NTSC

C-DR091/161 SERIES DIGITAL VIDEO RECORDER



TOA's Digital Video Recorder series combine high reliability with all the advantages of scalable expansion flexibility.

Operated with a u
the DVR Series makes it easy





TOA's C-DR091/161 Series boasts highly reliable hardware and software, thanks to the numerous tests and verifications the Series' models have been put through and passed in Japan. Despite the multiple functions available on the C-DR091/161 Series, it can be operated smoothly and efficiently. The C-RM1000 Remote Controller designed to be used with the DVR Series incorporates design features that focus on ease of operations for users worldwide. The panel angle and surface finish, and the layout of the buttons and the joystick are some of the examples of the ingenious design considerations that ensure user-friendly, stress-free operation.

ser-friendly remote controller, to set up a system of any size, from small to large-scale.



The extensive product range, consisting of 8 DVD-burner equipped models, and featuring 9 or 16 video inputs, a choice of HDD storage capacities can meet the demands of any application, and can be partnered with a remote controller and external HDD expansion unit to configure systems that can fulfill the needs of even more specific applications.

Comparison Chart

Model No.	Input	HDD	Mirroring	DVD
C-DR091D08	9	80GB (80GB × 1)	—	●
C-DR091D1	9	160GB (160GB × 1)	—	●
C-DR091D3	9	320GB (160GB × 2)	●	●
C-DR091D6	9	600GB (300GB × 2)	●	●
C-DR091-08	9	80GB (80GB × 1)	—	—
C-DR091-1	9	160GB (160GB × 1)	—	—
C-DR091-3	9	320GB (160GB × 2)	●	—
C-DR091-6	9	600GB (300GB × 2)	●	—
C-DR161D08	16	80GB (80GB × 1)	—	●
C-DR161D1	16	160GB (160GB × 1)	—	●
C-DR161D3	16	320GB (160GB × 2)	●	●
C-DR161D6	16	600GB (300GB × 2)	●	●
C-DR161-08	16	80GB (80GB × 1)	—	—
C-DR161-1	16	160GB (160GB × 1)	—	—
C-DR161-3	16	320GB (160GB × 2)	●	—
C-DR161-6	16	600GB (300GB × 2)	●	—

9-Channel Digital Video Recorder



C-DR091D08/C-DR091D1/C-DR091D3/C-DR091D6



C-DR091-08/C-DR091-1/C-DR091-3/C-DR091-6

16-Channel Digital Video Recorder



C-DR161D08/C-DR161D1/C-DR161D3/C-DR161D6



C-DR161-08/C-DR161-1/C-DR161-3/C-DR161-6

Viewing

Multi-Segment Split-Screen Display

Live images are displayed as fully moving images in all the display modes: full-screen, 4-segment, 9-segment and 16-segment* split screen displays.

*Only with 16-channel models.

Triplex Function

Live and recorded images can be simultaneously viewed during recording in multi-screen display.



Recording

Mirror Recording

TOA's Digital Video Recorders* come equipped with two hard disk drives, enabling simultaneous recording without an external hard disk drive. This function is provided as a safeguard against data loss due to failure of one drive.

(*except for C-DR091D08, C-DR091D1, C-DR091-08, C-DR091-1, C-DR161D08, C-DR161D1, C-DR161-08, C-DR161-1)

Auto-Recording

This function permits Normal recording and Alarm event recording, for each of which a different setting can be made.

Pre-Recording

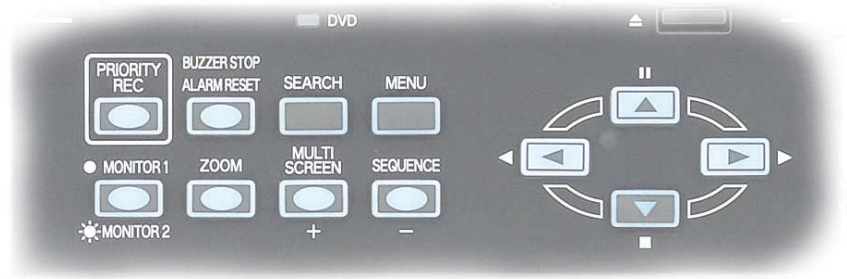
Retroactive recordings can be made for up to 5 minutes before the occurrence of an alarm event (alarm signal input or motion movement) or priority recording, even if no recording is currently in progress.

High Picture Quality and High Frame Rate

Recording and playback can be simultaneously performed at a maximum of 120 IPS (Image compression method: Motion-JPEG). Picture quality can be adjusted in five levels.

Hard Disk Expansion

Up to 2 Disk Arrays of C-DA1000-1 (1.2TB) and / or C-DA1000-2 (2.4TB) can be connected per Digital Video Recorder. Up to 4.8TB can be added to the Digital Video Recorder's hard disk capacity.





C-DA1000-1(1.2TB)/C-DA1000-2(2.4TB)

Hard Disk Expansion Unit

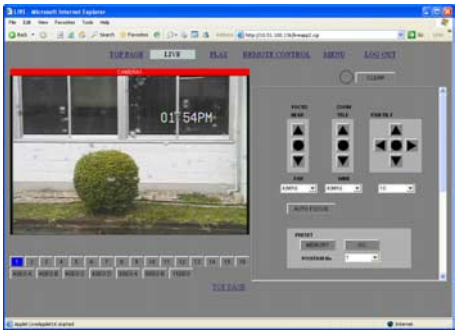
The C-DA1000 series are hard disk units used to expand recording capacity of C-DR091/161 Series Digital Video Recorder.
Up to two units per DVR can be connected.



4-segment split screen



16-segment split screen



Camera Control Screen

Full Utilization

Archive Function

Recorded images can be copied onto the DVD-R (available on model with DVD) or to the USB memory.
Viewer software is also downloaded at the same time.

Cascade Connection

Cascade-connecting of 8 Digital Video Recorders permits camera images of up to 128 cameras to be viewed
on a single monitor display. With the addition of the C-RF1000 interface Unit, up to 4 C-RM1000 Remote Controllers
can be connected in a system, allowing each controller to control all Digital Video Recorders and Combination Cameras.

Network Function

The Digital Video Recorder is equipped with a variety of web-accessible functions. Connecting to the unit with a PC
over a LAN cable allows the video recorder to monitor camera outputs remotely, or to search and /or play back recorded images using a web browser.

Security Function

System security is assured by a user login password, USB-based protection that "locks" the unit, preventing operation or any changes to the settings. To safeguard recorded images, the DVR can detect images that have been altered.

Email Function

Email can be transmitted when an alarm event or failure occurs.
Up to 4 destination addresses can be programmed.



C-RF1000 Interface Unit

The C-RF1000 Interface Unit is used to operate the C-DR091/161 Series Digital Video Recorder with multiple remote controllers (up to 4 remote controllers can be connected). Equipped with on RS-232C terminal, the C-RF1000 can connect to a PC.



C-RM1000 Remote Control Unit

The C-RM 1000 Remote Controller can control not only TOA's 9- or 16-channel Digital Video Recorders but also Combination Cameras that are connected to the Digital Video Recorder.

3-Axis Joystick

The most appealing feature of the C-RM1000 is that it comes equipped with a 3-axis joystick, which makes this remote controller user-friendly and facilitates operations. Moving the 3-axis joystick up, down, right or left, or twisting it, activates a variety of remote controlled operations. In live mode, the joystick performs pan, tilt and zoom operation of connected Combination Cameras. In playback mode, it controls playback, reverse playback, fast forward playback and pause functions.

Recording Time Table

C-DR091-6 and C-DR091D6 Digital Video Recorder

Camera: 9, Hard Disk: 600GB, Audio recording: OFF

Picture quality	File size	Recording rate per camera (IPS) and recording time (hour)										
		8	4	2	1	1/2	1/3	1/5	1/10	1/20	1/30	1/60
1 (High)	64KB	36	72	145	291	583	874	1457	2915	5539	8163	16326
2	40KB	57	115	231	462	924	1386	2311	4622	8782	12941	25883
3	32KB	71	143	287	574	1148	1722	2871	5742	10911	16079	32158
4	24KB	94	189	379	758	1516	2274	3790	7580	14402	21224	42449
5 (Low)	16KB	139	278	557	1114	2229	3344	5573	11147	21180	31212	62425

Camera: 9, Hard Disk: 600GB, Audio recording: ON

Picture quality	File size	Recording rate per camera (IPS) and recording time (hour)										
		8	4	2	1	1/2	1/3	1/5	1/10	1/20	1/30	1/60
1 (High)	64KB	36	72	143	283	551	805	1275	2269	3593	4540	6290
2	40KB	57	114	226	442	847	1221	1885	3184	4726	5714	7333
3	32KB	71	141	279	543	1032	1474	2242	3678	5280	6253	7763
4	24KB	93	186	365	705	1320	1860	2765	4354	5982	6904	8245
5 (Low)	16KB	137	271	528	1005	1830	2520	3608	5335	6899	7706	8792

C-DR161-6 and C-DR161D6 Digital Video Recorder

Camera: 16, Hard Disk: 600GB, Audio recording: OFF

Picture quality	File size	Recording rate per camera (IPS) and recording time (hour)										
		8	4	2	1	1/2	1/3	1/5	1/10	1/20	1/30	1/60
1 (High)	64KB	20	41	81	163	327	491	819	1639	3115	4591	9183
2	40KB	32	64	129	259	519	779	1299	2599	4939	7279	14559
3	32KB	40	80	161	323	646	969	1615	3230	6137	9044	18089
4	24KB	53	106	213	426	852	1279	2131	4263	8101	11938	23877
5 (Low)	16KB	78	156	313	627	1254	1881	3135	6270	11913	17557	35114

Camera: 16, Hard Disk: 600GB, Audio recording: ON

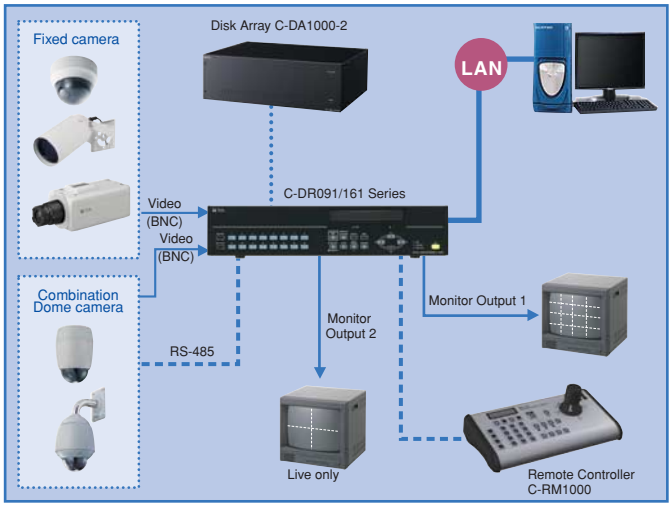
Picture quality	File size	Recording rate per camera (IPS) and recording time (hour)										
		8	4	2	1	1/2	1/3	1/5	1/10	1/20	1/30	1/60
1 (High)	64KB	20	40	81	161	317	469	759	1413	2388	3169	4840
2	40KB	32	64	128	253	494	724	1153	2073	3331	4253	6009
3	32KB	40	80	159	313	607	885	1394	2455	3836	4801	6535
4	24KB	53	105	208	409	787	1137	1764	3009	4521	5510	7163
5 (Low)	16KB	77	154	304	590	1117	1589	2239	3888	5504	6465	7924



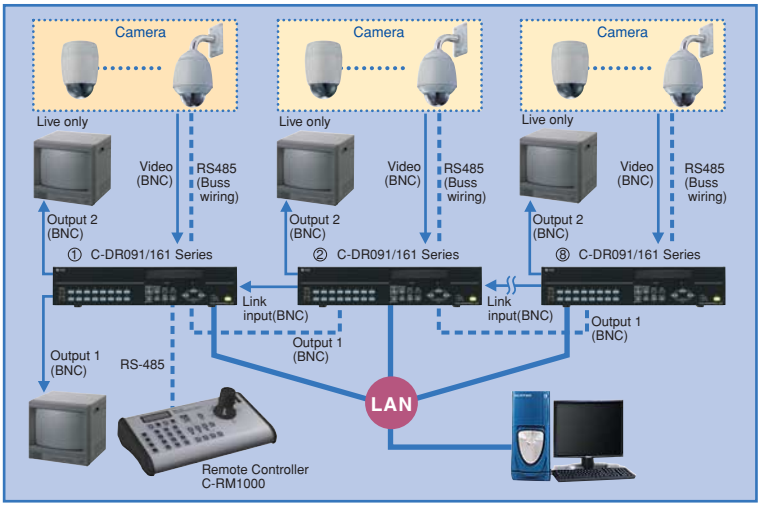
The TOA C-RM1000 Remote Controller is engineered to offer ease of operation to users around the world.

Working on the assumption that the controller is usually manipulated by a seated operator, TOA engineers have come up with a panel surface angle that is easy to use and that ensures fatigue-free use even during long hours of constant operation. The panel's surface finish offers another example: to ensure efficient long-term use, the finish is scratch- and fingerprint-resistant. The location of the joystick and buttons are yet another feature ensuring smooth operation. To enable single-handed camera operation, the Focus key and Iris key are placed alongside the joystick. Furthermore, enough space is provided between all the keys to prevent inadvertent pressing of the wrong key. In addition, the legend on frequently used keys is resistant to wearing off.

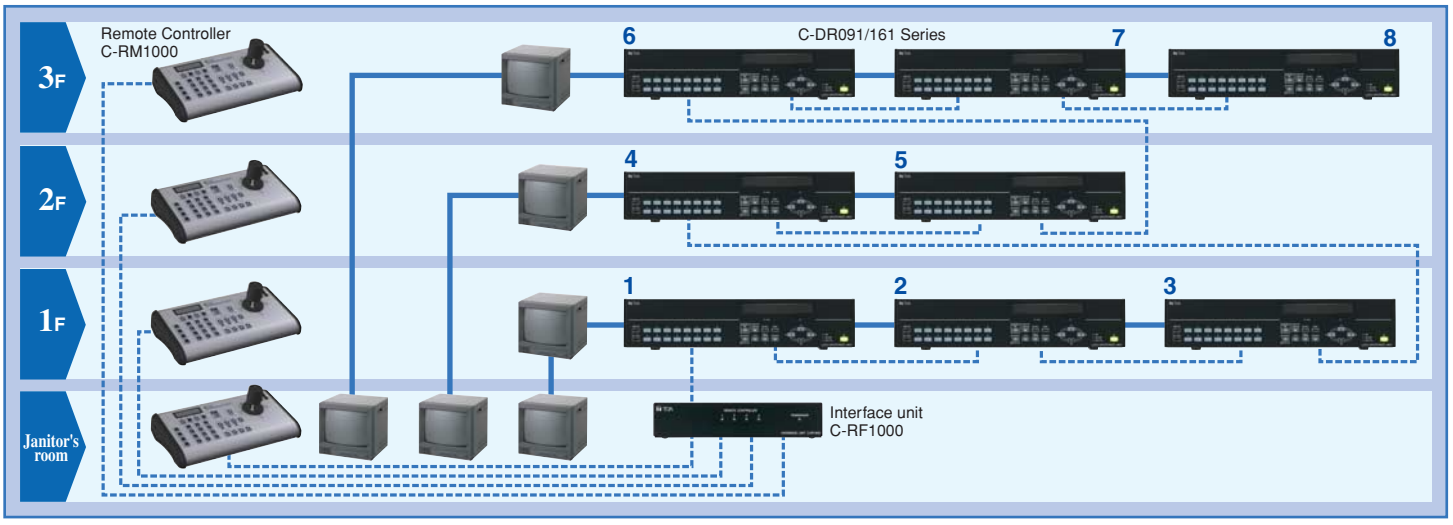
Basic System Example



Cascade Connection Example



Grouping Example



SPECIFICATIONS

Model No.	C-DR091 Series 9 CH Digital Video Recorder without DVD	C-DR091 Series 9 CH Digital Video Recorder with DVD	C-DR161 Series 16 CH Digital Video Recorder without DVD	C-DR161 Series 16 CH Digital Video Recorder with DVD
Power Req.	110 – 120V AC, 50/60Hz			
Power Consumption	C-DR091-08: 400mA C-DR091-1: 410mA C-DR091-3: 480mA C-DR091-6: 530mA	C-DR091D08: 490mA C-DR091D1: 500mA C-DR091D3: 570mA C-DR091D6: 590mA	C-DR161-08: 430mA C-DR161-1: 440mA C-DR161-3: 540mA C-DR161-6: 560mA	C-DR161D08: 530mA C-DR161D1: 530mA C-DR161D3: 610mA C-DR161D6: 630mA
Image Compression System	Motion-JPEG			
Video Input	9 channels, VBS 1.0 V(p-p), 75Ω BNC		16 channels, VBS 1.0 V(p-p), 75Ω BNC	
Video Output	9 channels, VBS 1.0 V(p-p), 75Ω BNC, loop-through		16 channels, VBS 1.0 V(p-p), 75Ω BNC, loop-through	
Monitor Output	2 channels, VBS 1.0 V(p-p), 75Ω BNC 1 channel is dedicated to real-time image (Full-screen and 4-segment split screen displays only. Nothing is displayed other than camera names and camera numbers.)			
Link Input	1 channel, VBS 1.0 V(p-p), 75Ω BNC Connect the monitor output of other digital video recorder (C-DR091/161 series) to this terminal. Multiple digital video recorders can be operated and monitored with a single monitor by using the C-RM1000 Remote Controller (option).			
Audio Recording System	8 bits, Linear PCM, sampling frequency of 16kHz			
Audio Input	1 channel, –10dB*, 10kΩ, unbalanced, RCA pin jack			
Audio Output	1 channel, –10dB*, 600Ω, unbalanced, RCA pin jack			
Screen Display	1-, 4-, 9- segment screen sequence, electronic 2x zoom		1-, 4-, 9-, 16- segment screen sequence, electronic 2x zoom	
Picture Quality	Changeable in 5 steps (File size: 16 – 64kB) 64 kB (Quality 1), 40 kB (Quality 2), 32kB (Quality 3), 24kB (Quality 4), 16kB (Quality 5)			
Resolution	720 x 240 pixels			
Recording Rate	Max. 120 IPS (each camera can be individually set for the following rate) 60, 30, 15, 8, 4, 2, 1, 1/2, 1/3, 1/5, 1/20, 1/3-, 1/60 IPS			
Pre-Alarm Recording	Max. 5 min. (0 – 300 sec.)			
Post Alarm Recording	Max. 999 sec. (0 – 999 sec.)			
Motion Detection	5 Sensitivity levels, Can be turned on/off for individual areas			
Search Function	Date/Time search, Event search (Priority recording, Alarm-triggered recording, Timer recording, Motion recording)			
Alarm Input	9 channels (EDGE, LEVEL), no-voltage make contact input, open voltage: 2V DC short-circuit current: 1.5mA, minimum short-circuit time; over 100ms, loop resistance: under 100Ω, screwless connector		16 channels (EDGE, LEVEL), no-voltage make contact input, open voltage: 2V DC, short-circuit current: 1.5mA, minimum short-circuit time; over 100ms, loop resistance: under 100Ω, screwless connector	
Control Output	4 channels (can be set for Priority recording, Alarm-triggered recording, Motion recording, Video Loss, HD Full, Fan Failure, and HD Error) open collector output, withstand voltage: 30V DC, control current: 20mA, screwless connector			
Priority Recording Input	1 channel, no-voltage make contact input, open voltage: 2V DC, short-circuit current: 1.5mA, minimum short-circuit time: over 100ms, loop resistance: under 100Ω, screwless connector			
Time Synchronization Input	1 channel, no-voltage make contact input, open voltage: 2V DC, short-circuit current: 1.5mA, minimum short-circuit time: over 100ms, loop resistance: under 100Ω, screwless connector			
Time Synchronization Output	1 channel, open collector output, withstand voltage: 30V DC, control current: 20mA, screwless connector			
Camera Control	1 channel, RS-485, screwless connector			
Remote Control	1 channel, RS-485, screwless connector or RJ11			
Applicable DVD Medium	—	DVD-R	—	DVD-R
Operating Temperature	+5°C to +40°C (+41°F to +104°F)			
Operating Humidity	Under 80% RH (no condensation)			
Dimensions	420 (W) × 93.9 (H) × 332.8 (D) mm (16.54" × 3.70" × 13.10")			
Weight	C-DR091-08: 5.7kg (12.57lb) C-DR091-1: 5.7kg (12.57lb) C-DR091-3: 6.5kg (14.33lb) C-DR091-6: 6.5kg (14.33lb)	C-DR091D08: 6.8kg (14.99lb) C-DR091D1: 6.8kg (14.99lb) C-DR091D3: 7.6kg (16.74lb) C-DR091D6: 7.6kg (16.74lb)	C-DR161-08: 5.8kg (12.79lb) C-DR161-1: 5.8kg (12.79lb) C-DR161-3: 6.6kg (14.55lb) C-DR161-6: 6.6kg (14.55lb)	C-DR161D08: 6.9kg (15.21lb) C-DR161D1: 6.9kg (15.21lb) C-DR161D3: 7.7kg (16.98lb) C-DR161D6: 7.7kg (16.98lb)

Model No.	C-RM1000 Remote Controller
Power Req.	120V AC, 60Hz or 12V DC (supplied from the Digital Video Recorder)
Current Consumption	80mA (use of the supplied AC adapter)
Digital Video Recorder Control	RS-485 RJ-11 (6P6C) (when the included 3-meter modular cable is used) RS-485 screwless connector (3 pins) (with cable length of 3 meters and more, or when C-RF1000 (option) is used)
Alarm Signal	Continuous alarm tone (can be turned on and off through the menu)
Maximum Cable Distance	1.2km*
Function	Password setting, DVR Group setting, Abbreviation function (512 types), Preset position setting, Language chaice (English/French)
Operating Temperature	0°C to +40°C (+32°F to +104°F)
Operating Humidity	Under 80% RH (no condensation)
Finish	Panel: Surface treated steel plate, silver, paint Sides: Rubber
Dimensions	323.6 (W) × 112.7 (H) × 181 (D) mm (12.74" × 4.44" × 7.13")
Weight	1.6kg (3.53 lb) (excluding AC adapter)
Accessories	AC adapter (1.8m) × 1, Modular cable (3m) × 1
Applicable Model (option)	Digital Video Recorder: C-DR091/C-DR161 Series Interface Unit: C-RF1000

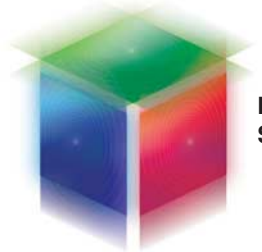
* Applies to the system where the unit and a digital video redcorder are connected in a matched pair.
Represents the total of connected cable distances if multiple digital video recorders or interface unit are connected in the system.

Model No.	C-RF1000 Interface Unit
Power Req.	12V DC (supplied from the Digital Video Recorder)
Current Consumption	100mA
Digital Video Recorder Control	RS-485 RJ-11 (6P6C) (when the included 3-meter modular cable is used)
Remote Control	RS-485 screwless connector (3 pins) × 4 channels
External Control Terminal	RS-232C, D-sub connector (9P, male)
Display	Indicates Power/DVR control ON status, indication of remote control ON 1 – 4
Number of Remote Controller Connections	Up to 4 (up to 3 remote controllers when the RS-232C terminal is in use)
Maximum Cable Distance	RS-485: 1.2km*, RS-232C: 10 m
Operating Temperature	0°C to +50°C (+32°F to +122°F)
Operating Humidity	Under 90% RH (no condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	210 (W) × 44 (H) × 98.8 (D) mm (8.27" × 1.73" × 3.90")
Weight	700g (1.54 lb)
Accessory	Modular cable (3m) × 1
Applicable Model (option)	Digital Video Recorder: C-DR091/C-DR161 Series Remote Controller: C-RM1000
Option	Rack mount bracket: MB-15B-BK (for rack mounting one unit) MB-15B-J (for rack mounting together with other 1U half size units

*The maximum cable length is 1.2 km (3.937 ft.) for distance between the Interface Unit and the farthest Digital Video Recorder.

Model No.	C-DA 1000-1 Disk Array 1.2TB	C-DA 1000-2 Disk Array 2.4TB
Power Req.	110 – 120V AC, 50/60 Hz	
Rated Current	0.7A	1.2A
Recording Medium	1.2 TB Hard Disk (300GB × 4)	2.4 TB Hard Disk (300GB × 8)
Control Terminal	eSATA terminal, modular terminal	
Operating Temperature	+5°C to +40°C (+41°F to +104°F)	
Operating Humidity	Under 80% RH (no condensation)	
Finish	Surface-treated steel plate, black, paint	
Dimensions	420 (W) × 142.6 (H) × 315 (D) mm (16.54" × 5.61" × 12.4")	
Weight	9kg (19.84 lb)	12kg (26.46 lb)
Accessories	Power cord fitted with a ferrite clamp (2.1m) × 1, eSATA cable fitted with a ferrite clamp (1m) × 1, Modular cable fitted with a ferrite clamp (1m) × 1, eSATA cable clamp (for Disk Array and Digital video recorder) × each 1, Ground wire (1m) × 1, Clamp fixing screws × 1, USB memory* × 2	
Option	Rack mounting bracket: MB-31B	

*For Digital Video Recorder's firmware update (needed when connecting the Disk Array)



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