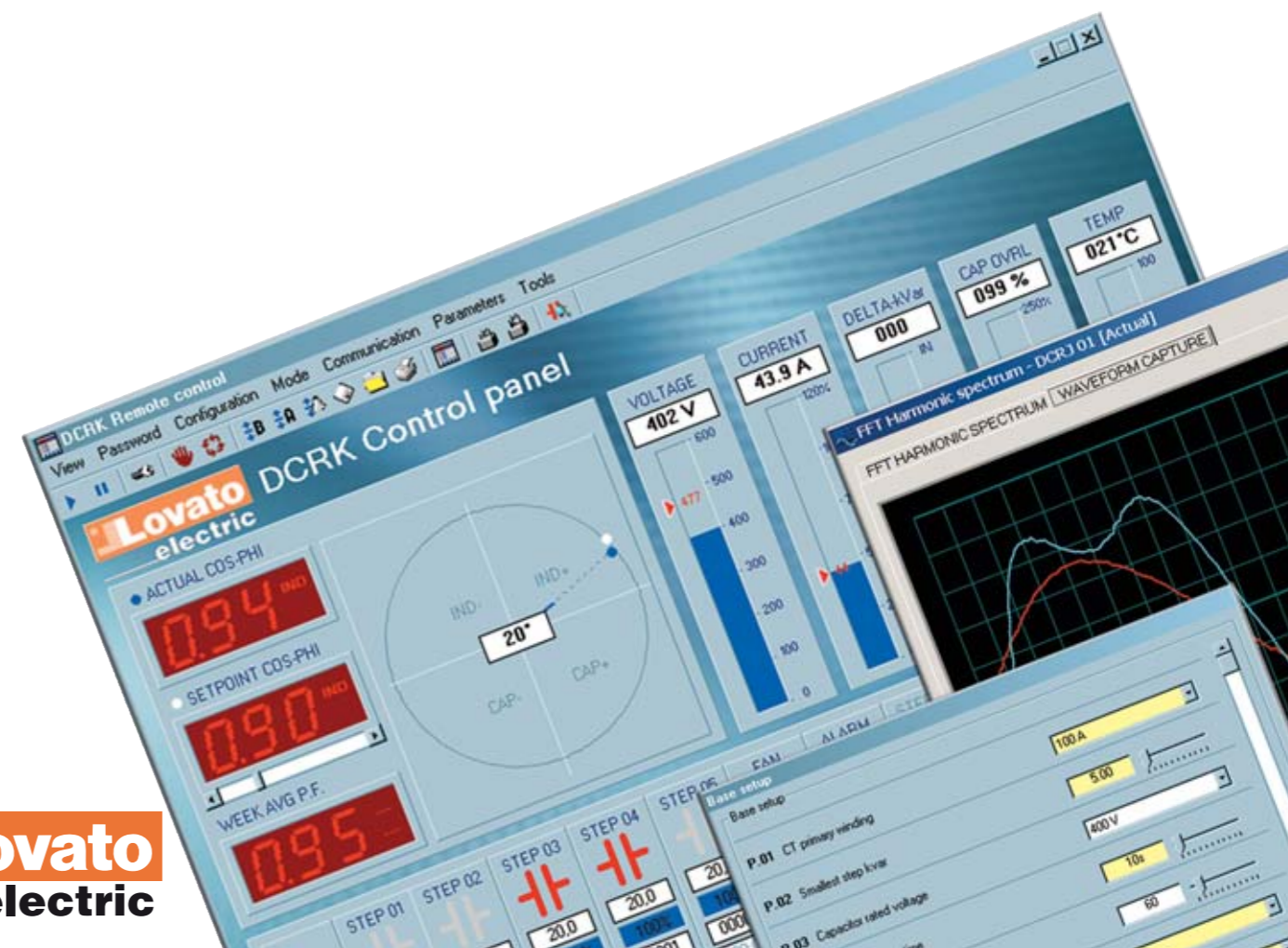
- ◆ *Microprocessor supervision and control*
- ◆ *Accurate current evaluation with TRMS readings*
- ◆ *Automatic rational adjustment*
- ◆ *Versions with 5, 7, 8 or 12 steps; one with static outputs*
- ◆ *Use in co-generation systems*
- ◆ *Communication serial interfaces*
- ◆ *ASCII and Modbus®-RTU communication protocols.*



**Automatic power factor controllers**

DCRK series .....	17- 2
DCRJ series .....	17- 3

SEC. PAGE



**DCRK series**



DCRK5-DCRK7



DCRK8-DCRK12

Order code	Steps	Flush-mount housing size	Qty per pkg	Weight
	n°	[mm]	n°	[kg]
<b>DCRK 5</b>	5	96x96	1	0.365
<b>DCRK 7</b>	7	96x96	1	0.375
<b>DCRK 8</b>	8	144x144	1	0.640
<b>DCRK 12</b>	12	144x144	1	0.660

Software

Order code	Description	Qty per pkg	Weight
		n°	[kg]
<b>DCRK SW</b>	Set-up and automatic test software complete with cable 51 C11	1	0.246

Accessories and spare parts

<b>51 C11</b>	PC ↔ DCRK connecting cable 2.8m long, for TTL/RS232 communication port	1	0.090
<b>31 PACR</b>	Front protective cover for DCRK8 and DCRK12 types, IP54	1	0.107
<b>31 PA96X96</b>	Front protective cover for DCRK5 and DCRK7 types, IP54	1	0.007

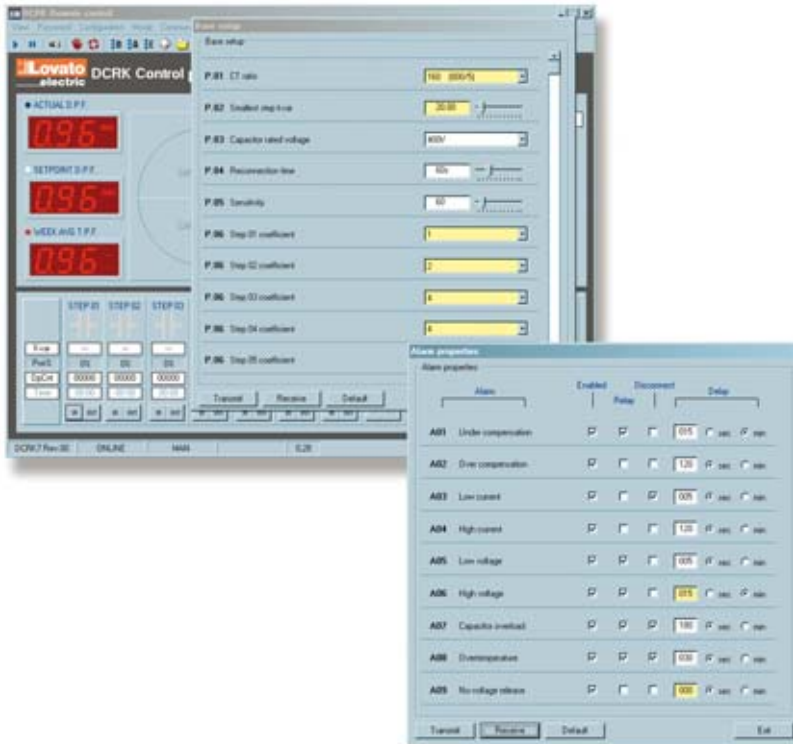
**General characteristics**

- 5, 7, 8 and 12 step versions, the last two of which are programmable as alarm and/or fan control
- Digital microprocessor controller for automatic power factor correction systems with output relays for the connection and disconnection of capacitor banks
- For co-generation systems; 4 quadrant operation
- Accurate and reliable power factor control of a system even in presence of high current and voltage harmonic content
- Warrants optimal capacitor use for increased life by the rational control of the capacitor operation and connection time
- Average weekly power factor measure (last 7 days)
- Adjustable tripping sensitivity, integral switching time
- Adjustable reconnection time delay
- No-voltage release protection
- Protection against capacitor overload and panel overheating
- Automatic set-up function (adjustable)
- TTL/RS232 interface with personal computer for: fast set-up, function and alarm customising and automatic electric panel testing.

**Operational characteristics**

- Voltage circuit
  - Auxiliary supply and control voltage Ue: 380-415VAC standard; 220-240VAC on request 415-440VAC on request 440-480VAC on request 480-525VAC on request
  - Rated frequency: 50/60Hz ±1% self configurable
- Power consumption:
  - 6.2VA (DCRK5 and DCRK7)
  - 5VA (DCRK8 and DCRK12)
- Current circuit
  - Rated current Ie: 5A (1A on request)
  - Overload peak: 20Ie for 10ms
  - Power consumption: 0.65W
- Measurements and controls
  - Power factor adjustment: 0.8 inductive - 0.8 capacitive
  - Voltage measure range: -15 to +10% Ue
  - Current measure range: 2.5 to 120% Ie
  - Temperature measure range: -30...+85°C
  - Capacitor overload current range: 0-250%
  - Type of voltage and current measure: TRMS
  - Reconnection time of same step: 5-240s
  - Tripping sensitivity: 5-600s/step
- Output relays
  - 5, 7, 8 or 12 steps, the last of which is isolated
  - Contact configuration: Normally Open (NO); the last contact of DCRK8-DCRK12 is a changeover type
  - Rated capacity: 5A 250VAC (AC1)
  - Maximum capacity of common terminal: 12A
  - Rated operational voltage: 250VAC
  - Operational category: B300
  - Maximum switchable voltage: 440VAC
- Housing
  - Flush mounting
  - Degree of protection on front: IP54 for DCRK5 and DCRK7. IP41 for DCRK8 and DCRK12 (IP54 with 31 PACR protective cover).

Example of main window frame using DCRK SW software



**Certifications and compliance**

Certifications obtained: cULus, GOST.  
Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, CISPR 11/EN 55011.

**Contactors for power factor correction**

See section 3, page 3-12.

## DCRJ series



DCRJ8-DCRJ12  
DCRJ12F

- ① "3Com-U.S. Robotics" 56k V.92 FAXMODEM model 5630, with RS232 interface, complete with PC connecting cable, compatible with LOVATO ELECTRIC remote control software.
- ② RS232/RS485 opto-isolated converter drive, 38,400 Baud-rate maximum, automatic or manual TRANSMIT line supervision, 220...240VAC ±10% supply (110-120VAC on request).

Order code	Steps	Flush-mount housing size	Qty per pkg	Weight
	n°	[mm]	n°	[kg]

Version with relay outputs.				
<b>DCRJ 8</b>	8	144x144	1	0.940
<b>DCRJ 12</b>	12	144x144	1	0.980

Version with static outputs.				
<b>DCRJ 12F</b>	11+1 relay output	144x144	1	0.950

Software				
Order code	Description	Qty per pkg	Weight	
		n°	[kg]	
<b>DCRJ SW</b>	Set-up, automatic test and remote control software complete with 51 C2 cable	1	0.246	

Accessories and spare parts				
<b>51 C2</b>	PC ↔ DCRJ connecting cable, 1.8 m long	1	0.090	
<b>51 C4</b>	PC ↔ 4 PX1 converter drive connecting cable, 1.8 m long	1	0.147	
<b>51 C5</b>	DCRJ ↔ Analog modem connecting cable, 1.8 m long	1	0.111	
<b>51 C9</b>	4 PX1 ↔ Analog modem connecting cable, 1.8 m long	1	0.137	
<b>4 PX1</b>	RS232/RS485 converter drive, galvanically isolated, 220-240VAC	1	0.600	
<b>NTC 01</b>	Temperature sensor	1	0.150	
<b>31 PACR</b>	Front protective cover, IP54 protection	1	0.107	

### General characteristics

- 8 and 12 step versions (DCRJ8-DCRJ12), the last two of which are programmable as alarm and/or fan control
- Version (DCRJ12F) with 11 static outputs plus 1 alarm relay output
- Digital microprocessor regulator for automatic power factor correction systems with output relays for the connection and disconnection of capacitor banks
- For medium voltage systems (separate voltage input) and co-generation (4 quadrant operation)
- Accurate and reliable power factor control of a system even in presence of high current and voltage harmonic content
- Warrants optimal capacitor use for increased life using rational control of the capacitor operation and connection time
- RMS voltage and current measure
- Measure of average weekly power factor (last 7 days), capacitor overload, electric panel temperature, voltage and current harmonic content
- Event viewing when harmonic overload limit exceeded
- Harmonic content analysis of logged events complete with relative waveforms
- Adjustable tripping sensitivity, integral switching time
- Adjustable reconnection time delay (DCRJ8-DCRJ12)
- No-voltage release protection
- Protection against capacitor overload and panel overheating
- Panel temperature sensor
- Connection to remote NTC temperature sensor
- Automatic set-up function (on DCRJ8 and DCRJ12)
- RS232 and RS485 serial ports
- Remote supervision software for personal computer interface and supervision for: fast set-up, function and alarm customising and automatic electric panel testing
- Modbus®-RTU and ASCII communication protocols
- Configuration of mixed static and electromechanical steps (DCRJ12F).

### Operational characteristics

- Supply circuit
  - Dual auxiliary supply voltage Ue: 110-127 / 220-240VAC
  - Rated frequency: 50/60Hz ±5%
  - Power consumption: 9.7VA (DCRJ8-DCRJ12); 9.2VA (DCRJ12F)
- Voltage circuit
  - Three phases without neutral
  - Rated measuring voltage: 100-690VAC
  - Rated frequency 50/60Hz ±5%, self configurable
- Current circuit
  - Rated current Ie: 5A (1A on request)
  - Overload peak: 20Ie for 10ms
  - Power consumption: 0.3VA
- Measurements and controls
  - Type of voltage and current measurements: TRMS
  - Voltage measure range: 85-760VAC
  - Current measure range: 2.5 to 120% Ie
  - External temperature measure range: -40...+85°C
  - Capacitor overload current range: 0-250%
  - Power factor adjustment: 0.8 inductive - 0.8 capacitive
  - Reconnection time of same step: 5-240s (DCRJ8 - DCRJ12)
  - Tripping sensitivity: 5-600s/step
  - Sampling time: ≈20ms (DCJ12F)
- Output relays for DCRJ8-DCRJ12
  - 8 or 12 steps, the last of which is isolated
  - Contact configuration: Normally Open (NO); the last of which is a changeover type
  - Rated capacity: 5A 250VAC (AC1)
  - Maximum capacity of common terminal: 12A
  - Rated operational voltage: 250VAC
  - Operational category: B300
  - Maximum switchable voltage: 440VAC
- Outputs for DCRJ12F
  - 11 static outputs for static contactors control
  - 1 alarm relay output
  - Opto-isolated bi-directional static outputs (Opto-Mosfet)
  - Maximum operational voltage: 40VDC-30VAC
  - Maximum operational current: 55mA
- Housing
  - Flush mounting
  - Degree of protection on front: IP41; IP54 with protective cover 31 PACR.

### Certifications and compliance

Certifications obtained: cULus, GOST.  
Compliant with standards: IEC/EN 61010-1, IEC/EN 61000-6-2, CISPR 11/EN 55011.

### Contactors for power factor correction

For use with DCRJ8 or DCRJ12, see section 3, page 3-12.

### Example of main window frame using DCRJ SW software

