DCR

Digital Battery Charger

32 - 630 AMP

AMETEK®
SOLIDSTATE CONTROLS
PROVIDING CONTINUITY OF ELECTRICAL POWER

DCR

Digital Battery Charger Systems

THREE PHASE INPUT VOLTAGE:
208, 380, 480, 600 VAC

AMPERAGE:
32 - 630 A [1]

OUTPUT VOLTAGE:
110, 120, 220, 240 VDC

The DCR from AMETEK Solidstate Controls is a microprocessor-controlled, thyristor-based system designed for high-efficiency conversion of incoming commercial AC power to clean DC power. It is used for charging batteries while supplying power to continuous DC loads such as inverters.

The rugged solid-state design utilizes SCR phase control to provide regulated, current-limited DC power. The DCR can operate with or without batteries and is intended for use in UPS systems. The DCR can also be used as a stand-alone device for battery-charging-only applications.

- Latest digital and power electronics technology
- Reliable industrial design; MTBF >205,000 hours
- User definable control and alarm set-points
- Simultaneous voltage and current readings
- CE safety and EMC standards compliant
- UL1012 (UL, cUL) Approved
- Vacuum impregnated magnetics, 200˚C
- Efficiency up to 95%

Control Display

With the DCR's Digital Display, you have all the vital system information right at your fingertips. The user-friendly display menu provides the link between operator, all monitoring controls and alarms. Set points for control and alarm parameters are customer configurable.

The Display Features:

- Adjustable Backlit Status Display
- Charger Condition LEDs
  - AC On
  - Fault
  - High DC Voltage
  - Low DC Voltage
  - Charger Fail (Loss of AC Input)
- Soft-touch Menu Scrolling Keypad
- Float and Manual Equalize Controls with LEDs
- Lamp Test and Alarm Silence Control

[1] Consult us for additional sizes

General Specifications - Standard Features

Design Features

SCR (Thyristor) based rectifier with double wound isolation transformer
Electronic control, current limiting and voltage regulation
Floating ground output
Event counter retains up to 64,000 events
Detailed data logging for the last 500 events
Long life LED indicators
Protected from phase rotation

Standard Protection Devices

AC Input Breaker (14 kAIC Minimum)
DC Output Fuse

Standard Metering

DC Output Voltage
DC Charger Current

Standard Relays

Fault (Common)
Low DC Voltage

Standard Indications	(Optional Relay)
AC 'ON' Green LED	
"Float" Green LED	
Fault (Common) Alarm Red LED	
DC High Voltage Alarm Red LED	
DC Low Voltage Alarm Red LED	
Loss of AC Input Alarm Red LED	192R
"Equalize" Amber LED	185R

Control Modes

6 Pulse Standard or 12 Pulse Optional
Stand Alone or Parallel (Capacity and/or Redundancy)

Display Default Alarms	(Optional Relay)
AC Input Available	
Low DC Voltage	
Charger Loss of Communications	
Charger Board Reset	
AC Power Supply Fail	
AC Input Failure	
High DC Shutdown	
System Reset	
System Over Temperature	
DC Power Supply Fail	
Charger Bridge Over Temperature	193R
Charger Failure	69R
High DC Voltage	5R

General Specifications - Optional Features

Option Packages	(Option #)	LCD Indicators
Communications Package	(187)	MODBUS RTU MODBUS over Ethernet Ethernet Web-page Capability MODBUS TCP-IP Consult us for additional Communications options
AC Input Monitoring Package	(188)	AC Input CB Open AC Input Failure Low AC Input High AC Input
Battery Monitoring Package	(189)	Battery Test Battery Time Remaining High DC Disconnect Low DC Disconnect Battery I & V Metering Battery Current Limit Battery Discharging Remote Battery Circuit Breaker Open Battery Near Exhaustion

Optional Relays	(Option #)	Notes
AC Input Failure	(26R)	Available When Package 188 is Selected
Low AC Input	(68R)	
AC Input CB Open	(101R)	
High AC Input	(124R)	
High DC Disconnect	(2R)	Available When Package 189 is Selected
Remote Battery Cicuit Breaker Open	(57R)	
Battery Near Exhaustion	(60R)	
Low DC Disconnect	(107R)	
Battery Discharging	(197R)	

General Specifications - Optional Features

Optional Circuit Breakers	(Option #)
65 kAIC Rated AC Input Breaker	(82)
DC Output Breaker (10 kAIC)	(182)
DC Output Breaker (High kAIC)	(183)

Optional Alarms	(Option #)	(Optional Relay)
Charger Fan Fail	(120)	(120R)
Charger Overload	(119)	(119R)
Charger Fuse Blown	(67)	(67R)
Pos/Neg to Ground	(3)	(3R)
Charger Output Circuit Breaker open	(191)	(191R)

Additional Options	(Option #)	Notes
Charger Output Diode	(29)	Blocking diode Note: temperature compensation option disabled
Auto-equalize	(130)	After AC power failure > 5 minutes
Alarm Relay Test	(132)	Facilitate testing of the alarms through LCD screens
Charger Ripple Filter	(59)	Extra filtering can be added to the charger for lower ripple requirements
Percent Loading	(115)	Displays the percentage of output current being used as compared to total output current
Input Power Metering	(111)	Optional charger AC input metering for the LCD Display. (Volts, Amps, Frequency)
Equalize Inhibit	(155)	External potential free dry contact closure input will prevent the charger from going into equalize mode.
Dual Charger Current Limit Control	(186)	Optional external input
Battery Temperature Compensation	(108)	DC battery float voltage is adjusted based on room ambient temperature over a range of 32°F and 104°F (0°C to +40°C)
Latching Alarms	(28)	Requires manual reset
Additional Relays		Additional relay contacts (maximum of 15 allowed)

General Specifications - Performance

Electrical Specifications

AC Input	Available Voltages: 3-phase: 208, 380, 480, 600 (± 10%) Frequency: 50 or 60 Hz (± 5%)
DC Output	Nominal voltages: 110, 120, 220, 240 VDC (± 0.5% Float, ± 1.0% Equalize)
Ripple (RMS)	Unfiltered Units: < 2% with battery connected Filtered: 0.1% with battery connected

Mechanical Specifications

Enclosure	NEMA1 (IP20), 14 GA (2 mm) steel with hinged front access door and drip shield
Cable Entry	Top or Bottom
Finish	Standard Powder Coat ANSI 61, Light Gray
Cooling	Convection cooling up to 50 A Output Current

Optional Mechanical Features (Option #)

Lifting Eye Bolts	(105)	Key-lockable Enclosure	(159)
Pad Lockable Breakers	(93)	IP-21 Rated Cabinet w/optional Drip Shield	(65)
20% Spare Alarm Terminals	(96)	DC Rated Alarm Contacts	(72)
Conformal Coating of PC Boards	(127)	Space Heater	(88)
Fungus/moisture spay	(70)	Labeling in Other Languages	

Environmental

Audible Noise	65-72 dB(A) at 3 feet (1 meter) at half equipment height
Operating Temp	32°F to 104°F (-0°C to +40°C), To 55°C with derate
Storage Temp	-4°F to 158°F (-20°C to 70°C)
Operating Humidity	Up to 95% (Non-condensing)
Altitude	10,000 feet (3,048 meters) without derate

Cabinet Type	Dimensions	Inches	Millimeters
FS1[1]	H x W x D	48 x 24 x 24	1,220 x 610 x 610
FS2	H x W x D	79 x 32 x 36	2,007 x 813 x 915

[1]The drip shield adds 5 in (127 mm) to the height
Current Limit: 100 = 100% Current Limit, 115 = 115% Current Limit

Specifications subject to change. Consult us for lead times, optional packages and additional information

110/120 VDC Output												
Model Number	Output Amps	DC Volts	AC/DC Efficiency %	3Φ AC Input/Frequency [1]		Cabinet Style	Heat Loss (BTU/hr)	Circuit Breaker Ampacity [2]			Weight [3]	
				AC Amps/Phase				DC Output	Main AC Input			
				208/60	480/60				208/60	480/60	lb	kg
DCR-120-0032- [5]	32	120	91	20	9	FS1	1,297	45	25	15	420	191
DCR-120-0040- [5]	40	120	91	25	11	FS1	1,620	60	35	15	430	195
DCR-120-0050- [5]	50	120	91	31	13	FS1	2,025	70	40	20	450	204
DCR-120-0063- [5]	63	120	91	39	17	FS1	2,551	80	50	25	485	220
DCR-120-0080- [5]	80	120	91	49	21	FS1	3,240	110	70	30	520	236
DCR-120-0100- [5]	100	120	91	62	27	FS1	4,050	150	80	35	540	245
DCR-120-0125- [5]	125	120	92	76	33	FS1	4,449	175	100	45	651	295
DCR-120-0160- [5]	160	120	93	97	42	FS1	4,931	225	125	60	760	345
DCR-120-0200- [5]	200	120	93	121	52	FS2	6,162	300	175	70	880	399
DCR-120-0250- [5]	250	120	93	151	65	FS2	7,705	350	200	90	1,100	499
DCR-120-0320- [5]	320	120	94	191	83	FS2	8,363	500	250	110	1,235	560
DCR-120-0400- [5]	400	120	95	236	102	FS2	8,619	600	300	150	1,340	608
DCR-120-0500- [5]	500	120	95	295	128	FS2	10,775	600	400	175	1,815	823
DCR-120-0630- [5]	630	120	95	372	161	FS2	13,576	800	500	200	2,000	907

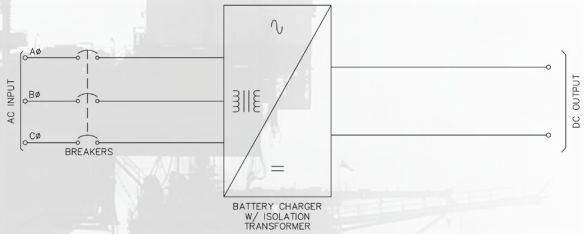
220/240 VDC Output												
Model Number	Output Amps	DC Volts	AC/DC Efficiency %	3Φ AC Input/Frequency [1]		Cabinet Style	Heat Loss (BTU/hr)	Circuit Breaker Ampacity [2]			Weight [3]	
				AC Amps/Phase				DC Output	Main AC Input			
				208/60	480/60				208/60	480/60	lb	kg
DCR-240-0032- [5]	32	240	91	40	17	FS1	2,593	45	50	25	490	222
DCR-240-0040- [5]	40	240	91	49	21	FS1	3,240	60	70	30	510	231
DCR-240-0050- [5]	50	240	91	62	27	FS1	4,050	70	80	35	535	243
DCR-240-0063- [5]	63	240	91	78	34	FS1	5,102	80	100	45	560	254
DCR-240-0080- [5]	80	240	91	99	43	FS1	6,479	110	125	60	610	277
DCR-240-0100- [5]	100	240	91	123	54	FS1	8,008	150	175	70	650	295
DCR-240-0125- [5]	125	240	92	153	66	FS2	8,902	175	200	90	720	327
DCR-240-0160- [5]	160	240	93	193	84	FS2	9,861	225	250	110	1,033	469
DCR-240-0200- [5]	200	240	93	241	105	FS2	12,328	300	350	150	1,326	601
DCR-240-0250- [5]	250	240	93	302	131	FS2	15,409	350	400	175	1,470	667
DCR-240-0320- [5]	320	240	94	382	166	FS2	16,726	500	500	225	1,618	734
DCR-240-0400- [5]	400	240	95	472	205	FS2	17,242	600	600	300	1,720	780
DCR-240-0500- [5]	500	240	95	591	256	FS2	21,551	700	800	350	2,685	1,218

Dimensions			
Cabinet Type	Dimensions	Inches	Millimeters
FS1 [4]	(H x W x D)	48 x 24 x 24	1,220 x 610 x 610
FS2	(H x W x D)	79 x 32 x 36	2,007 x 813 x 915

[1] Custom sizes available, please contact us
[2] Circuit breakers are sized for a minimum of 125% rated current
[3] Unit weight corresponds to 60 Hz configuration, consult us for 50 Hz unit weights
[4] The drip shield adds 5 in (127 mm) to the height
[5] Model Number Designation System

DCR	—	120	—	0100	—	480	—	3	—	60	—	06	—	100	—	B
A		B		C		D		E		F		G		H		I

A – Indic ates Base Model Number
B – Indic ates DC Output Voltage – 120 = 120 VDC, 240 = 240 VDC
C – Indic ates DC Output Current – 0032 = 32 A, 0160 = 160 A
D – Indic ates AC Input Voltage – 480 = 480 VAC, 380 = 380 VAC
E – Indic ates number of Input Phases – 3 = 3 Phase
F – Indic ates Input Frequency – 60 = 60 Hz, 50 = 50 Hz
G – Indic ates Charger configuration – 06 = 6 Pulse Charger, 12 = 12 Pulse Charger
H – Indic ates Current Limit – 100 = 100% Current Limit, 115 = 115% Current Limit
I – Indic ates Customization – B = Base, C = Custom



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AMETEK®
SOLIDSTATE CONTROLS

THE PURPOSE OF OUR BUSINESS IS TO PROVIDE CONTINUITY OF ELECTRICAL POWER TO KEEP BUSINESSES IN BUSINESS.

WE DO THIS BY HELPING CLIENTS SOLVE THEIR POWER PROBLEMS AND BY CREATING THE MOST ECONOMICAL LONG-TERM RESULTS.

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