DIGITAL VIDEO RECORDERS

9-Channel/16-Channel Digital Video Recorders **NTSC**

16-Channel Digital Video Recorder

C-DR161D08
(HDD 80GB with DVD)
C-DR161D1
(HDD 160GB with DVD)
C-DR161D3
(HDD 320GB with DVD)
C-DR161D6
(HDD 600GB with DVD)



C-DR161-08
(HDD 80GB)
C-DR161-1
(HDD 160GB)
C-DR161-3
(HDD 320GB)
C-DR161-6
(HDD 600GB)



9-Channel Digital Video Recorder

C-DR091D08
(HDD 80GB with DVD)
C-DR091D1
(HDD 160GB with DVD)
C-DR091D3
(HDD 320GB with DVD)
C-DR091D6
(HDD 600GB with DVD)



C-DR091-08
(HDD 80GB)
C-DR091-1
(HDD 160GB)
C-DR091-3
(HDD 320GB)
C-DR091-6
(HDD 600GB)



Other Equipments

C-RM1000
Remote Controller



C-RF1000
Interface Unit



Hard Disk Expansion Unit
C-DA1000-1
(HDD 1.2TB)
C-DA1000-2
(HDD 2.4TB)



TOA

DIGITAL VIDEO RECORDER

DESCRIPTION AND FEATURES

The TOA C-DR-161/091 Series is made up of 16 DVR (digital video recorder) units, offering a wide range of video input, HDD storage and DVD burning capabilities. Up to eight DVR units can be linked in cascade configurations to form a large-scale system with a maximum of 128 cameras connected.
By linking as many as four C-RM1000 remote control units, a sophisticated zone-based security system can be configured.
Operational efficiency and economy are greatly enhanced because there is no need for additional special equipment.

A network can be set up for live surveillance and playback, with web browser control, and email transmission to report alarm.
A high picture quality of 720 x 240 pixels and high frame rate of 120 IPS(Image Per Second) are provided. Each camera can have individual recording rate and picture quality settings.
There is a wide selection of recording and search modes, as well as backup to a built-in DVD-R or external USB memory. PC viewer software is also automatically created.
Password and USB key corresponding to the operation level protects the DVR system from unauthorized access.

Extensive range of products in the series satisfy any demand.

TOA's latest DVR products are the C-DR161/091 Series. This series is composed of 16 units which feature different video input capabilities, different HDD storage capacities as well as incorporating DVD burner. These products can be partnered with a range of peripherals including the C-RM1000 dedicated remote controller and two external HDD expansion units in order to configure systems that can fulfill the needs of many specific applications.

Versatile system expansion possibilities for fulfilling specific requirements.

Utilizing the new DVR C-DR161/091 Series makes it possible to assemble large-scale systems using up to eight DVR units in cascade configuration. Each DVR unit can have two external HDD expansion units and the system can be efficiently operated using up to a maximum of 4 remote controllers. Such large systems allow connecting up to 128 cameras with HDD expanded externally by up to 4.8TB per DVR unit. Configuring systems as needed can be performed efficiently as well as economically as special or dedicated devices are not required.

Remote control capabilities via network enhance system performance.

A DVR from the C-DR161/091 Series offers remote surveillance, search and playback of recorded images via a 10/100 BASE-T network. Remote surveillance can be performed just with unit controls without dedicated software and control can be performed via a web browser such as Internet Explorer. In addition, there is an e-mail transmission function to report alarm.

High picture quality with high frame rate.

TOA DVRs feature a maximum high frame rate of 120 IPS for image recording with a high picture quality of 720 x 240 pixels. Each camera in a system can have individual settings for recording rate and picture quality which in turn enable setting priority recording.

Multiple search modes for quicker results.

Searching recorded data is easy as various data search modes are offered: Time/day search and Event search (priority recording, timer recording, alarm recording, motion detection recording). This versatility makes it possible to select an optimal search method for particular requirements.

Backing up data with dedicated viewer software .

Recorded data can be backed up to the built-in DVD-R drive or external USB memory. Whenever a backup copy is made, viewer software that allows image viewing on a PC is also copied to the backup medium.

Secure measures protect system.

System security is also provided by a user log-in password corresponding to the operation level and USB-based protection that “locks” the unit, preventing operation or any changing to the settings unless a registered USB memory key is used. To safeguard recorded images, the DVRs are supplied with software that will detect images that have been altered.

Wide selection of recording modes.

Recording modes are Priority recording, Auto recording (Alarm even/Normal), Pre-recording.

Accurate time synchronizing.

Recording time data is absolutely essential for the integrity of the recorded images, so the new DVR units include a NTP server-based time correction function. Time correction can also be accessed for TOA combination cameras that are connected to the DVR.



Full-featured remote controller assists operation.

The C-RM1000 remote controller can control the new DVR C-DR161/091 Series in addition to TOA combination dome cameras via the DVR. A single remote controller can control up to eight DVR units and when the maximum eight DVRs are cascaded, controlling 128 combination dome cameras becomes possible.

Grouping maximizes surveillance efficiency.

Effective surveillance is accomplished by dividing surveillance into multiple zones for security purposes, and this is desirable for many sites including factories, commercial facilities, schools and buildings. The new DVR also makes it possible to group using the C-RM1000 remote controller, helping to easily configure optimal, sophisticated systems.

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	73	147	295	590	885	1475	2951	5607	8262	16525
2	40KB	58	117	233	467	935	1403	2339	4678	8889	13099	26199
3	32KB	72	145	290	581	1162	1743	2906	5812	11044	16275	32550
4	24KB	95	191	383	767	1534	2301	3836	7672	14578	21483	42967
5 (Low)	16KB	141	282	564	1128	2256	3385	5641	11283	21438	31593	63186

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	73	145	286	558	815	1291	2296	3637	4596	6367
2	40KB	58	115	228	447	858	1236	1908	3222	4783	5784	7423
3	32KB	72	143	282	550	1045	1492	2269	3723	5345	6329	7857
4	24KB	95	188	369	714	1336	1883	2799	4407	6055	6988	8346
5 (Low)	16KB	139	274	535	1017	1853	2551	3652	5400	6983	7800	8899

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

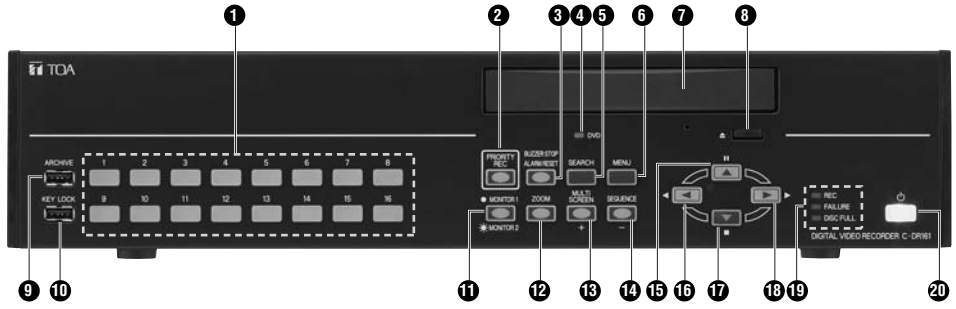
Camera: 16, Hard Disk: 600GB, Audio recording: OFF

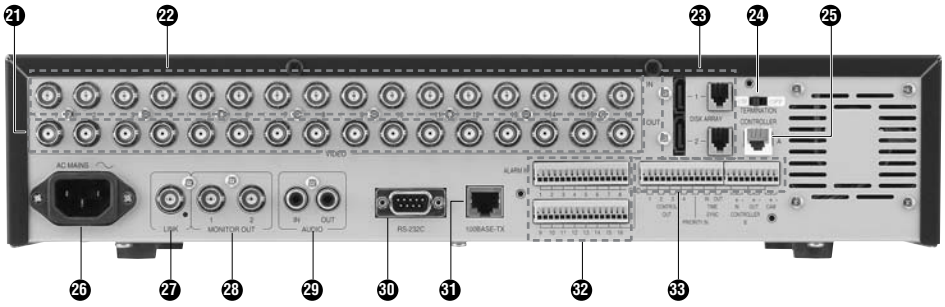
Picture quality	File size	Recording rate per camera (IPS) and recording time (hour)										
		8	4	2	1	1/2	1/3	1/5	1/10	1/20	1/30	1/60
1 (High)	64KB	20	41	83	166	332	498	830	1660	3153	4647	9295
2	40KB	32	65	131	263	526	789	1315	2631	5000	7368	14737
3	32KB	40	81	163	327	653	980	1634	3269	6212	9154	18309
4	24KB	53	107	215	431	863	1294	2157	4315	8200	12084	24168
5 (Low)	16KB	79	158	317	634	1269	1904	3173	6346	12059	17771	35542

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	41	82	163	321	475	768	1430	2417	3208	4899
2	40KB	32	65	129	256	500	733	1167	2098	3372	4305	6082
3	32KB	40	81	160	317	615	896	1412	2485	3883	4859	6615
4	24KB	53	106	211	414	796	1150	1786	3046	4576	5577	7250
5 (Low)	16KB	78	156	307	598	1130	1608	2429	3935	5572	6543	8020

Nomenclature





Front Panel

1. Camera selector key
2. Priority recording key
3. Alarm reset key
4. DVD indicator
5. Search key
6. Menu key
7. DVD receptacle
8. DVD eject key
9. Archive terminal
10. Key lock terminal
11. Monitor key
12. Zoom key
13. Multi-Screen key
14. Sequence key
15. Pause key
16. Reverse playback key
17. Stop key
18. Playback key
19. Informational indicator
20. Power key

Rear Panel

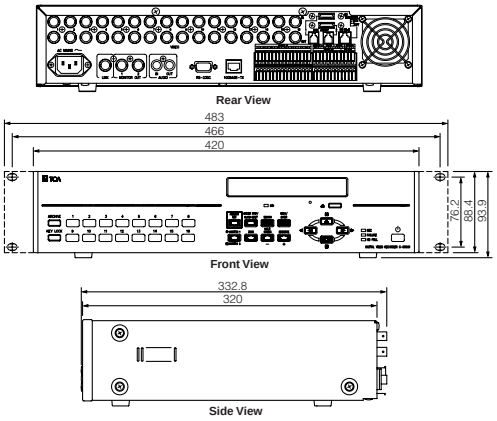
21. Video output terminal
22. Video input terminal
23. Hard disk expansion unit connection terminal
24. Termination switch
25. Remote controller input/output terminal A (power can be supplied)
26. AC inlet
27. Link input terminal
28. Monitor output terminal
29. Audio input/output terminal
30. RS-232C terminal
31. 100BASE-TX terminal
32. Alarm input terminal
33. Control input/output terminal

C-DR161D08/C-DR161D1/C-DR161D3/C-DR161D6
16- CHANNEL DIGITAL VIDEO RECORDER WITH DVD



The C-DR161 Series are a motion JPEG digital recorder system employing a hard disk drive as the recording medium. Live and reproduced images can be monitored on full-screen or split-screen displays. Recorded images on the hard disk drive can be backed up onto a DVD-R disk.
Equipped with two hard disks, the C-DR161D3 and C-DR161D6 can perform Mirroring Recoding.

APPEARANCE AND DIMENSIONAL DIAGRAM



SPECIFICATIONS

Model No.	C-DR161D08	C-DR161D1	C-DR161D3	C-DR161D6
Power Source	110 – 120V AC, 50/60Hz			
Power Consumption	530mA	530mA	610mA	630mA
Image Compression System	Motion JPEG			
Color System	NTSC			
Recording Medium	E-IDE hard disk 80GB (80 × 1)	E-IDE hard disk 160GB (160 × 1)	E-IDE hard disk 320GB (160 × 2)	E-IDE hard disk 600GB (300 × 2)
Video Input	16 channels, VBS 1.0V (p-p), 75Ω, BNC			
Video Output	16 channels, VBS 1.0V (p-p), 75Ω, BNC, loop through			
Monitor Output	2 channels, VBS 1.0V (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 1.0V (p-p), 75Ω, BNC Connect the monitor output of digital video recorder (CDR091/161 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 at 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-, 16- segment screen sequence, electronic 2x zoom			
Frequency Response	300 – 6,000 Hz			
Picture Quality	Changeable in 5 steps (File size: 16 – 64 kB) 64kB (Quality 1), 40kB (Quality 2), 32kB (Quality 3), 24kB (Quality 4), 16kB (Quality 5)			
Pixels	720 × 240 pixels			
Recording Rate	Max. 120 IPS (each camera can be individually set for the following rate) 120, 60, 30, 15, 8, 4, 2, 1, 1/2, 1/3. 1/5, 1/10, 1/20, 1/30, 1/60 IPS			
Pre-Recording	Max. 5 min. (0 – 300 sec.)			
Post-Alarm Recording	Max. 999 sec. (0 – 999 sec.)			
Date and Time	Year/Month/Day/Hour/Minute/Second; 24-Hour format display, monthly deviation of within ±30 s (25°C), can be operate until the leap year 2099			
Motion Detect	5 Sensitivity levels, can be turned on/off for individual areas			
Search Function	Date/Time search, Event search (Priority recording, Alarm-input recording, Normal recording, Motion detect recording)			
Alarm Input	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-input recording, Motion detect recording, Video Loss, HD Full, Fan Failure, and HD Error) open collector output, withstand voltage: 30V DC, circuit 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 Output	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, open collector output, withstand voltage: 30V DC, control current: 20mA, screwless connector			
Camera Control	1 channel, RS-485, screwless connector			
Remote Control	2 channels, RS-485, screwless connector or RJ11			
Disk Array	2 channels, e-SATA (and dedicated control signal), e-SATA connector and modular connector			
Communication Function	RS-232C: D-sub connector (9P, male), 10 BASE-T/100 BASE-TX ethernet: RJ45			
Other Function	Timer recording, mail transmission capability, USB terminals (ARCHIVE, KEY LOCK), Language choice (English/French/Japanese)			
Applicable DVD Medium	DVD-R			
Altitude	Under 3000m (relative to sea level)			
Operating Temperature	+5°C to +40°C			
Operating Humidity	Under 80% RH (no dew condensation)			
Finish	Panel: Sruface-treated steel plate, black, paint, 30% gloss Case: Pre-coated steel plate, black			
Dimensions	420 (W) × 93.9 (H) × 332.8 (D) mm			
Weight	6.9kg	6.9kg	7.7kg	7.7kg
Accessory	Power cord (2 m) × 1			
Option	Rack mount brackets (MB-23B)			

*0dB = 1V

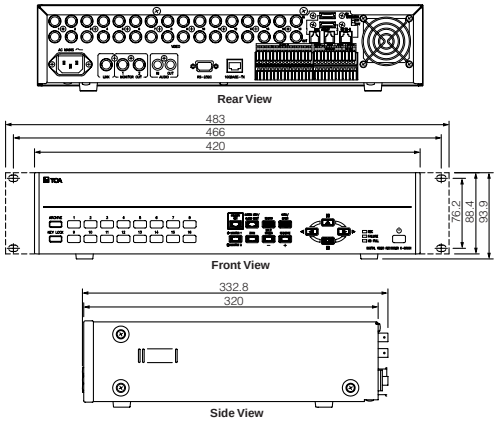
C-DR161-08/C-DR161-1/C-DR161-3/C-DR161-6

16- CHANNEL DIGITAL VIDEO RECORDER



The C-DR161 Series are a motion JPEG digital recorder system employing a hard disk drive as the recording medium. Live and reproduced images can be monitored on full-screen or split-screen displays.
Equipped with two hard disks, the C-DR161-3 and C-DR161-6 can perform Mirroring Recoding.

APPEARANCE AND DIMENSIONAL DIAGRAM



SPECIFICATIONS

Model No.	C-DR161-08	C-DR161-1	C-DR161-3	C-DR161-6
Power Source	110 – 120V AC, 50/60Hz			
Power Consumption	430mA	440mA	540mA	560mA
Image Compression System	Motion JPEG			
Color System	NTSC			
Recording Medium	E-IDE hard disk 80GB (80 × 1)	E-IDE hard disk 160GB (160 × 1)	E-IDE hard disk 320GB (160 × 2)	E-IDE hard disk 600GB (300 × 2)
Video Input	16 channels, VBS 1.0V (p-p), 75Ω, BNC			
Video Output	16 channels, VBS 1.0V (p-p), 75Ω, BNC, loop through			
Monitor Output	2 channels, VBS 1.0V (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 1.0V (p-p), 75Ω, BNC Connect the monitor output of digital video recorder (CDR091/161 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 at 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-, 16- segment screen sequence, electronic 2x zoom			
Frequency Response	300 – 6,000 Hz			
Picture Quality	Changeable in 5 steps (File size: 16 – 64 kB) 64kB (Quality 1), 40kB (Quality 2), 32kB (Quality 3), 24kB (Quality 4), 16kB (Quality 5)			
Pixels	720 × 240 pixels			
Recording Rate	Max. 120 IPS (each camera can be individually set for the following rate) 120, 60, 30, 15, 8, 4, 2, 1, 1/2, 1/3. 1/5, 1/10, 1/20, 1/30, 1/60 IPS			
Pre-Recording	Max. 5 min. (0 – 300 sec.)			
Post-Alarm Recording	Max. 999 sec. (0 – 999 sec.)			
Date and Time	Year/Month/Day/Hour/Minute/Second; 24-Hour format display, monthly deviation of within ±30 s (25°C), can be operate until the leap year 2099			
Motion Detect	5 Sensitivity levels, can be turned on/off for individual areas			
Search Function	Date/Time search, Event search (Priority recording, Alarm-input recording, Normal recording, Motion detect recording)			
Alarm Input	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-input recording, Motion detect recording, Video Loss, HD Full, Fan Failure, and HD Error) open collector output, withstand voltage: 30V DC, circuit 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 Output	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, open collector output, withstand voltage: 30V DC, control current: 20mA, screwless connector			
Camera Control	1 channel, RS-485, screwless connector			
Remote Control	2 channels, RS-485, screwless connector or RJ11			
Disk Array	2 channels, e-SATA (and dedicated control signal), e-SATA connector and modular connector			
Communication Function	RS-232C: D-sub connector (9P, male), 10 BASE-T/100 BASE-TX ethernet: RJ45			
Other Function	Timer recording, mail transmission capability, USB terminals (ARCHIVE, KEY LOCK), Language choice (English/French/Japanese)			
Altitude	Under 3000m (relative to sea level).			
Operating Temperature	+5°C to +40°C			
Operating Humidity	Under 80% RH (no dew condensation)			
Finish	Panel: Sruface-treated steel plate, black, paint, 30% gloss Case: Pre-coated steel plate, black			
Dimensions	420 (W) × 93.9 (H) × 332.8 (D) mm			
Weight	5.8kg	5.8kg	6.6kg	6.6kg
Accessory	Power cord (2 m) × 1			
Option	Rack mount brackets (MB-23B)			

*0dB = 1V

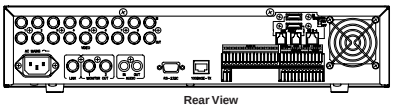
C-DR091D08/C-DR091D1/C-DR091D3/C-DR091D6

9- CHANNEL DIGITAL VIDEO RECORDER WITH DVD

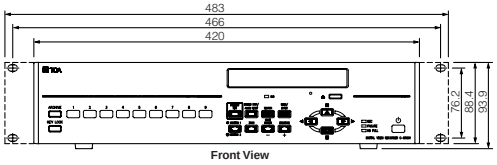


The C-DR091 Series are a motion JPEG digital recorder system employing a hard disk drive as the recording medium. Live and reproduced images can be monitored on full-screen or split-screen displays. Recorded images on the hard disk drive can be backed up onto a DVD-R disk.
Equipped with two hard disks, the C-DR091D3 and C-DR091D6 can perform Mirroring Recoding.

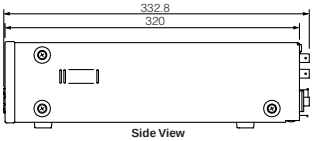
APPEARANCE AND DIMENSIONAL DIAGRAM



Rear View



Front View



Side View

SPECIFICATIONS

Model No.	C-DR091D08	C-DR091D1	C-DR091D3	C-DR091D6
Power Source	110 – 120V AC, 50/60Hz			
Power Consumption	490mA	500mA	570mA	590mA
Image Compression System	Motion JPEG			
Color System	NTSC			
Recording Medium	E-IDE hard disk 80GB (80 × 1)	E-IDE hard disk 160GB (160 × 1)	E-IDE hard disk 320GB (160 × 2)	E-IDE hard disk 600GB (300 × 2)
Video Input	9 channels, VBS 1.0V (p-p), 75Ω, BNC			
Video Output	9 channels, VBS 1.0V (p-p), 75Ω, BNC, loop through			
Monitor Output	2 channels, VBS 1.0V (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 1.0V (p-p), 75Ω, BNC Connect the monitor output of digital video recorder (CDR091/161 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 at 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			
Frequency Response	300 – 6,000 Hz			
Picture Quality	Changeable in 5 steps (File size: 16k – 64 kB) 64kB (Quality 1), 40kB (Quality 2), 32kB (Quality 3), 24kB (Quality 4), 16kB (Quality 5)			
Pixels	720 × 240 pixels			
Recording Rate	Max. 120 IPS (each camera can be individually set for the following rate) 120, 60, 30, 15, 8, 4, 2, 1, 1/2, 1/3. 1/5, 1/10, 1/20, 1/30, 1/60 IPS			
Pre-Recording	Max. 5 min. (0 – 300 sec.)			
Post-Alarm Recording	Max. 999 sec. (0 – 999 sec.)			
Date and Time	Year/Month/Day/Hour/Minute/Second; 24-Hour format display, monthly deviation of within ±30 s (25°C), can be operate until the leap year 2099			
Motion Detect	5 Sensitivity levels, can be turned on/off for individual areas			
Search Function	Date/Time search, Event search (Priority recording, Alarm-input recording, Normal recording, Motion detect 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			
Control Output	4 channels (can be set for Priority recording, Alarm-input recording, Motion detect recording, Video Loss, HD Full, Fan Failure, and HD Error) open collector output, withstand voltage: 30V DC, circuit 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 Output	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, open collector output, withstand voltage: 30V DC, control current: 20mA, screwless connector			
Camera Control	1 channel, RS-485, screwless connector			
Remote Control	2 channels, RS-485, screwless connector or RJ11			
Disk Array	2 channels, e-SATA (and dedicated control signal), e-SATA connector and modular connector			
Communication Function	RS-232C: D-sub connector (9P, male), 10 BASE-T/100 BASE-TX ethernet: RJ45			
Other Function	Timer recording, mail transmission capability, USB terminals (ARCHIVE, KEY LOCK), Language choice (English/French/Japanese)			
Applicable DVD Medium	DVD-R			
Altitude	Under 3000m (relative to sea level)			
Operating Temperature	+5°C to +40°C			
Operating Humidity	Under 80% RH (no dew condensation)			
Finish	Panel: Sruface-treated steel plate, black, paint, 30% gloss Case: Pre-coated steel plate, black			
Dimensions	420 (W) × 93.9 (H) × 332.8 (D) mm			
Weight	6.8kg	6.8kg	7.6kg	7.6kg
Accessory	Power cord (2 m) × 1			
Option	Rack mount brackets (MB-23B)			

*0dB = 1V

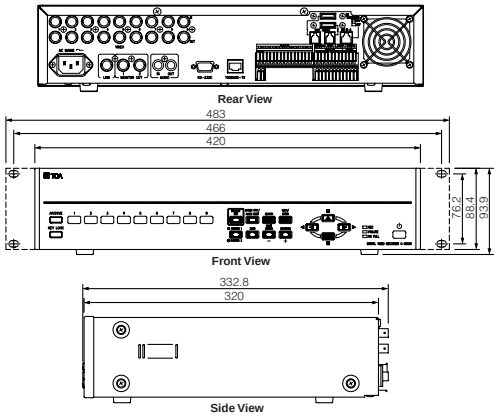
C-DR091-08/C-DR091-1/C-DR091-3/C-DR091-6

9- CHANNEL DIGITAL VIDEO RECORDER



The C-DR091 Series are a motion JPEG digital recorder system employing a hard disk drive as the recording medium. Live and reproduced images can be monitored on full-screen or split-screen displays.
Equipped with two hard disks, the C-DR091-3 and C-DR019-6 can perform Mirroring Recoding.

APPEARANCE AND DIMENSIONAL DIAGRAM



SPECIFICATIONS

Model No.	C-DR091-08	C-DR091-1	C-DR091-3	C-DR091-6
Power Source	110 – 120V AC, 50/60Hz			
Power Consumption	400mA	410mA	480mA	530mA
Image Compression System	Motion JPEG			
Color System	NTSC			
Recording Medium	E-IDE hard disk 80GB (80 × 1)	E-IDE hard disk 160GB (160 × 1)	E-IDE hard disk 320GB (160 × 2)	E-IDE hard disk 600GB (300 × 2)
Video Input	9 channels, VBS 1.0V (p-p), 75Ω, BNC			
Video Output	9 channels, VBS 1.0V (p-p), 75Ω, BNC, loop through			
Monitor Output	2 channels, VBS 1.0V (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 1.0V (p-p), 75Ω, BNC Connect the monitor output of digital video recorder (CDR091/161 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 at 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			
Frequency Response	300 – 6,000 Hz			
Picture Quality	Changeable in 5 steps (File size: 16 – 64 kB) 64kB (Quality 1), 40kB (Quality 2), 32kB (Quality 3), 24kB (Quality 4), 16kB (Quality 5)			
Pixels	720 × 240 pixels			
Recording Rate	Max. 120 IPS (each camera can be individually set for the following rate) 120, 60, 30, 15, 8, 4, 2, 1, 1/2, 1/3. 1/5, 1/10, 1/20, 1/30, 1/60 IPS			
Pre-Recording	Max. 5 min. (0 – 300 sec.)			
Post-Alarm Recording	Max. 999 sec. (0 – 999 sec.)			
Date and Time	Year/Month/Day/Hour/Minute/Second; 24-Hour format display, monthly deviation of within ±30 s (25°C), can be operate until the leap year 2099			
Motion Detect	5 Sensitivity levels, can be turned on/off for individual areas			
Search Function	Date/Time search, Event search (Priority recording, Alarm-input recording, Normal recording, Motion detect 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			
Control Output	4 channels (can be set for Priority recording, Alarm-input recording, Motion detect recording, Video Loss, HD Full, Fan Failure, and HD Error) open collector output, withstand voltage: 30V DC, circuit 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 Output	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, open collector output, withstand voltage: 30V DC, control current: 20mA, screwless connector			
Camera Control	1 channel, RS-485, screwless connector			
Remote Control	2 channels, RS-485, screwless connector or RJ11			
Disk Array	2 channels, e-SATA (and dedicated control signal), e-SATA connector and modular connector			
Communication Function	RS-232C: D-sub connector (9P, male), 10 BASE-T/100 BASE-TX ethernet: RJ45			
Other Function	Timer recording, mail transmission capability, USB terminals (ARCHIVE, KEY LOCK), Language choice (English/French/Japanese)			
Altitude	Under 3000m (relative to sea level).			
Operating Temperature	+5°C to +40°C			
Operating Humidity	Under 80% RH (no dew condensation)			
Finish	Panel: Sruface-treated steel plate, black, paint, 30% gloss Case: Pre-coated steel plate, black			
Dimensions	420 (W) × 93.9 (H) × 332.8 (D) mm			
Weight	5.7kg	5.7kg	6.5kg	6.5kg
Accessory	Power cord (2 m) × 1			
Option	Rack mount brackets (MB-23B)			

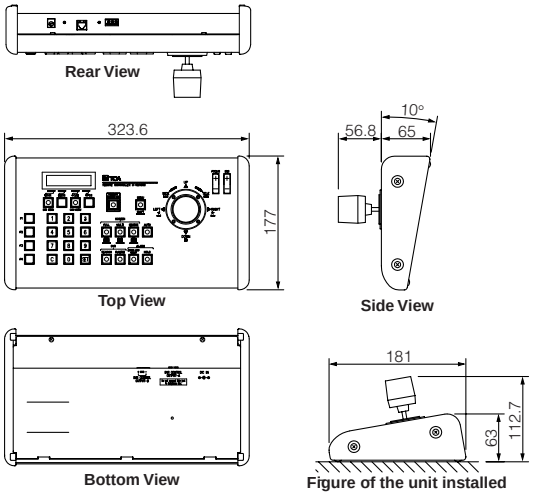
*0dB = 1V

C-RM1000
REMOTE CONTROLLER



The C-RM1000 Remote Controller is used to remotely control the 9-CH/16-CH Digital Video Recorder (C-DR091/161 Series).
It can also control combination cameras connected to the Digital Video Recorder.
A--built in 3-axis joystick allows main operations to be performed with one hand.

APPEARANCE AND DIMENSIONAL DIAGRAM



SPECIFICATIONS

Power Source	12 or 13.8V DC (Supplied by the included AC adapter or by the digital video recorder)
Power Consumption	250mA
Digital Video Recorder Control	RS-485, RJ-11 (6P6C) (when the included 5-meter modular cable is used) RS-485 screwless connector (3 pins) (with cable length of 5 meters and more, or when C-RF1000 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 choice (English/French)
Operating Temperature	0°C to +50°C
Operating Humidity	Under 90% RH (no dew condensation)
Finish	Panel: Surface treated steel plate, silver, painted Side: Rubber
Dimensions	323.6 (W) × 112.7 (H) × 181 (D) mm
Weight	1.6kg (excluding AC adapter)
Accessories	AC adapter (1.8m) × 1, Modular cable (5m) × 1
Applicable Model (option)	Digital Video Recorder: C-DR091/C-DR161 Series Interface Unit: C-RF1000

* Appllies to the system where the unit and a digital video reccorder are connected in a matched pair. Represents the total of connected cable distances if multiple digital video recorders or Interface units are connected int the system.

FUNCTIONS

Digital Video Recorder Control
Digital Video Recorder's recording and playback operation can be remotely controlled by the Remote Controller. It is also possible to display the Digital Video Recorder's menu to change settings.

Screen Display Operation
Camera images can be viewed in full-screen, 4-segment, 9-segment, or 16-segment split screen displays or in sequential displays. (Monitor 2 output can provide only full-screen, 4-segment split screen, and sequential displays.)

Combination Dome Camera Operation
The Combination Dome Camera's pan, tilt, and zoom operation, as well as focus and iris adjustments can be remotely controlled. It is also possible to display the Combination Dome Camera's menu to change settings.

Preset Position Programming and Playback
The Combination Dome Camera's preset positions can be easily programmed. Images set to the preset position can also be displayed on the monitor screen.

Abbreviation Number Function (Quick Display Function)
Digital video recorder numbers, camera numbers, and position numbers can be programmed into a function key (F1 – F4) or number (1 – 508). Pressing the programmed key or number permits the corresponding camera image to be displayed on the full screen.

Abbreviation Number Function (Function Programming)
Functions, such as Auto-focus, Auto operation, and electronic zoom, can be programmed into a function key (F1 – F4) or number (1 – 508).

Digital Video Recorder Grouping
Two or more cascade-connected Digital Video Recorders can be grouped, allowing images of all Digital Video Recorders in the group to be displayed on one master monitor. Further, multiple Digital Video Recorders can be viewed in sequential order through group sequence.

Password Setting
Accessible functions can be restricted by setting a password. There are 3 operation levels and different passwords can be set for each level.

Monitor Locking
Operations of the Digital Video Recorder's Monitor Outputs 1 and 2 can be individually restricted. This function is convenient if two or more Remote Controllers are connected in the system.





(1) LCD Screen
Displays the setting menu and data of operation status, etc. using characters.

(2) Digital Video Recorder Key [DVR/DVR MENU]
Selects the DVR to be controlled, and the DVR group number.

(3) Monitor Key [MON]
Switches the monitor to be operated by the Remote Controller. The monitor toggles between Monitor 1 and Monitor 2 each time the Monitor key is pressed.

(4) Camera Key [CAM/CAM MENU]
Selects the camera number. Selected cameras can be operated if they are Combination Dome Cameras.

(5) Position Key [POS]
Use this key to play back or program the Combination Dome Camera's preset positions.

(6) Priority Recording Key [PRIORITY REC]
Perform priority recording. This key flashes during priority recording.

(7) Menu/Shift Key [MENU/SHIFT]
Menu
Holding down this key for 2 seconds or more displays the menu screen on the LCD screen.
Shift
Use this key when viewing camera images in multi-segment split screen displays of (19), (20) and (21) or when selecting the DVR group number
Password
When passwords are valid, holding down this key for 2 seconds or more displays the password entry screen.

(8) Joystick
In live mode
Performs pan, tilt, and zoom operation of connected Combination Dome Cameras.
In playback mode
Performs playback, reverse playback, fast forward playback, and pause operation.
In menu display mode
Moves the cursor (lever position: up, down, left, or right) and confirms (clockwise lever rotation) or cancels (counterclockwise lever rotation) the setting.

(9) Focus Key [FOCUS]
In live mode
Adjusts the Combination Dome Camera's focus.
In playback mode (only when temporarily stopped)
Performs instant event access playback.
In menu display mode
Changes set values.

(10) Iris Key [IRIS]
In live mode
Adjusts the camera iris.
In playback mode
Performs playback from the earliest image, or reverses playback from the latest image.

(11) Function Keys [F1 - F4]
Abbreviation numbers are assigned to these keys to perform quick display or function programming.

(12) Clear Key [C]
Use this key to correct the wrong entry of a tenkey numerical pad. While the menu is displayed, this key is used to cancel settings.

(13) Ten-Key Numerical Pad [0 - 9]
Use this key to enter the DVR number, DVR group number, camera number, position number, or abbreviated number.

(14) Set Key [SET]
Use this key in conjunction with a ten-key numerical pad to enter abbreviation numbers.

(15) Search Key [SEARCH]
Displays the search menu.

(16) Playback/Live Key [PLAY/LIVE]
In playback mode
Switches playback to live mode.
In live mode
Switches live to playback mode, and playback begins.

(17) Alarm Reset Key [BUZZER STOP/RESET]
Stops the buzzer tone.

(18) Alarm Hold Key [HOLD]
Prevents the DVR from changing the screen when it receives an alarm signal.

(19) Full-Screen [FULL]/4-Segment Split-Screen Key
Displays the designated camera output on the full screen. Pressing this key while the Shift key continuously lights switches the screen to 4-segment split -screen display.

(20) Multi-Screen [MULTI]/9-Segment Split-Screen Key
Displays connected camera outputs on the multi-split monitor screen. The multi-split screen display changes in sequence whenever this key is pressed. Pressing this key while the Shift key continuously lights switches the screen to 9-segment split-screen display.

(21) Sequence [SEQUENCE]/16-Segment Split-Screen Key
Executes the sequential switching operation set at the DVR. This key remains lit during sequence operation. Pressing this key while the Shift key continuously lights switches the screen to 16-segment split-screen display.

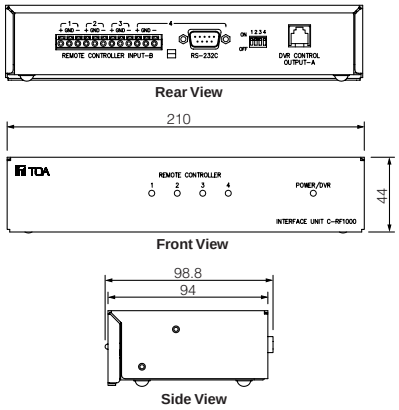
(22) Auto Key [AUTO]
Sets the Combination Dome Camera's auto function to ON or OFF.

C-RF1000
INTERFACE UNIT



The C-RF1000 Interface Unit is used to operate the 9-CH/16CH Digital Video Recorder (C-DR091/161 Series) 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.

APPEARANCE AND DIMENSIONAL DIAGRAM



SPECIFICATIONS

Power Source	12V DC (Power supplied by the digital video recorder)
Power Consumption	100mA
Digital Video Recorder Control	RS-485, RJ-11 (6P6C) (when the included 5-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)
DIP Switch	Transfer speed selection
Display	Indicates Power/DVR control ON status, indication of remote control ON 1 – 4
Number of Unit 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
Operating Humidity	Under 90% RH (no dew condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	210 (W) × 44 (H) × 98.8 (D) mm
Weight	700g
Accessories	Modular cable (5m) × 1
Applicable Model (option)	Digital Video Recorder: C-DR091/C-DR161 Series Interface Unit: C-RF1000
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)

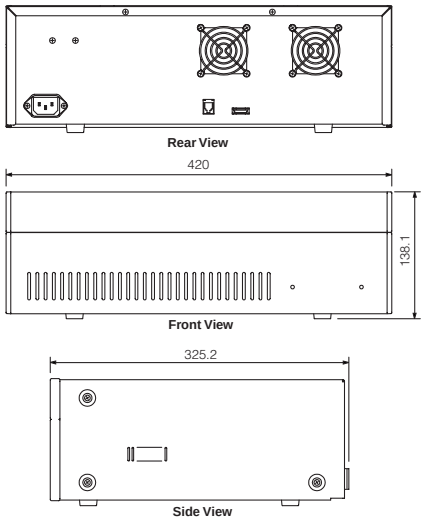
* Represents the total of connected cable distances if multiple digital video recorders or Interface units are connected int the system.

C-DA1000-1/C-DA1000-2
HARD DISK EXPANSION UNIT



The C-DA1000 series are hard disk units used to expand recording capacity of 9CH/16CH Digital Video Recorder (C-DR091/161 series).
Up to two units per DVR can be connected.

APPEARANCE AND DIMENSIONAL DIAGRAM



SPECIFICATIONS

Power Source	110V – 120V, 50 Hz/60 Hz
Power Consumption	1.0A
Recording Medium	C-DA1000-1: 1.2TB (E-IDE 300GB × 4 units) C-DA1000-2: 2.4TB (E-IDE 300GB × 8 units)
External Interface	Serial ATA, Modular
Operating Temperature	+5°C to +40°C
Operating Humidity	Under 80% RH (no dew condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	420 (W) × 138.1 (H) × 325.2 (D) mm
Weight	C-DA1000-1: 9.3kg C-DA1000-2: 12.3kg
Accessories	Modular cable × 1, Serial ATA cable × 1, Power cable × 1
Compatible	Models DVR C-DR091/D-DR161 Series
Option	Rack mounting bracket: MB-31B

WEB SERVER FUNCTIONS

About the Functions

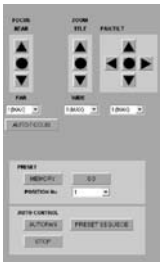
The Digital Video Recorder is equipped with a variety of web-accessible functions. Connecting to the unit using a PC over a LAN cable allows the video recorder remotely to monitor camera outputs, or to search and/or play back recorded images using a web browser. The following specific functions can be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

- **Simultaneous operation of 3 client PCs**
- **Viewing of live images**
- **Control of combination dome cameras**
- **Search and/or playback of recorded images**
- **Operation duplicating that of the keys mounted on the Digital Video Recorder's front panel**



- **Reference to and changing of menu settings**
- **Downloading of recorded images**





Camera Control Section

Screen Change Button



System Requirements

PC

OS: Windows 2000/XP
CPU: Celeron, 600 MHz or more
Memory: 64 MB of more
Available HDD space: No limit

Browser

Internet Explorer 5.5 or later
Netscape 7.1 or later *
Firefox 1.5.0.1 or later *

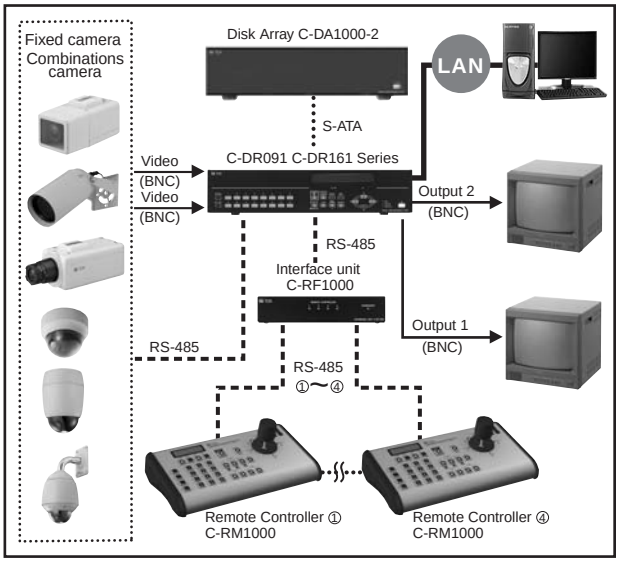
* Only a single server is allowed access to Netscape or Firefox.

Java

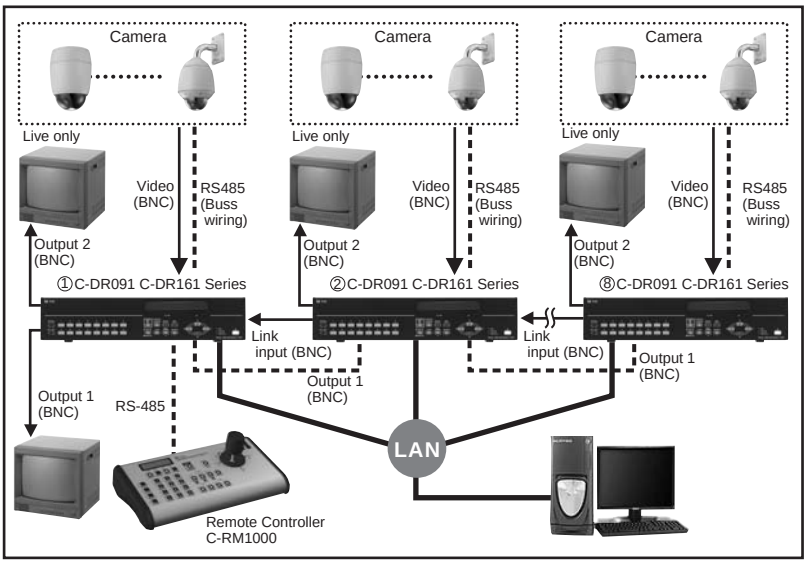
Sun JRE 1.4 or later

SYSTEM EXAMPLE

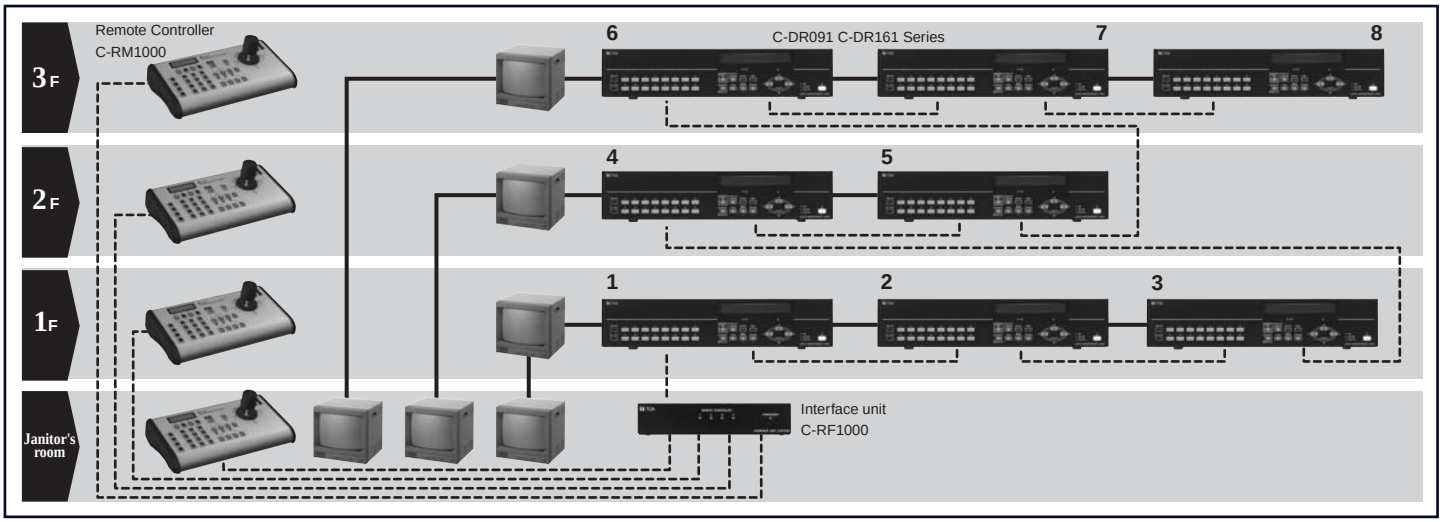
Basic system chart-1



System chart-2

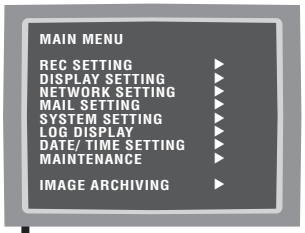


System chart-3



DVR SETTING MENU

The setting menu screens are comprised of the following main menu item screens.



Main menu item

REC SETTING

Menu item	Setting item		
PRIORITY REC SETTING	REC SETTING		
	PRIORITY REC INPUT MODE		
	AUDIO		
	POST TIME		
AUTO REC SETTING	SCHEDULE		
	GROUP A-F SETTING	NORMAL REC SETTING	
	SPECIAL DAY SETTING	ALARM EVENT REC SETTING	
	MOTION SETTING		EVENT
	AUDIO	ALARM EVENT REC MODE	
PRE-REC SETTING	REC TIME	ALARM INPUT MODE	
	REC RATE	ALARM POST TIME	
	REC QUALITY	MOTION DETECT MODE	
	AUDIO	MOTION POST TIME	
OVERWRITE			

SCREEN DISPLAY SETTING

CHARCTER DISPLAY SETTING	REC AUDIO
	OVERWRITE
	REC
	PLAY
	REMAINING
	DISK MODE
	DISK STATUS
	DATE
	TIME
	DATE/ TIME
	MONITOR 1 CAM NAME
	MONITOR 2 CAM NAME
	DVR NAME
MONITOR OUTPUT SETTING	
SEQUENCE SETTING	
CAMERA NAME SETTING	
DVR NAME SETTING	
MONITOR 1 SCREEN	
MONITOR 2 SCREEN	
ALARM DISPLAY INTERVAL	

NETWORK SETTING

- IP ADDRESS
- SUBNET MASK
- DEFAULT GATEWAY
- WEB SERVER PORT
- WEB USER PASSWORD
- WEB ADMIN PASSWORD
- WEB LIVE QUALITY
- WEB MAX BIT RATE
- PRIMARY DNS
- SECONDARY DNS
- NTP SERVER
- TIME ZONE

MAIL SETTING

- FROM ADDRESS
- SEND-TO ADDRESS 1 – 4
- SMTP SERVER
- POP 3 AUTHENTICATION
- ENCRYPTION
- ACCOUNT NAME
- PASSWORD
- POP3 SERVER
- TRANSMISSION SETTING
- TEST TRANSMISSION

SYSTEM SETTING

PLAY DISK	
HD REMAINING TIME	
BUZZER	
I/ O TERMINAL MODE	INPUT MODE
	OUTPUT MODE
CTRL OUT TERMINAL	PRIORITY REC
	ALARM REC
	MOTION REC
	HD FULL
	HD ERROR
	VIDEO LOSS
	FAN FAILURE
SECURITY SETTING	OPERATION LEVEL 1, 2, 3
	USB KEY LEVEL
	PRIORITY REC OPERATION LEVEL 3
	REMOTE ACCESS LIMIT
	LOGOUT INTERVAL
CAMERA PRESET SETTING	
CAMERA MODEL	
CAMERA BIT RATE	
RS232C BIT RATE	
RS232C FLOW CTRL	
RS232C RESPONSE	
CONTROLLER BIT RATE	
CONTROLLER RESPONSE	
DVR-ID	
LANGUAGE SELECTION	

LOG DISPLAY

- REC LOG
- FAILURE LOG
- SYSTEM LOG

DATE/ TIME SETTING

DATE/ TIME SETTING	
DATE/ TIME ADJUST OPERATE	
DATE/ TIME ADJUST TIME	
DATE/ TIME ADJUST OUTPUT	
DAYLIGHT TIME	START DATE/ TIME
	END DATE/ TIME

MAINTENANCE

HD INITIALIZE	DISK MODE
SETTING INITIALIZE	
LOG INITIALIZE	
SETTING EXT OUTPUT	
SETTING EXT INPUT	
USB KEY REGISTRATION	
USB KEY DATA ERASURE	

IMAGE ARCHIVING

- START-END 1 – 5

TOA Corporation
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