OMRON
INDUSTRIAL AUTOMATION

Open Network for High-Speed Control

CompoNet

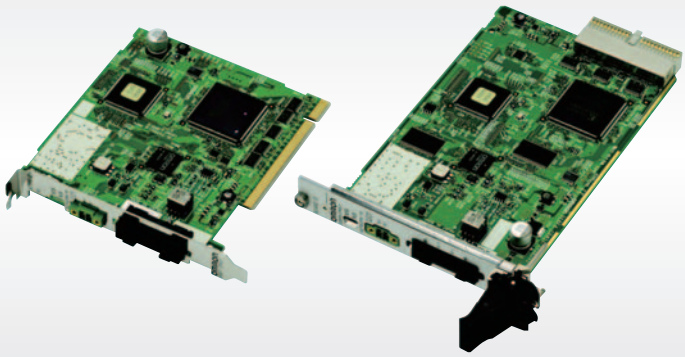
Fast and Intelligent

News Topics

New Products

NEW CompoNet Master Board for PCI Bus and CompactPCI Bus

The communication speed of 1 ms per 1000 points and the communications cycle time optimization realized super high speed control by computers.



CompoNet Master Board for PCI Bus
3G8F7-CRM21

CompoNet Master Board for CompactPCI Bus
3G8F8-CRM21

- Available in 2 types: one for PCI Bus and the other for CompactPCI Bus
- Operable both in Windows OS, and in other OS by accessing to shared memory.
- Programmable by C/C++/ or VB.
- The communication cycle time optimization further speeded up CompoNet.
  Combined use with a computer realized the higher speed control than ever.

NEW Innovation in wiring! Fast, low-cost, and compact Bit Slave Units CRT1B-series

Ultra-compact size

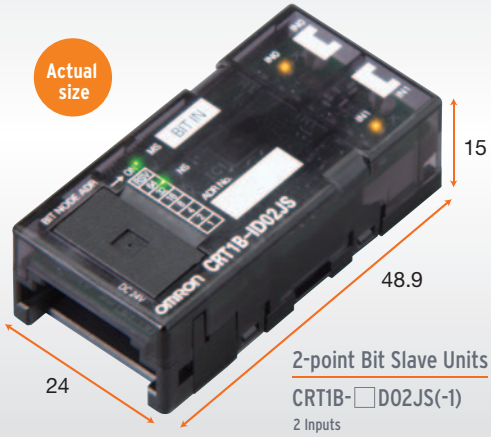
Smallest in the industry

Low cost

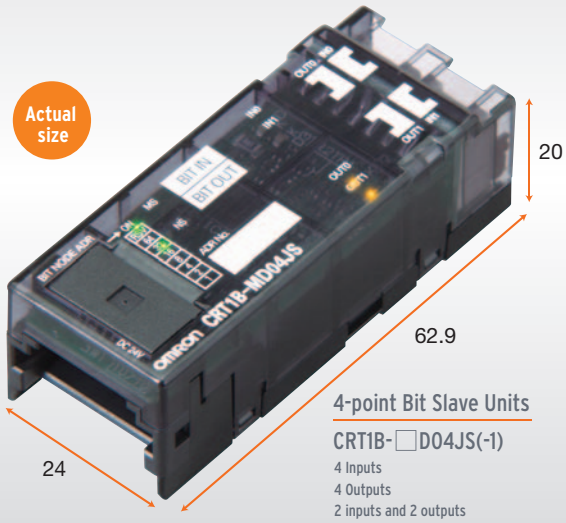
Using round cables

High speed

Maintains high speed communications for the increased number of Slave Units



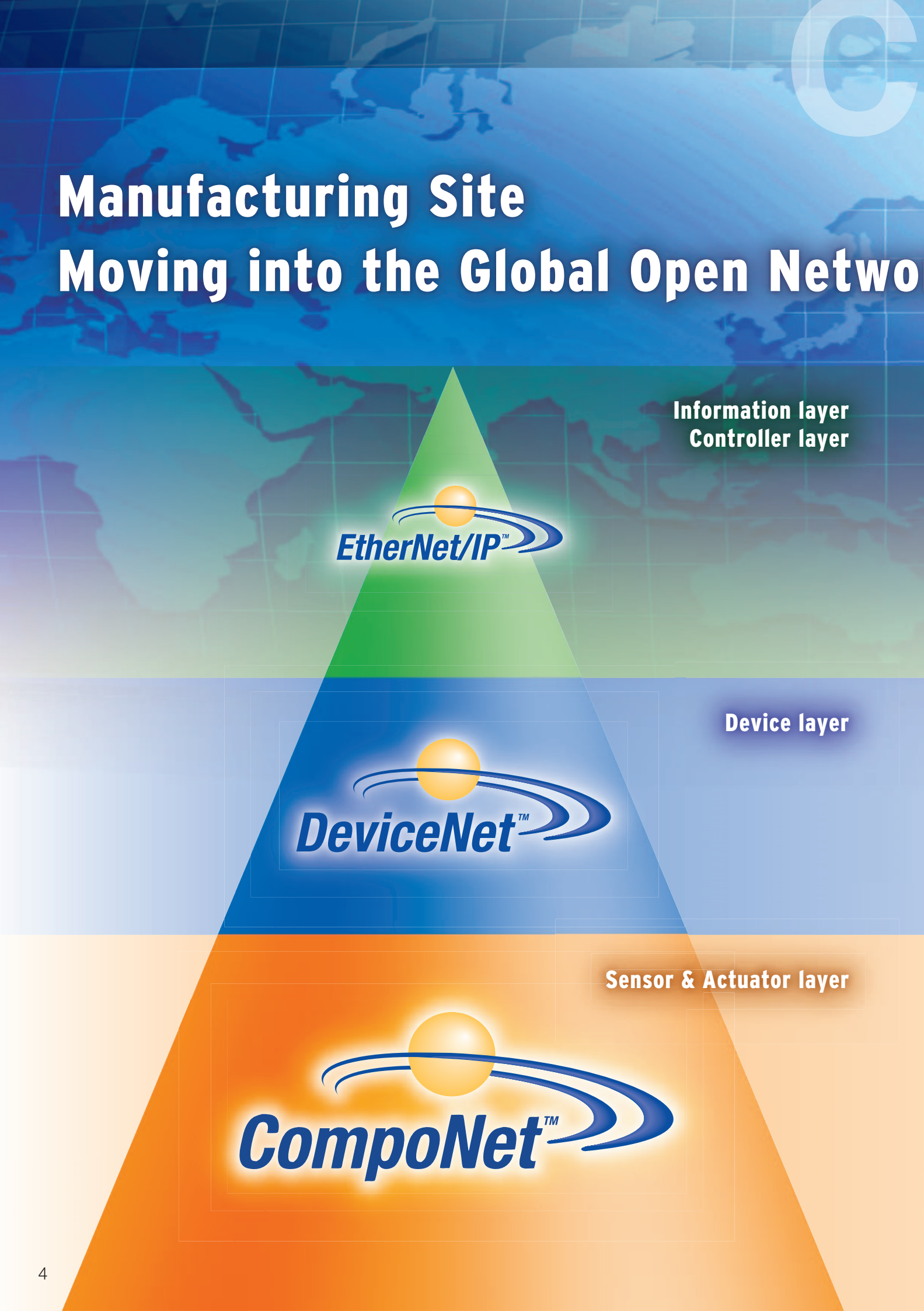
2-point Bit Slave Units
CRT1B-□D02JS(-1)
2 Inputs
2 Outputs
1 input and 1 ouput



4-point Bit Slave Units
CRT1B-□D04JS(-1)
4 Inputs
4 Outputs
2 inputs and 2 outputs

In August 2009, CompoNet was established as the International Standard IEC/PAS62026-7.

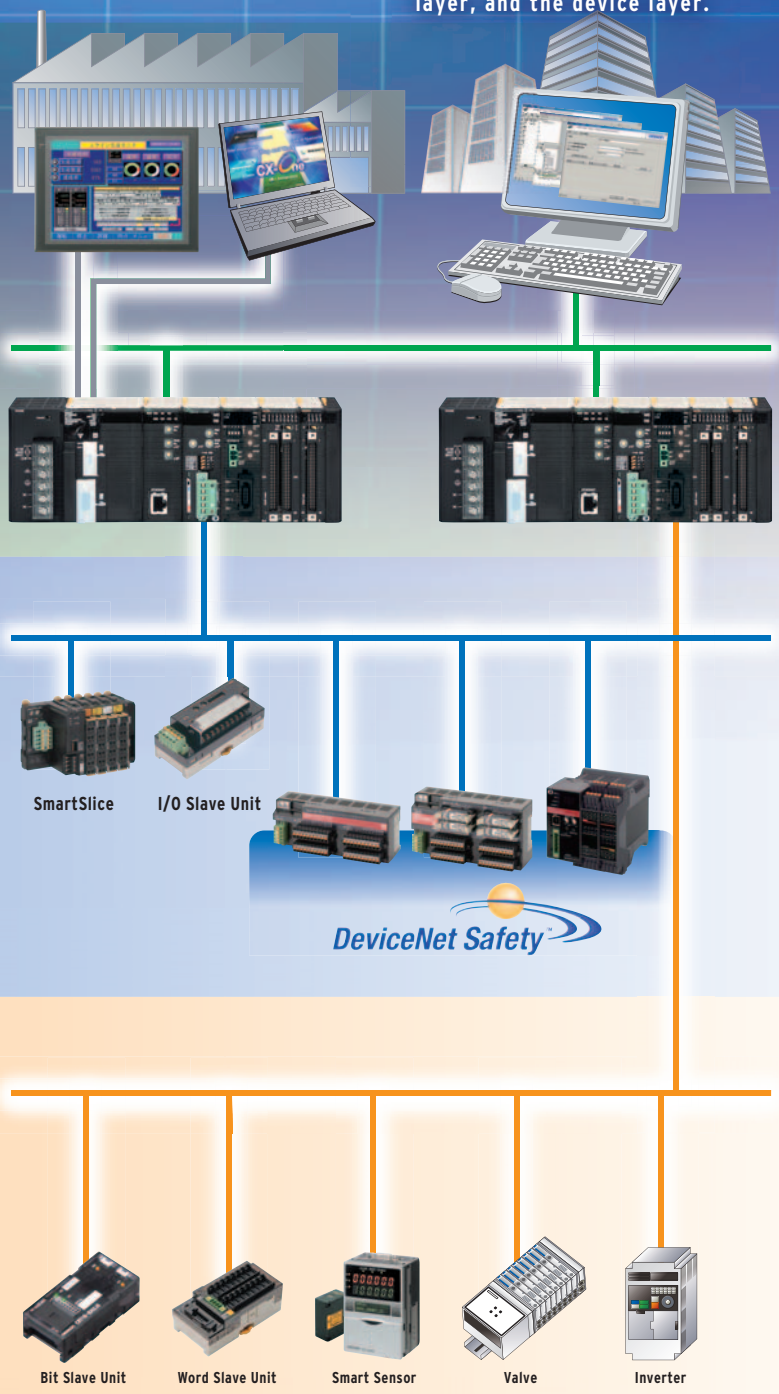
Manufacturing Site
Moving into the Global Open Netwo



ompoNet

rk Era

The drastic changes to the environment faced by today's manufacturing industry has led a wide range of issues such as the standardization of system infrastructure and the shift to more advanced functions. In order to solve these issues, it is necessary to share on-site data, such as for product quality and how to respond to changes in the enviroment, to vertically start up devices utilizing this data and execute preventive maintenance universally and quickly. That is why attention is focusing on utilizing globally standardized "open networks" in the plant management layer, the control layer, and the device layer.



"CompoNet" globally standardized open network in the sensor & actuator layer

—「CompoNet」—

CompoNet was established as the International Standard IEC/PAS62026-7 in August 2009.

CompoNet is the latest sensor & actuator layer open network. It was introduced and its specifications given by ODVA *1 in 2006.

This open network fuses CIP network technology *2 and high-level communications technology that consolidates the know-how for reducing the amount of wiring developed over many years at actual manufacturing sites. It was established and released as the International Standard IEC/PAS62026-7 in August 2009.

CompoNet attains the industry's fastest class of communications, 1000 signals per ms between connected devices and the controller and provides a high-performance network environment never seen before.

The open network means reduced device costs, improved functions, the quality of procurement on a global level, and standardization turns design know-how into assets.

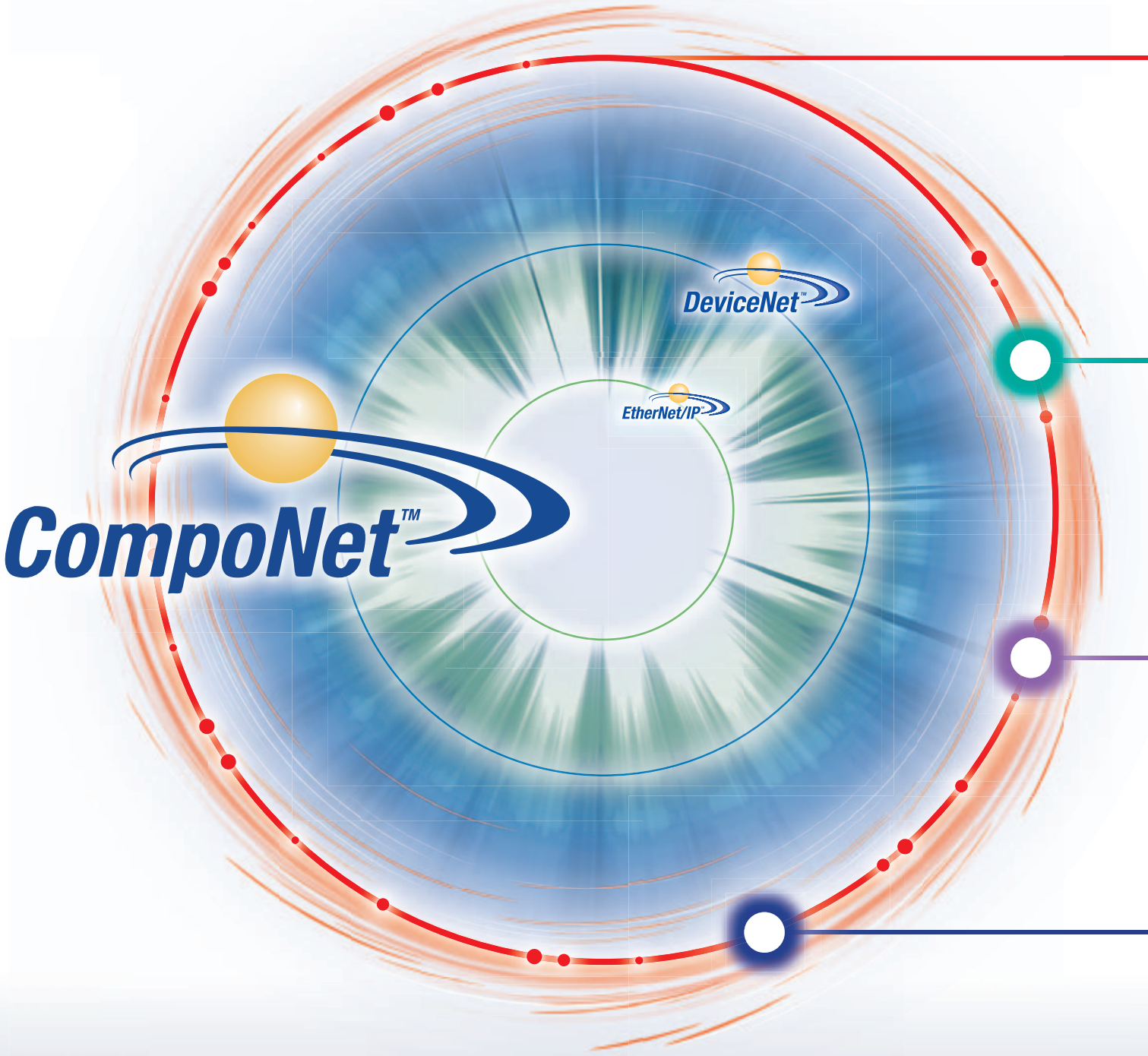
With the rapid expansion of family devices by many control equipment makers in Japan and overseas, CompoNet is establishing a multi-vendor environment that is a truly global open network.

*1 The abbreviation for Open DeviceNet Vendor Association, a non-profit organization in the United States. ODVA supports networks based on CIP technology and is run by the main vendors inside and outside Japan. It has active bases in America, Europe, China, South Korea, and Japan.

*2 CIP is the abbreviation for Common Industrial Protocol. This is a protocol that enables communications between open networks of equipment from multiple vendors. Control of each piece of equipment, programming, data collection, etc. can be standardized free of any restrictions due to the network type of differences among equipment.

The conventional fast communication networks exceeding 10 Mbps must use special cables, which place restrictions on wiring. For example, they do not allow the connecting of branches.

In order to be able to use regular cables with their easier wiring, the only choice is a low baud rate network. With conventional field networks, achieving a "high-speed" while maintaining "ease of wiring", "informatization", and "low cost" is difficult. CompoNet achieves these competing conflicting objectives thanks to the latest technology for raising the efficiency of communication lines. CompoNet makes it possible to construct the manufacturing systems of the near future.



Fast Communication

1024 points in 1 ms: fastest class in the industry

CompoNet

solves the problems of conventional field networks!

Wiring

Superior branching

Informatization

Device preventive maintenance

Simple and Low-Cost

Simple installation and regular cables mean lower cost

Fast Communication

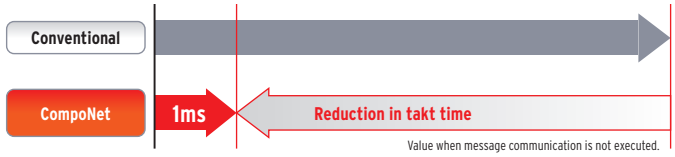
Fast multipoint communication reduces takt times

Fastest Communication Speeds in the Industry

Provides the fastest communication speeds in the industry for a sensor-actuator level network.

It is possible to send data consisting a large number of control points on multiple nodes. There is no response time delay, even with repeater units.

- 1,024 I/O points in 1 ms
- Up to 2,560 I/O points
- Up to 384 nodes

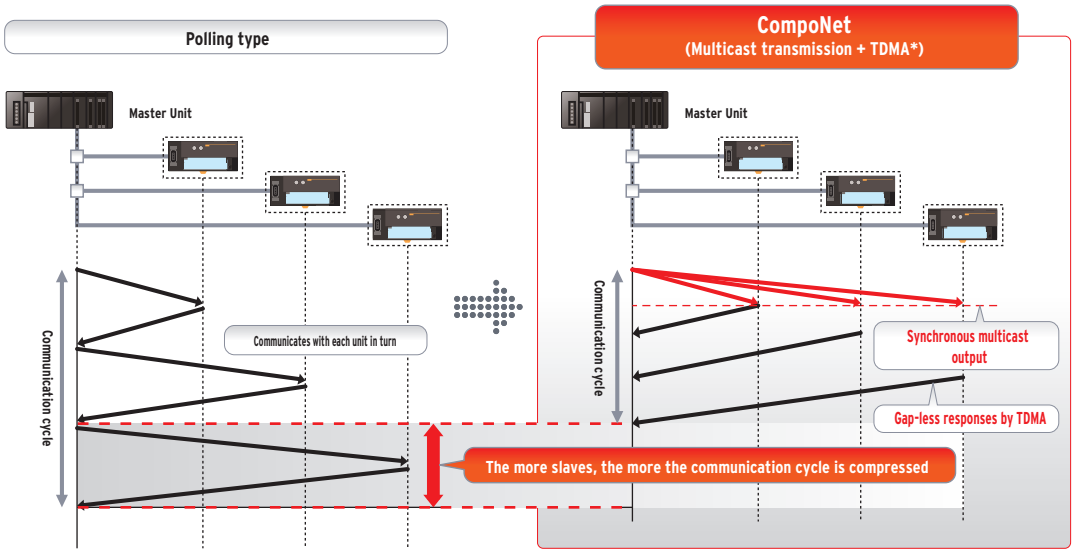


Value when message communication is not executed.

Fast Communication Technology even at Low Baud Rate of 4 Mbps

Provides excellent performance in applications with large numbers of control points and also in expansion work.

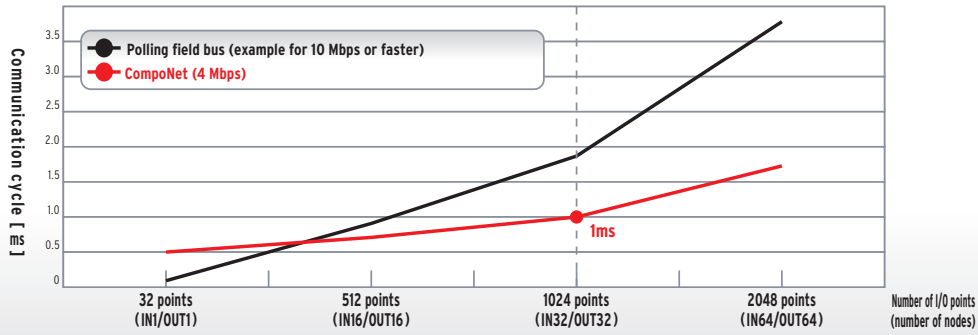
Efficient multicast transmission enables stable and fast communication even when the number of slaves increases.



Time Domain Multiple Access

Advantage of high-speed CompoNet technology

1 **Fast communication is maintained even with an increased number of control points.**



From ODVA Japan branch catalog

2 **Easier wiring (branching is possible even in fast mode)**

3 **Regular cables can be used.**

4 **High resistance to noise.**

Wiring

Superior branching adaptability reduces wiring work

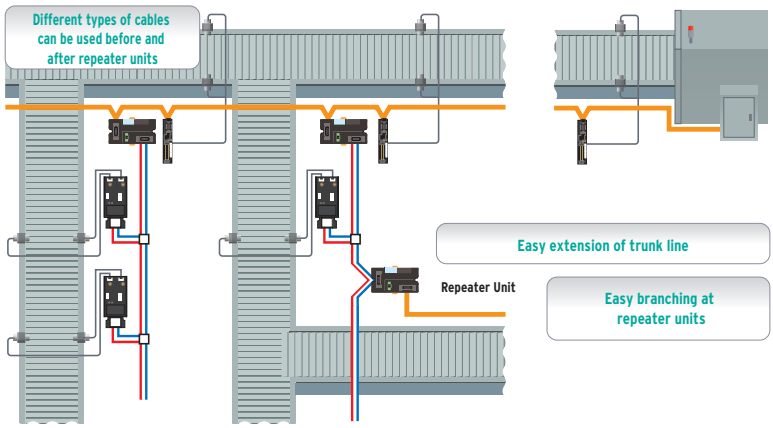
Flexible Installation

Select the best branching method for your application.

CompoNet provides both fast communication and easy wiring.
Branch wiring is a powerful tool for installing large numbers of slaves in a variety of locations.
You can optimize your cable layout to match the layout of your equipment.

Distance can easily be extended.

A maximum distance of 1500 m is possible (when baud rate is 93.75 kbps).



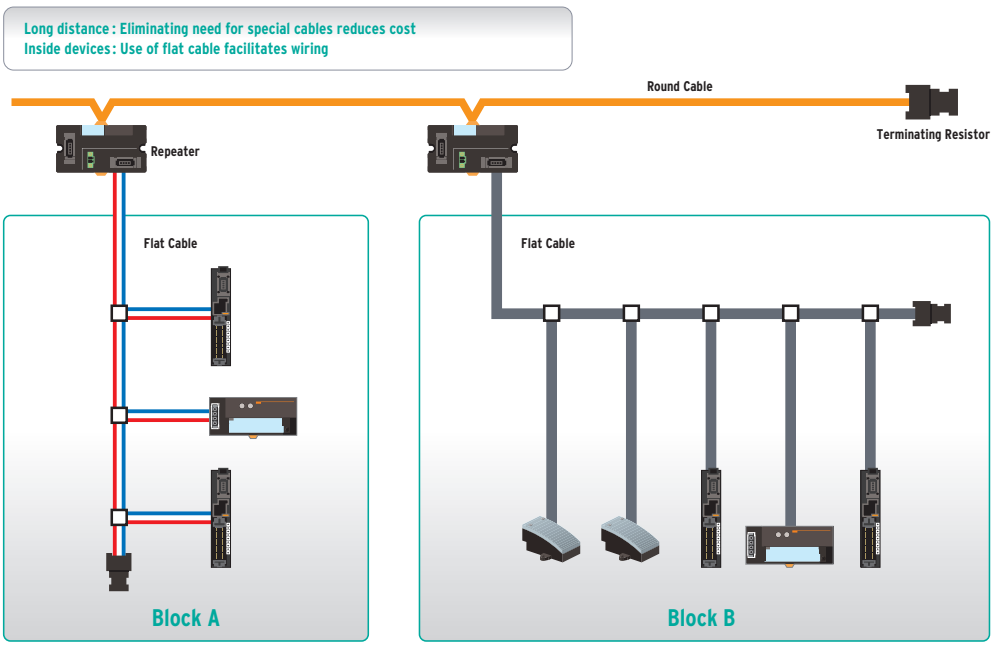
Select the best branching method for your application

Flat Connector Socket + Fat Connector Plug

Multidrop Type

Repeater Unit

Different types of cables can be mixed.

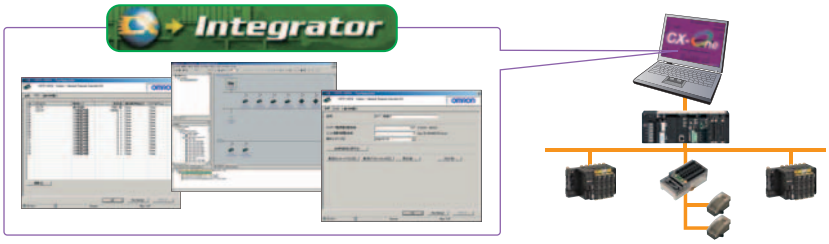


Informatization Reducing the start-up time and maintenance work with informatization

CX-Integrator Makes Start-Up and Recovery Work More Efficient

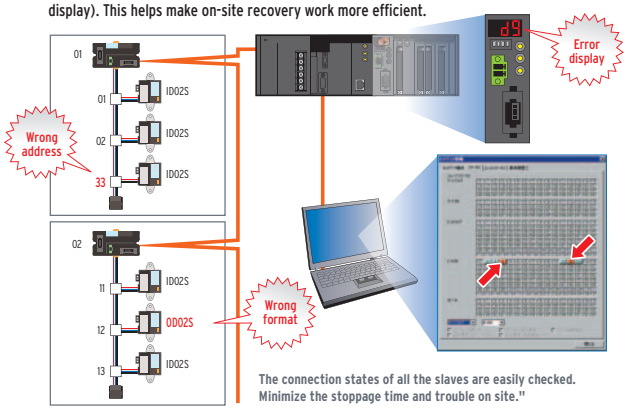
CX-Integrator software lets you set the PLC network/serial communication system configuration from a computer.

CX-Integrator makes it easy to handle CompoNet assignment, parameter setting, connection state monitoring, comment setting, network diagnosis, etc. from a computer.



Quick discovery of error locations

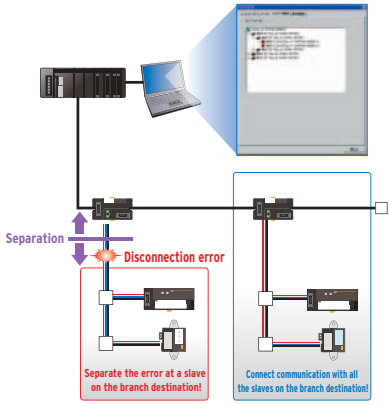
You can easily check the connection states of all the slaves and quickly specify error contents. You can check errors not only with tools but also with the master LED (7-segment display). This helps make on-site recovery work more efficient.



The connection states of all the slaves are easily checked. Minimize the stoppage time and trouble on site."

Separate an error at a branch destination

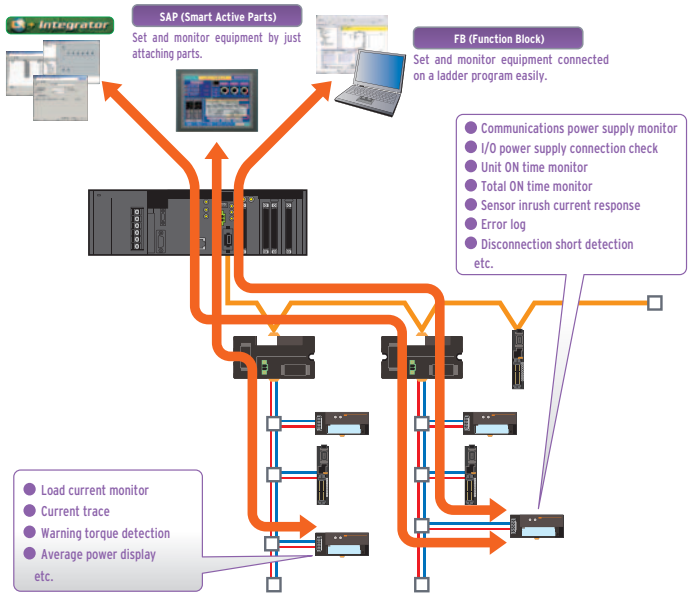
When you use a repeater unit, you can display the slaves in each segment and can separate any error beyond the repeater.



Informatization of the all Equipment

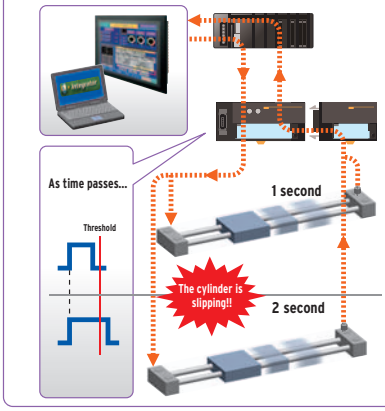
Smart features are features of the slave main units that collect a variety information used for from start-up to maintenance.

Monitor network power supply voltage with tools and display units. Slaves collect a variety of information helpful for preventive maintenance and detect errors in connected equipment before problems occur. No need to write a program for monitoring.



Example: Operation time monitor

Slave units collect data on the machine operation time and operation change amount, so you can monitor without increasing the load between controllers.



The slave unit counts the machine's ON/OFF repetitions and total operation time to let you know when it is time for maintenance. (Contact operation monitor)

Simple and Low-Cost Slashes start-up workload and equipment cost!

Flat Cable for Easy One-Touch Installation

Flat cable shortens installation time.
It also prevents connector installation mistakes.

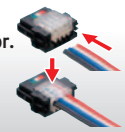
Shield cable for field networks

1. Peel away the cable coating.
2. Take out the shield wire.
3. Peel away the lead coating.
4. Attach the 5 crimp terminals.
5. Insert the cable and fasten with 5 screws.

Flat cable

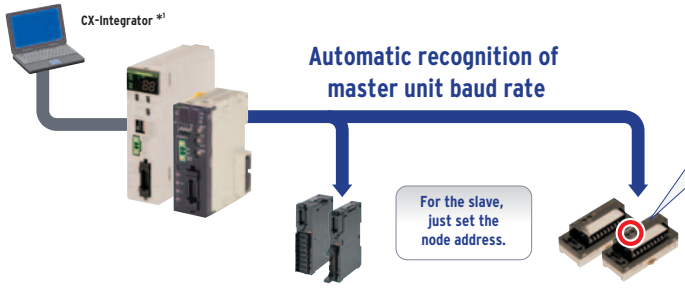
Slashes installation work to 1/30 of the required time!

1. Insert the cable into the connector.
2. Snap fit with tool. Snap



Smooth Start-Up with Simple Setup

Just set the master baud rate and the slave node addresses and the system is ready for start-up.
The slave baud rate is automatically set to match the master unit baud rate.
The allocation areas are automatically set by the node addresses.



*1. Using CX-Integrator makes detailed settings and monitoring possible.

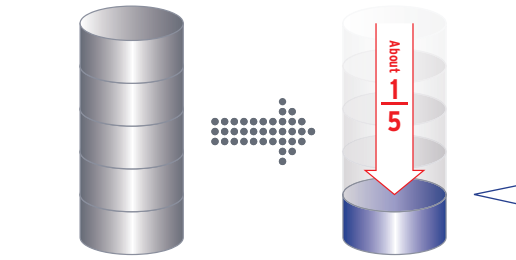
Rotary switch used
Easy-to-understand decimal switch

Reduces setting mistakes.

DIP Switch (hexadecimal)

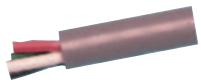
Can Use Regular Round Cables for Fast Communication

Regular round cables can be used as the communication cables.



Conventional network (Shield cable for field networks)

CompoNet (Round cable)



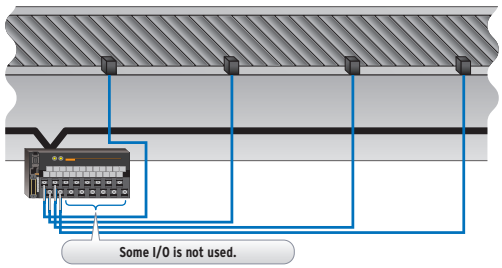
Round Cable

- Can use regular cables that are inexpensive and easy to find.
- Uses round cables (4-wire) to supply power to the slave units.
- Can also use regular highly flexible cables and oil-resistant cables.
- When communication power is supplied to the slaves, round cables (2-wire) can also be used.

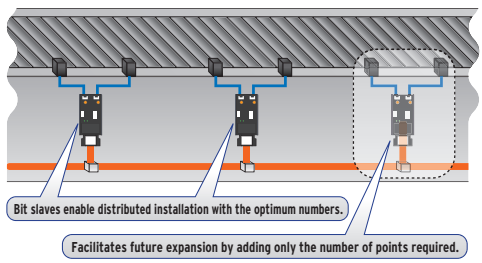
* Use round cables that comply with ODVA specifications.

Bit-level distribution for effective I/O installation

Bit slaves enable optimum I/O configuration and wiring becomes more efficient.



Some I/O is not used.



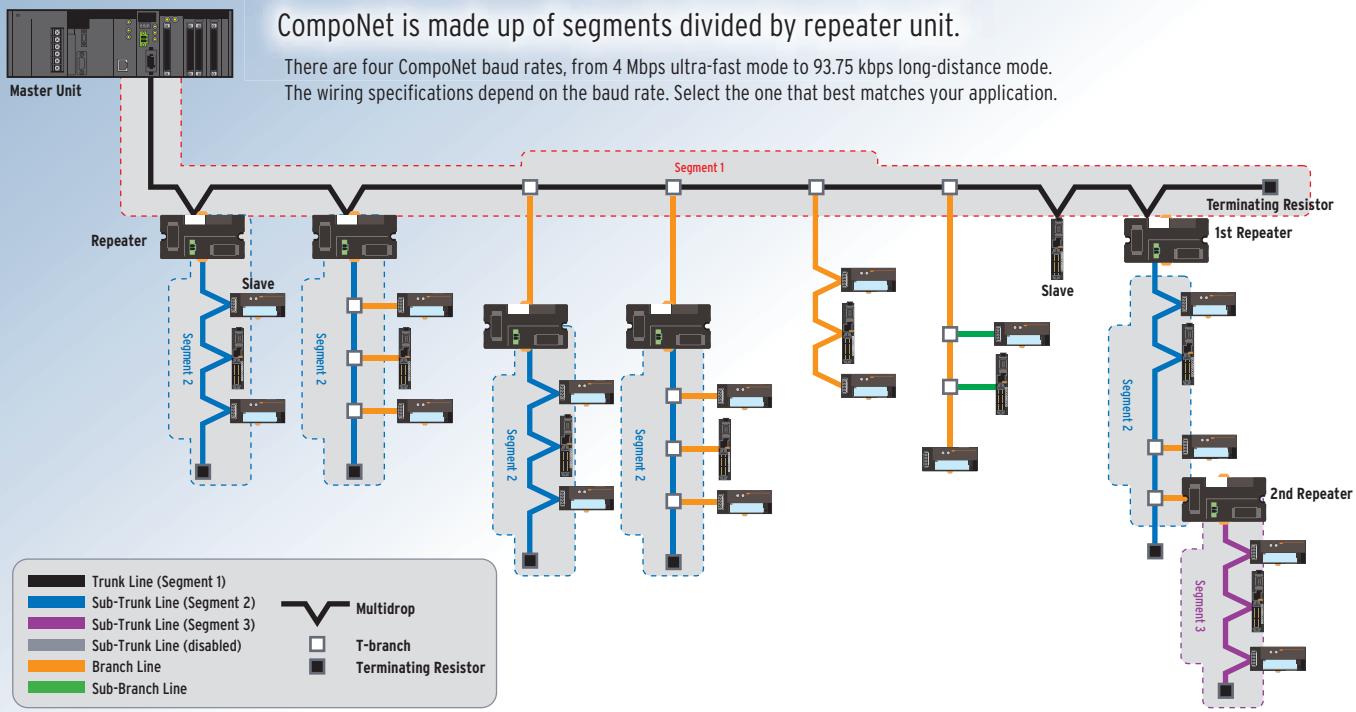
Bit slaves enable distributed installation with the optimum numbers.

Facilitates future expansion by adding only the number of points required.

Network Specifications

CompoNet is made up of segments divided by repeater unit.

There are four CompoNet baud rates, from 4 Mbps ultra-fast mode to 93.75 kbps long-distance mode.
The wiring specifications depend on the baud rate. Select the one that best matches your application.



Baud rate	Cable type		Trunk line and sub-trunk line length (When 2 repeaters are used.)	Number of slaves per segment (Including number of repeaters)	Branch line length	Total branch line length per segment	Branch location restrictions	Number of slaves per branch line	Sub-branch line length	Total sub-branch line length per segment
4Mbps	Round cable I, II Flat cable I, II		30m (90m)	32	—	—	—	—	—	—
3Mbps	Round cable I, II Flat cable I, II		30m (90m)	32	0.5m	8m	3/meter	1	—	—
1.5Mbps	Round cable I	Without branches	100m (300m)	32	—	—	—	—	—	—
		With branches	30m (90m)	32	2.5m	25m	3/meter	3	—	—
	Round cable II Flat cable I, II		30m (90m)	32	2.5m	25m	3/meter	3	0.1m	2m
93.75kbps	Round cable I		500m (1500m)	32	6m	120m	3/meter	1	—	—
	Round cable II Flat cable I, II		200m (600m)	32	200 meter free wiring total wire length per segment					

Relation between Baud Rate and Communications Cable

The Cable that can be used and the required baud rates are automatically determined by whether a trunk line-branch line formation or an unrestricted wiring formation is used.

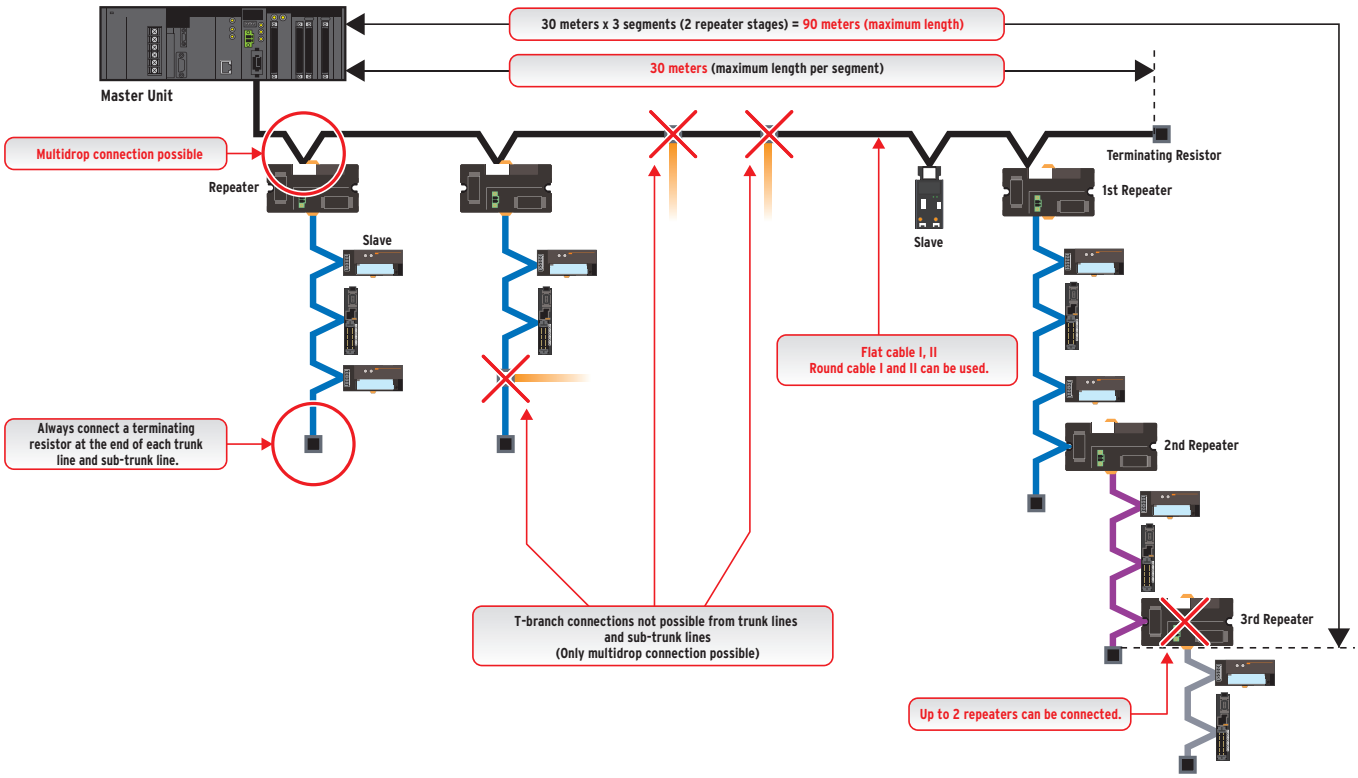
Cable type	Baud rate			
	4Mbps	3Mbps	1.5Mbps	93.75kbps
Round cable I	Trunk line-branch line wiring formation (See note 1.)	Trunk line-branch line wiring formation	Trunk line-branch line wiring formation	Trunk line-branch line wiring formation
Round cable II				Unrestricted wiring formation
Flat cable I				
Flat cable II	Trunk line-branch line wiring formation (See note 2.)			

Note: (1) If a baud rate of 4 Mbps is used, branching is not possible from the trunk line. (Only multidrop connections are possible.)
(2) If a baud rate of 4 Mbps is used, branching and multidrop connections are not possible from the trunk line. (There are no Multidrop Connentors for Flat Cable II.)

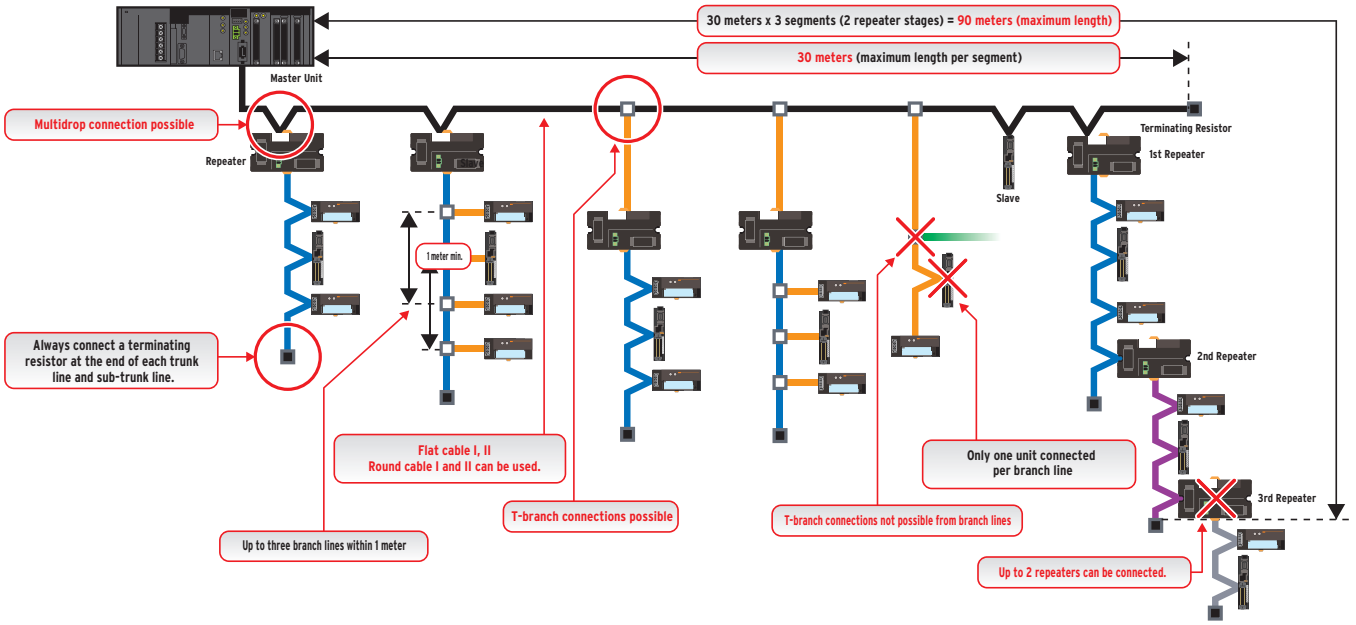
The following table shows the conditions and restrictions for each formation.

Item	Wiring formation	
	Trunk line-branch line formation	Unrestricted wiring formation
Master Unit location	End of network	Anywhere in network (not necessarily at the end)
Maximum number of Slave Units connected to any one branch line	1 or 3 depending on the cable type and baud rate	No restrictions
Terminating Resistor location	On the opposite ends of the trunk line and all sub-trunk lines from the Master Unit and each Repeater Unit	On the most remote ends from the Master Unit and each Repeater Unit

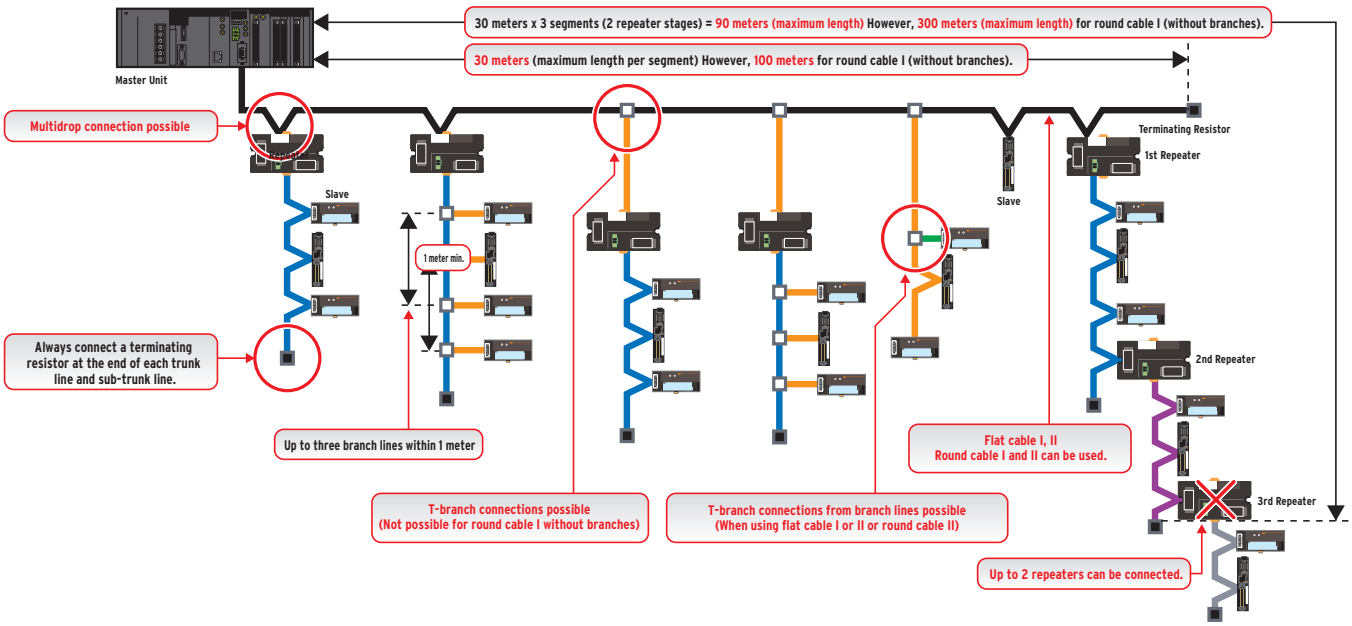
Example of wiring for 4Mbps (Application: Ultra-fast communications)



Example of wiring for 3Mbps (Application: Fast communications with branching)

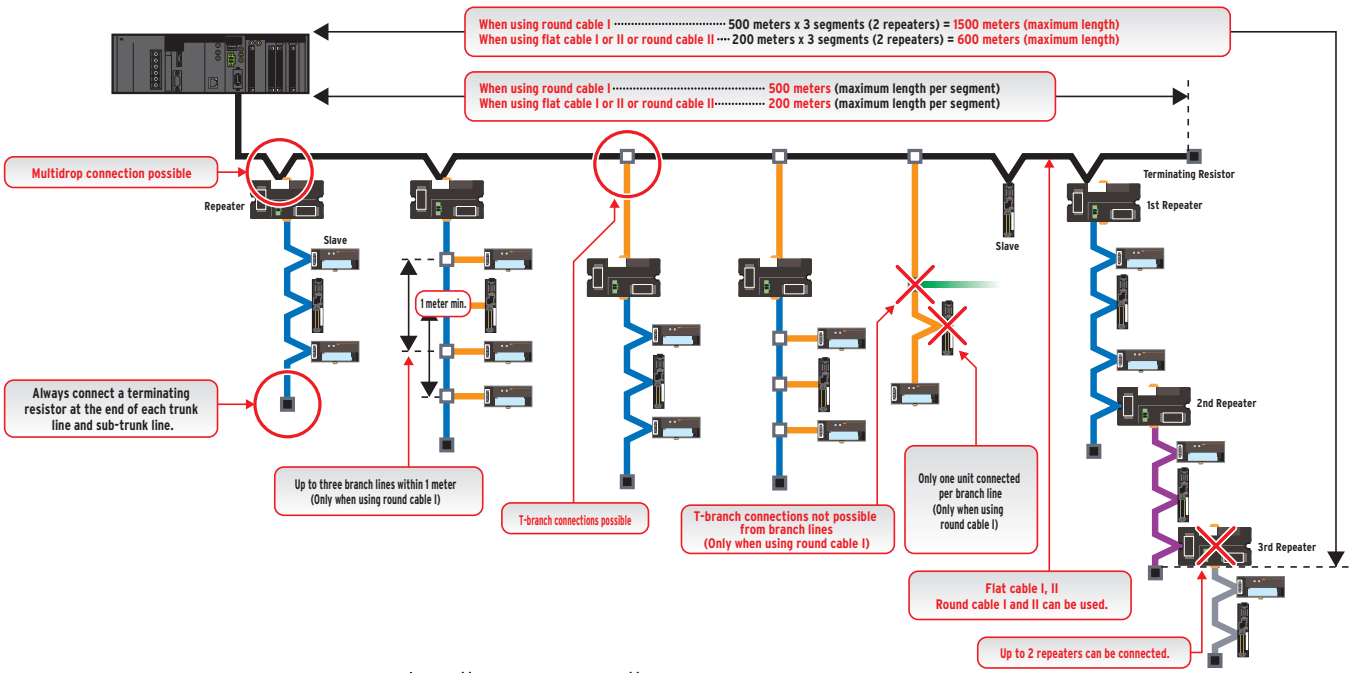


Example of wiring for 1.5 Mbps (Application: Balance of fast communications and branching)



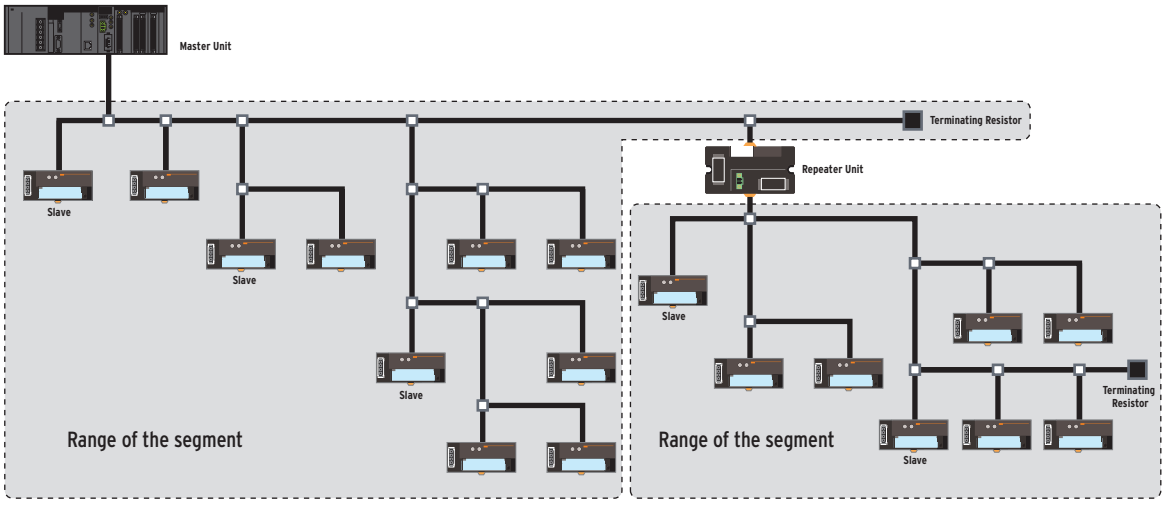
Example of wiring for 93.75 kbps (Application: Long-distance wiring and free wiring)

Example using round cable I



Free wiring when using flat cable I or II or round cable II

With this wiring formation, there is no distinction between the trunk line and branch lines. There are no wiring restrictions as long as the total cable length does not exceed 200 m. There is also no limit in the number of branches.

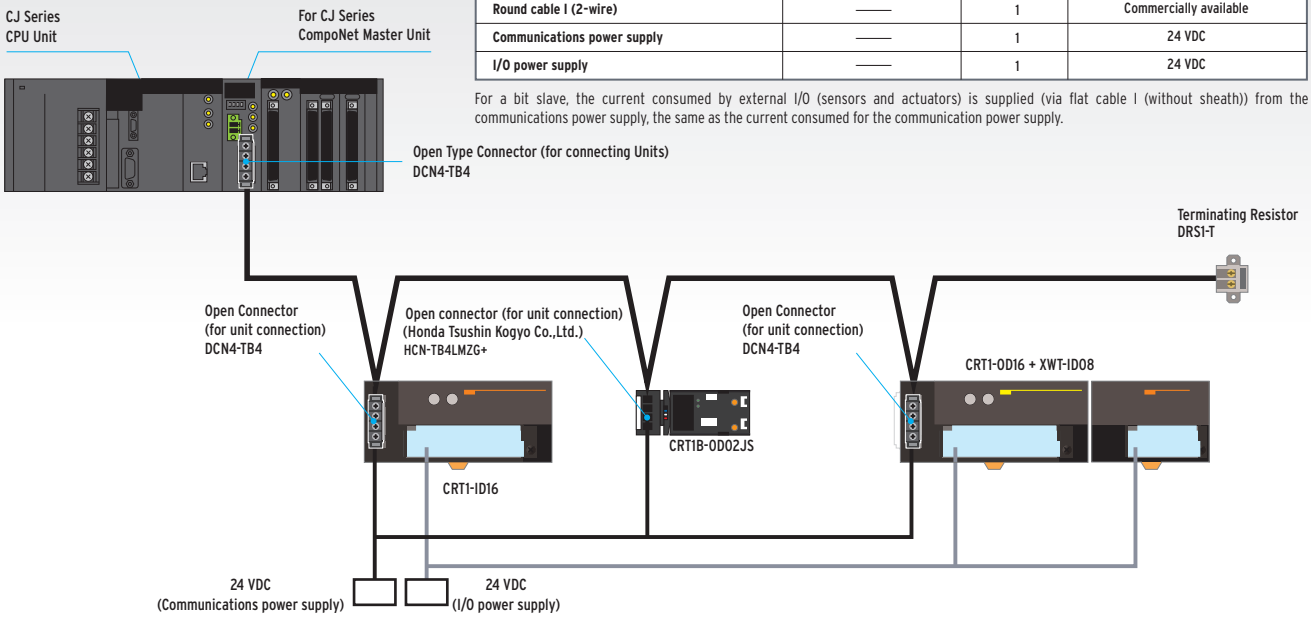


Example with round cable I (2-wire)

Required peripheral equipment

Specification	Model	Number of units	Remarks
Open connector (for unit connection)	DCN4-TB4	3	——
Open connector (for unit connection) (Honda Tsushin Kogyo Co.,Ltd.) *1	HCN4-TBLMZG+	1	For connecting Bit Slave unit with compact connectors
Compact connector*2	——	2	——
Terminating resistor	DRS1-T	1	——
Round cable I (2-wire)	——	1	Commercially available
Communications power supply	——	1	24 VDC
I/O power supply	——	1	24 VDC

For a bit slave, the current consumed by external I/O (sensors and actuators) is supplied (via flat cable I (without sheath)) from the communications power supply, the same as the current consumed for the communication power supply.

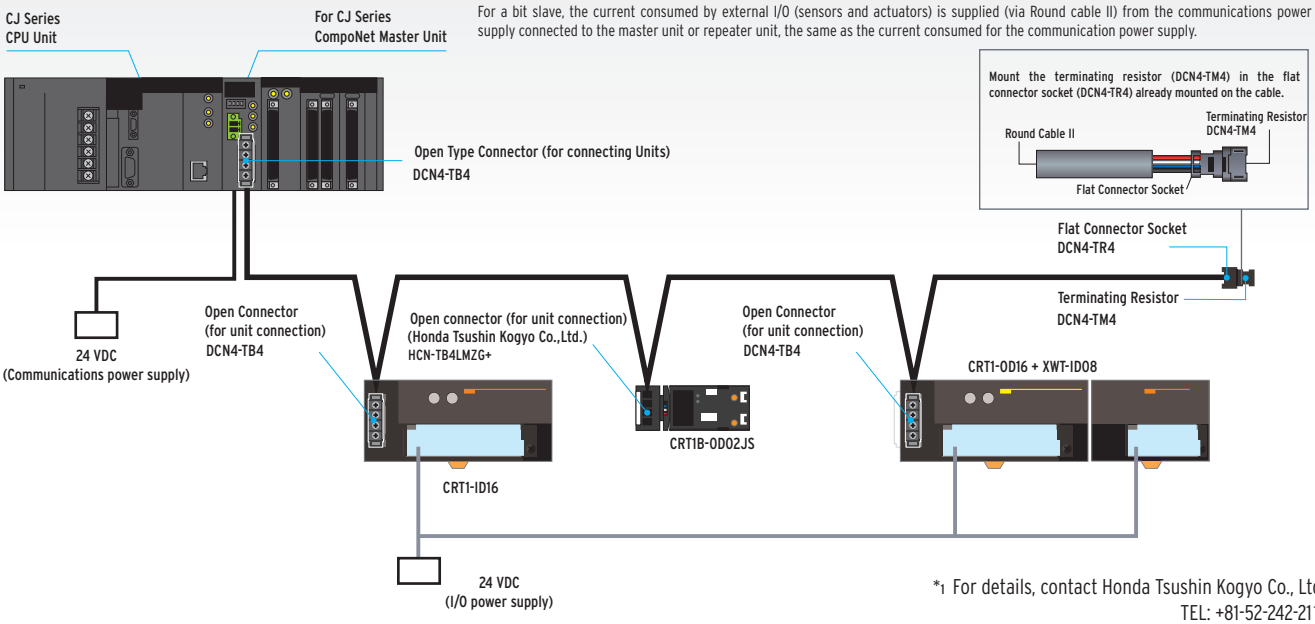


Example with round cable II (4-wire)

Required peripheral equipment

Specification	Model	Number of units	Remarks
Open connector (for unit connection)	DCN4-TB4	3	——
Open connector (for unit connection) (Honda Tsushin Kogyo Co.,Ltd.) *1	HCN-TB4LMZG+	1	For connecting Bit Slave unit with compact connectors
Flat connector socket	DCN4-TR4	1	For terminating resistor connection
Compact connector*2	——	2	——
Terminating resistor	DCN4-TM4	1	——
Round cable (4-wire)	——	1	Commercially available
Special tool	DWT-A01	1	——
Communications power supply	——	1	24 VDC
I/O power supply	——	1	24 VDC

For a bit slave, the current consumed by external I/O (sensors and actuators) is supplied (via Round cable II) from the communications power supply connected to the master unit or repeater unit, the same as the current consumed for the communication power supply.



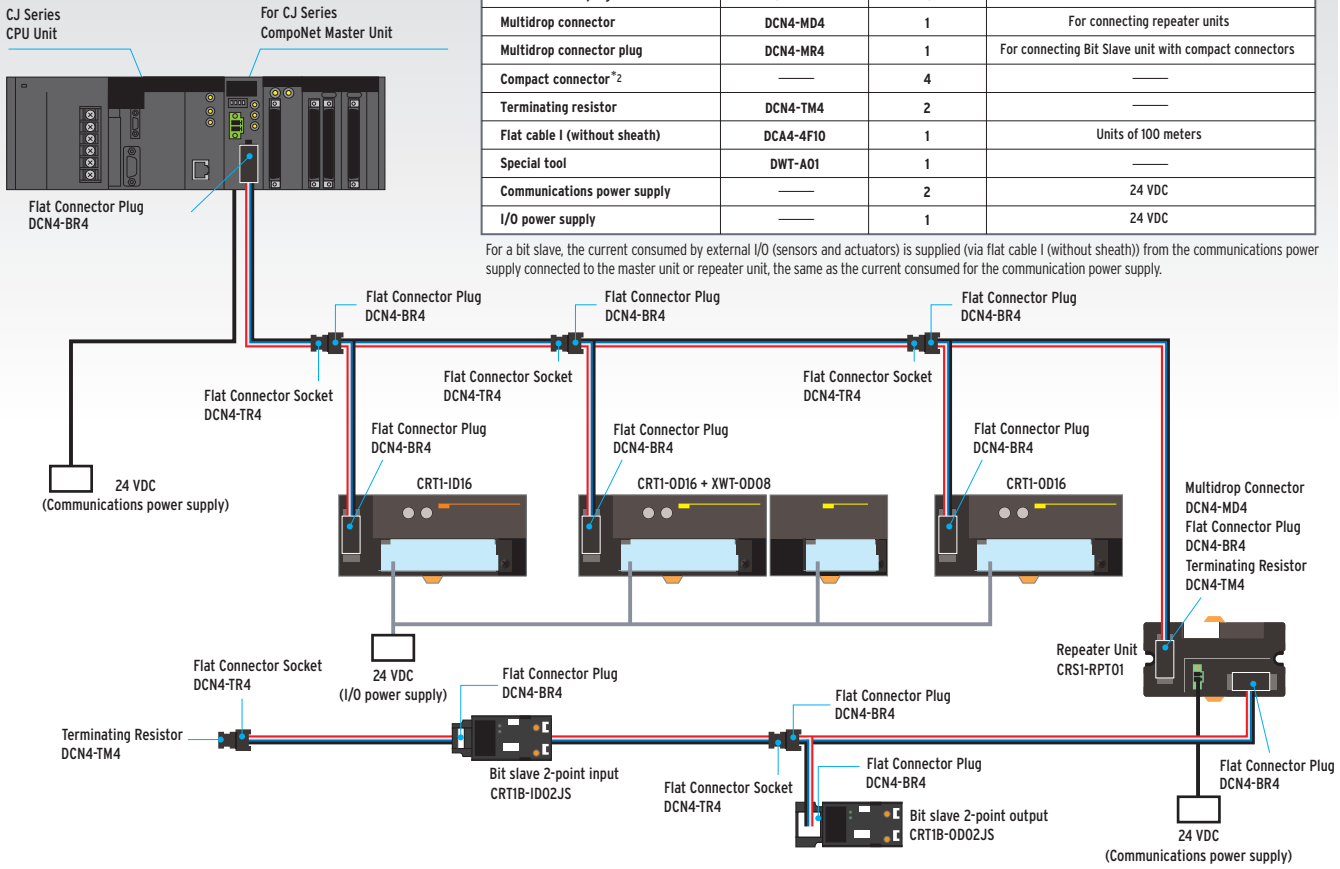
*1 For details, contact Honda Tsushin Kogyo Co., Ltd.
TEL: +81-52-242-2111

Example with flat cable I (without sheath)

Required peripheral equipment

Specification	Model	Number of units	Remarks
Flat connector socket	DCN4-TR4	5	——
Flat connector plug	DCN4-BR4	10	——
Multidrop connector	DCN4-MD4	1	For connecting repeater units
Multidrop connector plug	DCN4-MR4	1	For connecting Bit Slave unit with compact connectors
Compact connector*2	——	4	——
Terminating resistor	DCN4-TM4	2	——
Flat cable I (without sheath)	DCA4-4F10	1	Units of 100 meters
Special tool	DWT-A01	1	——
Communications power supply	——	2	24 VDC
I/O power supply	——	1	24 VDC

For a bit slave, the current consumed by external I/O (sensors and actuators) is supplied (via flat cable I (without sheath)) from the communications power supply connected to the master unit or repeater unit, the same as the current consumed for the communication power supply.

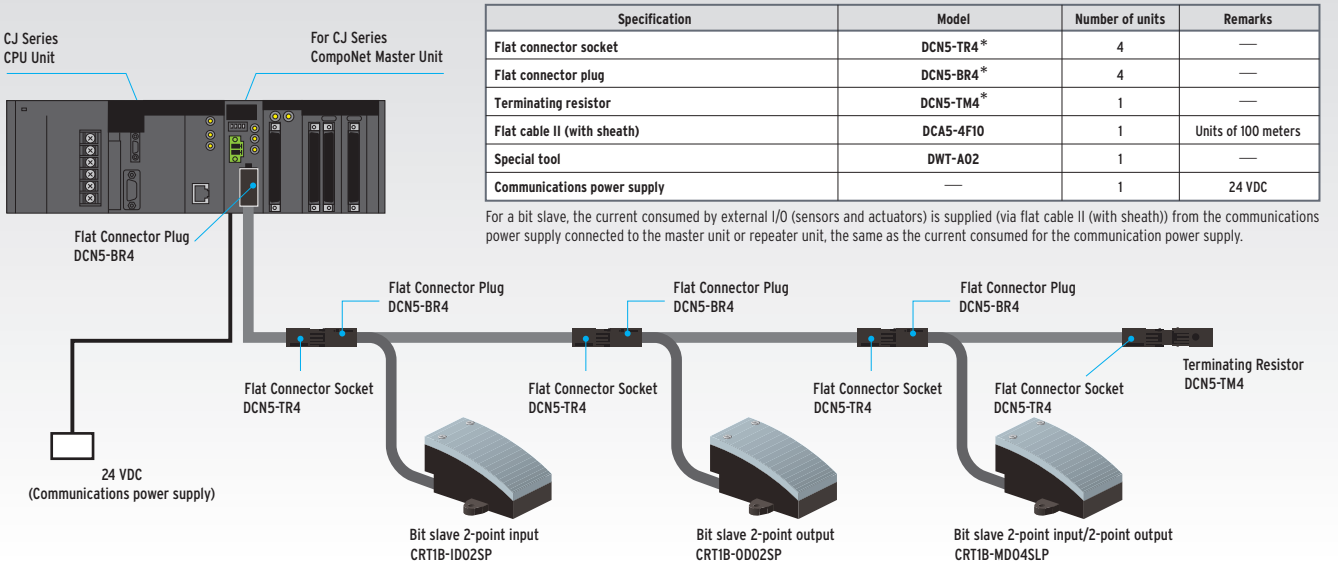


Example with flat cable II (with sheath)

Required peripheral equipment

Specification	Model	Number of units	Remarks
Flat connector socket	DCN5-TR4*	4	—
Flat connector plug	DCN5-BR4*	4	—
Terminating resistor	DCN5-TM4*	1	—
Flat cable II (with sheath)	DCA5-4F10	1	Units of 100 meters
Special tool	DWT-A02	1	—
Communications power supply	—	1	24 VDC

For a bit slave, the current consumed by external I/O (sensors and actuators) is supplied (via flat cable II (with sheath)) from the communications power supply connected to the master unit or repeater unit, the same as the current consumed for the communication power supply.



*2 Compact Connectors

The compact connectors use XA-series Connectors from JST Mfg. Co., Ltd.
Special cable connectors must be attached for cables connecting to externaldevices if a Slave Unit with Compact Connectors is used.

Name	Applicable cable range			Model	Crimping Tool
	mm²	AWG#	Wire sheath external diameter		
Contacts	0.08 to 0.33	28 to 22	1.2 to 1.9	SXA-001T-P0.6	YC692 or YC692R
	0.22 to 0.5	24 to 20	1.5 to 1.9	SXA-01T-P0.6	YRS701 or YRS701R
Housing	——			XAP-03V-1	——

Note (1) Automated Crimp Tools are also available. For details, contact the manufacturer.
(2) For information on the processing procedure, refer to the instruction manualincluded with the tool or contact the manufacturer (JST Mfg. Co., Ltd.).

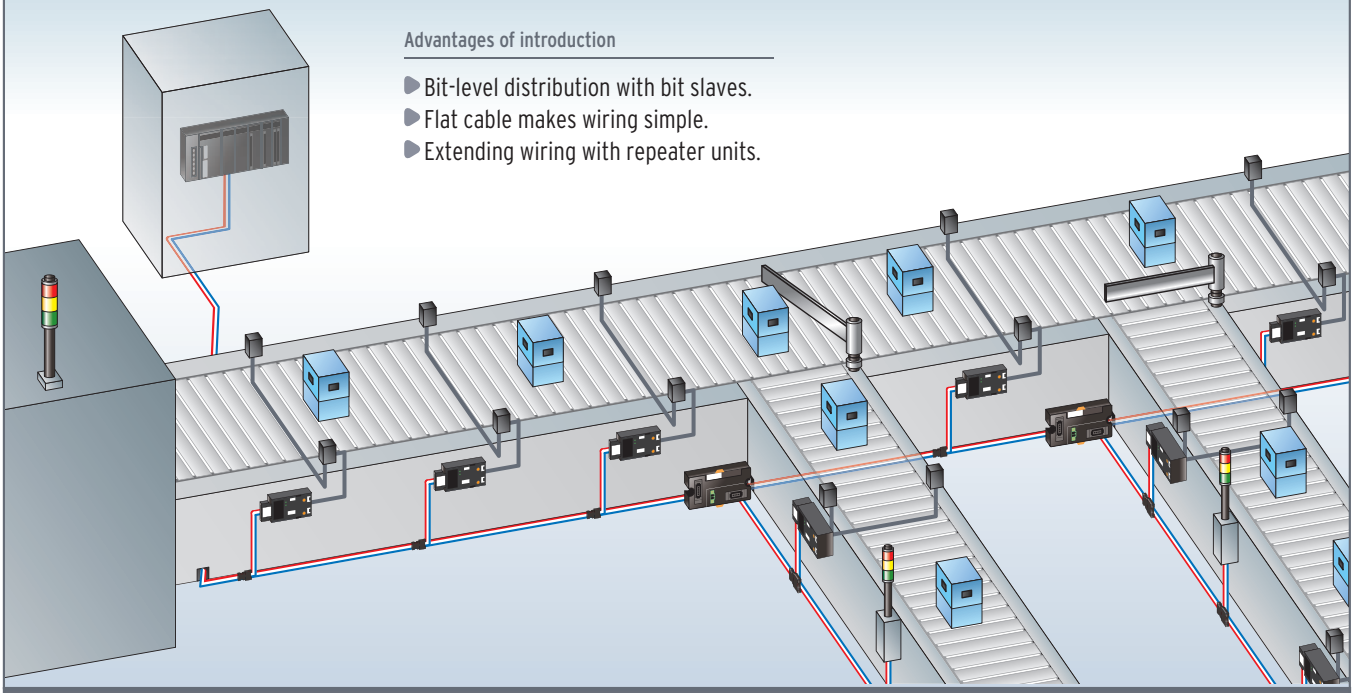
CompoNet Applications for Every Type of Manufacturing Site

These applications offer high-performance communication and superior installability that aid in reducing takt times and cutting down the work of start-up and maintenance. Customers use CompoNet in a wide variety of applications.

Transfer lines

Advantages of introduction

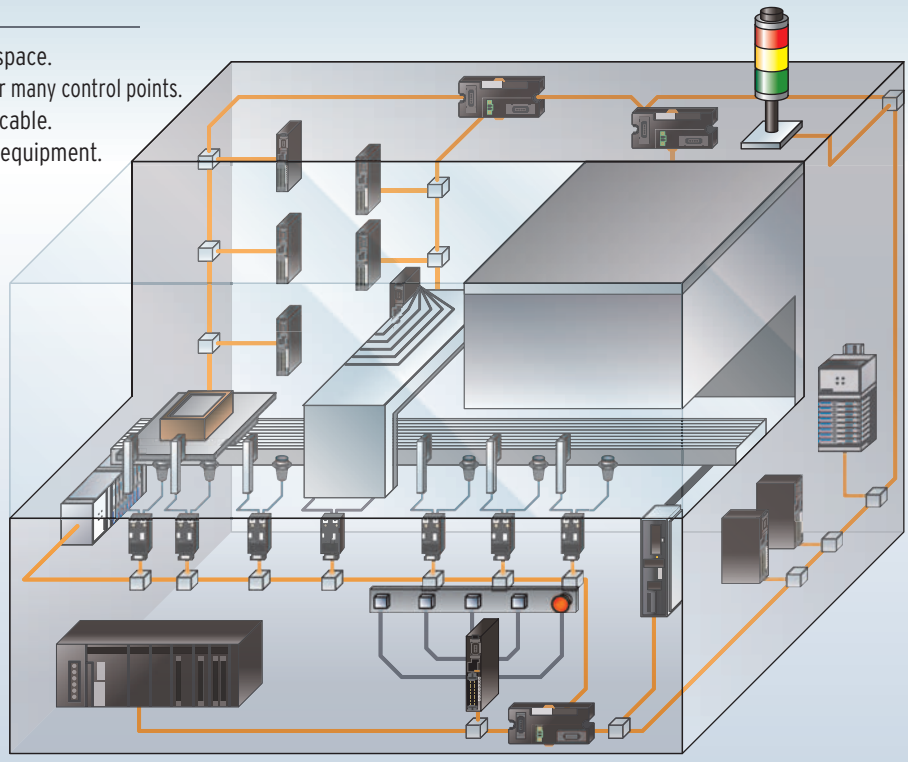
- Bit-level distribution with bit slaves.
- Flat cable makes wiring simple.
- Extending wiring with repeater units.



Electronic parts manufacturing device

Advantages of introduction

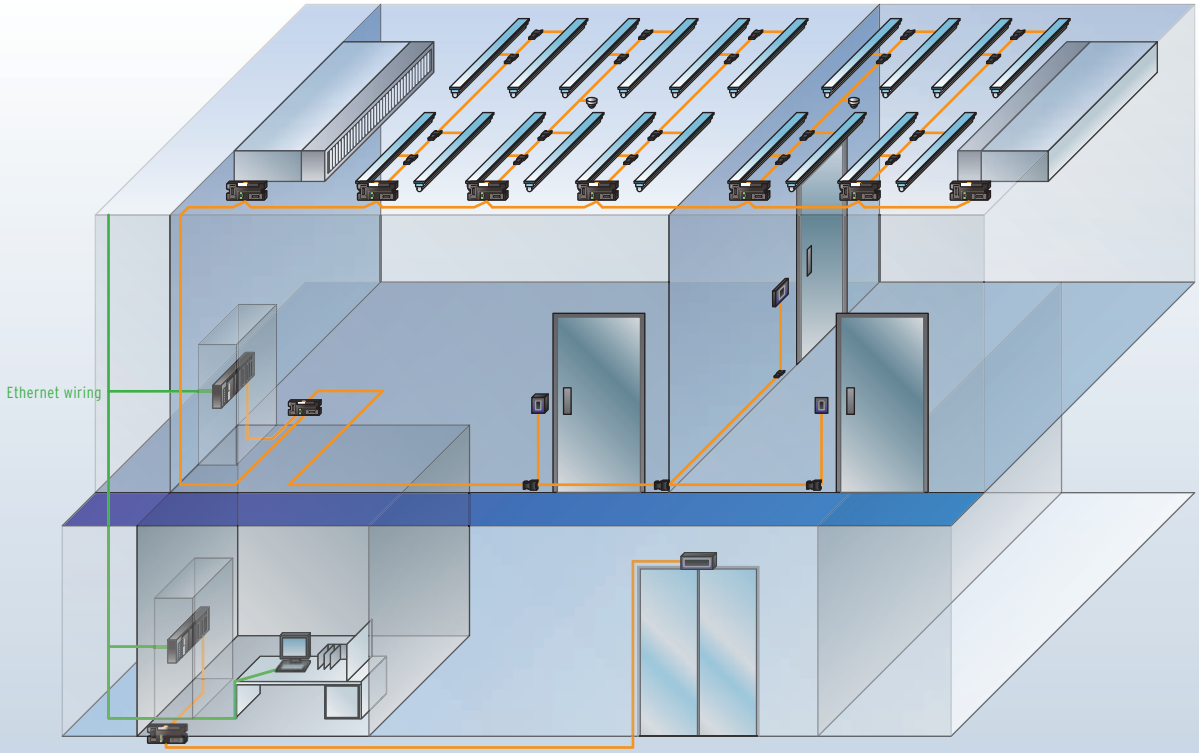
- Reduces wiring and saves space.
- Fast communications even for many control points.
- Cut costs by using regular cable.
- Supports a wide variety of equipment.



Building automation

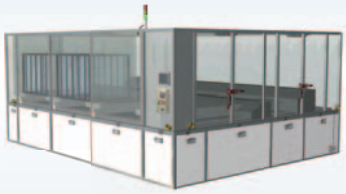
Advantages of introduction

- Wiring up to 1500 meters.
- Regular cables can be used.
- Plenty of connection capacity even for distributed installation.
- High resistance to noise.

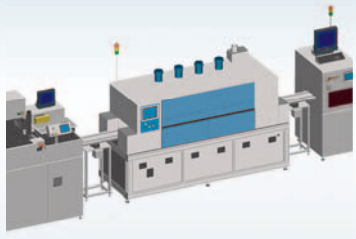


CompoNet allows high speed communications and bit-level distribution. It is usable by various applications.

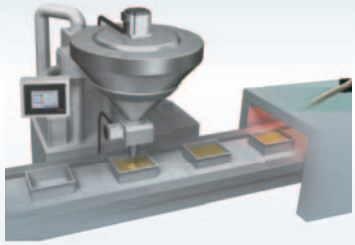
Preprocess machines for semi-conductors



Post-process machines for semi-conductors



Food processing machines



Automatic warehouse

Robots

Packaging machines

Master Units

Master Units

- CJ Series
  - CJ1W-CRM21

- CS Series
  - CS1W-CRM21

NEW

- Master Bord
  - 3G8F7-CRM21
  - 3G8F8-CRM21

Word Slaves

Digital I/O Slaves

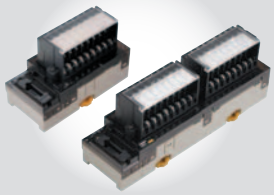
Two-tire Screw Terminal Block

- Input Unit
  - CRT1-ID08(-1)
  - CRT1-ID16(-1)
- Output Unit
  - CRT1-OD08(-1)
  - CRT1-OD16(-1)
- Input/Output Unit
  - CRT1-MD16(-1)

Screw-Type Terminal Block, Relay Output/SSR Output

- Relay Outputs
  - CRT1-ROS08
  - CRT1-ROS16
- SSR Outputs
  - CRT1-ROF08
  - CRT1-ROF16

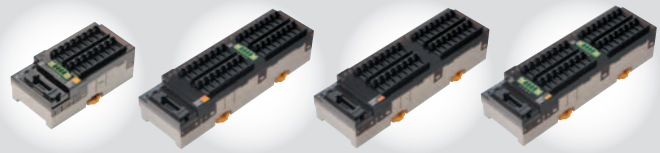
Three-tire Screw Terminal Block



- Input Units
  - CRT1-ID08TA(-1)
  - CRT1-ID08TAH(-1)
  - CRT1-ID16TA(-1)
  - CRT1-ID16TAH(-1)
- Output Units
  - CRT1-OD08TA(-1)
  - CRT1-OD08TAH(-1)
  - CRT1-OD16TA(-1)
  - CRT1-OD16TAH(-1)

- I/O Unit
  - CRT1-MD16TA(-1)
  - CRT1-MD16TAH(-1)

Horizontal Slaves with e-CON Connectors



- Input Units
  - CRT1-ID16S(-1)
  - CRT1-ID16SH(-1)
  - CRT1-ID32S(-1)
  - CRT1-ID32SH(-1)
- Output Units
  - CRT1-OD16S(-1)
  - CRT1-OD16SH(-1)
  - CRT1-OD32S(-1)
  - CRT1-OD32SH(-1)

- I/O Unit
  - CRT1-MD16S(-1)
  - CRT1-MD16SH(-1)
  - CRT1-MD32S(-1)
  - CRT1-MD32SH(-1)

Vertical Slaves with e-CON Connectors

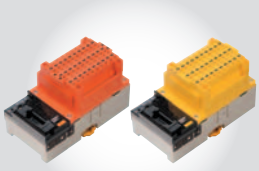
CRT1-VID08S(-1)
CRT1-VOD08S(-1)

Vertical Slaves with MIL Connectors

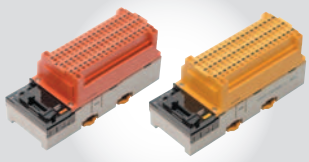
CRT1-VID16ML(-1)
CRT1-VOD16ML(-1)

CRT1-VID32ML(-1)
CRT1-VOD32ML(-1)
CRT1-VMD32ML(-1)

Horizontal Slaves with Clamp Terminals



CRT1-ID08SL(-1)
CRT1-OD08SL(-1)



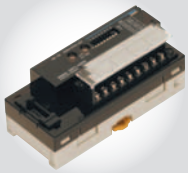
CRT1-ID16SL(-1)
CRT1-OD16SL(-1)

CRT1-MD16SL(-1)

Word Slaves

Analog I/O Slaves

Screw Terminal Block



- Analog Input Unit
  CRT1-AD04
- Analog Output Unit
  CRT1-DA02

Vertical Slaves with e-CON Connectors

CRT1-VAD04S
CRT1-VDA02S

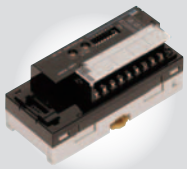
Numerical Indicator Type
CRT1-VAD02SD
CRT1-VDA02SD

Vertical Slaves with MIL Connectors

CRT1-VAD04ML
CRT1-VDA02ML

Numerical Indicator Type
CRT1-VAD02MLD
CRT1-VDA02MLD

Temperature Input Slaves



- Input Units
  CRT1-TS04T
  CRT1-TS04P

Expansion Units

- Input Units XWT-ID08(-1)
  XWT-ID16(-1)
- Output Units XWT-OD08(-1)
  XWT-OD16(-1)

- Output Units XWT-VOD08S(-1)
  XWT-VOD16ML(-1)
- Input/Output Units XWT-VMD08S(-1)
  XWT-VMD16ML(-1)

SmartSlice GRT1 Series

CompoNet Communications Unit

GRT1-CRT

SmartSlice I/O Units

GRT1-ID4(-1)
GRT1-OD4(-1)
GRT1-ID8(-1)
GRT1-OD8(-1)
GRT1-ROS2
GRT1-IA4-1
GRT1-IA4-2
GRT1-AD2
GRT1-DA2C
GRT1-DA2V
GRT1-TS2P
GRT1-TS2PK
GRT1-TS2T
GRT1-CT1(-1)

Bit Slaves

Compact Connector Type

Compact Connector Type

NEW

- Input Unit
  CRT1B-ID02JS(-1)
- Output Unit
  CRT1B-OD02JS(-1)
- Input/Output Unit
  CRT1B-MD02JS(-1)

NEW

- Input Unit
  CRT1B-ID04JS(-1)
- Output Unit
  CRT1B-OD04JS(-1)
- Input/Output Unit
  CRT1B-MD04JS(-1)

e-CON Connector Type

e-CON Connector Type

- Input Unit (IP20 compliant)
  CRT1B-ID02S(-1)
- Output Unit (IP20 compliant)
  CRT1B-OD02S(-1)

- Input Unit (IP54 compliant)
  CRT1B-ID02SP(-1)
  CRT1B-ID04SP(-1)
- Output Unit (IP54 compliant)
  CRT1B-OD02SP(-1)

Clamp Type

Clamp Type

- Input/Output Unit (IP54 compliant)
  CRT1B-MD04SLP(-1)

Repeater Unit

Repeater Unit

CRS1-RPT01

Sensor Communications Unit

Sensor Communications Unit

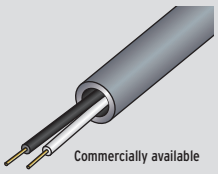
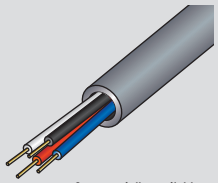
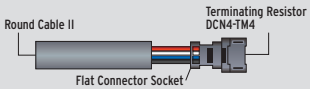
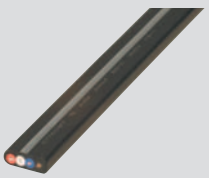
ZS-CRT

The CompoNet network lets you connect to units and branch and extend cables by just mounting connectors on communications cables and units. The cable connection and branching methods depend on the cable type and branching form.

Four types of cable can be used on CompoNet networks.

- Round cable I (2-wire), commercially available
- Round cable II (4-wire), commercially available
- Flat cable I (without sheath) DCA4-4F10
- Flat cable II (with sheath) DCA5-4F10

The terminating resistors, connectors, and special tools depend on the cable type.

Cable type	Unit connection and branching connector	Terminating resistor	Tool
Round Cable I (2-wire)  Commercially available	**Open Type Connector** **(For connecting Units)** DCN4-TB4 *1  **Open Type Connector** **(For connecting Units)** HCN4-TBLMZG+ **(Honda Tsushin Kogyo Co.,Ltd.)** 	**Terminating Resistor** DRS1-T 	
Round Cable II (4-wire)  Commercially available	**Open Type Connector** **(For connecting Units)** DCN4-TB4 *1  **Open Type Connector** **(For connecting Units)** HCN4-TBLMZG+ **(Honda Tsushin Kogyo Co.,Ltd.)** 	**Terminating Resistor** DCN4-TM4  **Flat Connector Socket** DCN4-TR4  Mount the terminating resistor (DCN4-TM4) in the flat connector socket (DCN4-TR4) already mounted on the cable. 	**Special Tool** **For flat cable I** **(without sheath)** DWT-A01 
Flat Cable I (without sheath)  DCA4-4F10	**Flat Connector Socket** DCN4-TR4  **Flat Connector Plug** DCN4-BR4  **Multidrop Connector** DCN4-MD4 *2  **Multidrop Connector Plug** DCN4-MR4 *2 	**Terminating Resistor** DCN4-TM4 	**Special Tool** **For flat cable I** **(without sheath)** DWT-A01 
Flat Cable II (with sheath)  DCA5-4F10	**Flat Connector Socket** DCN5-TR4  **Flat Connector Plug** DCN5-BR4 	**Terminating Resistor** DCN5-TM4 	**Special Tool** **For flat cable II** **(with sheath)** DWT-A02 

*1 Open Type Connectors (DCN4-TB4) are notconnectable with Bit Slave Units whose connectors are small. Use connectors made by Honda Tsushin Kogyo instead.

*2 Multidrop Connectors (DCN4-MD4) are not connectable with Bit Slave Units with Compact Connectors. Use Multidrop Connector Plugs (DCN4-MR4) instead.

Compact Connectors

The compact connectors use XA-series Connectors from JST Mfg. Co., Ltd.
Special cable connectors must be attached for cables connecting to externaldevices if a Slave Unit with Compact Connectors is used.

Name	Applicable cable range			Model	Crimping Tool
	mm²	AWG#	Wire sheath external diameter		
Contacts	0.08 to 0.33	28 to 22	1.2 to 1.9	SXA-001T-P0.6	YC692 or YC692R
	0.22 to 0.5	24 to 20	1.5 to 1.9	SXA-01T-P0.6	YRS701 or YRS701R
Housing	—			XAP-03V-1	—

Note (1) Automated Crimp Tools are also available. For details, contact the manufacturer.
(2) For information on the processing procedure, refer to the instruction manualincluded with the tool or contact the manufacturer (JST Mfg. Co., Ltd.).

Comparison of Specifications with DeviceNet

Reference data

This table compares CompoNet and DeviceNet specifications.
Select the one that matches your applications and uses.

	CompoNet™	DeviceNet™
Features	Bit-level distribution High speed, multiple nodes, superior branching, low cost	High-capacity I/O data communication for multiple points and multiple channels
Maximum baud rate	4 Mbps (1024 points/1 ms)	500 kbps (1024 points/12.6 ms *)
Communication medium	■ Round cable I (2-wire) ■ Round cable II (4-wire) ■ Special flat cable I (4-wire, without sheath) ■ Special flat cable II (4-wire, with sheath)	■ Special thick cable (5-wire) ■ Special thin cable (5-wire) ■ Special flat cable (4-wire)
Maximum communication distance	1500 m (for 93.75 kbps with repeaters and round cable I)	500 m (for 125 kbps with special thick 5-wire cable)
Maximum number of nodes connected	■ Word slave unit: 64 input units/64 output units ■ Bit slave unit: 128 input units/128 output units ■ Repeater unit: 64 units	64 units (including master, slaves and configurator)
Maximum number of I/O points	■ Word slave unit: inputs and 1024 outputs (2048 I/O points total) ■ Bit slave unit: inputs and 256 outputs (512 I/O points total)	32000 points (When using CS1W-DRM21-V1/CJ1W-DRM21)
Safety support	None	Yes (DeviceNet Safety)

* This chart reflects the theoretical values for the CJ1 series master unit so refer to them as approximated values.

Master

YASKAWA ELECTRIC CORPORATION

+81-4-2962-5823
www.e-mechatronics.com

265IF-01(CompoNet Master Communication Module)
[JAPMC-CM2390-E]

Features
1. 265IF-01 can be connected to the abundant slave group as a CompoNet master.
2. 265IF-01 is attached to the optional slot of the MP2000 series controller.

Coming soon

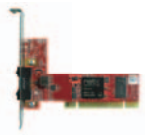
Slave

Hilscher GmbH

Europe
Hilscher GmbH (Germany)
Tel: +49-(0)-6190-9907-0
North America
Hilscher North America, Inc. (USA)
Tel: +1-630-505-5301
Asia-Pacific
Hilscher GmbH (Germany)
Tel: +49-(0)-6190-9907-0
China
Hilscher GmbH (Shanghai Rep. Office)
Tel: +86-(0)-21-6355-5161
India
Tel: +91-(0)-11-4051-5640

info@hilscher.com

Overseas sales areas:
Europe, North America, Asia-Pacific, China, Other



CompoNet Slave PCI card
[CIFX 50-CPS]

Features
1. Date exchange via Dual Port Memory as host I/F
2. Driver for Windows and other type of RTOS on request
3. Plan for PCI Express card and other PC form factors

Coming soon

Inverter

YASKAWA ELECTRIC CORPORATION

+81-930-25-2548
www.e-mechatronics.com

Overseas sales areas:
Europe
YASKAWA ELECTRIC EUROPE GmbH
Tel:+49-6196-569-300
North America
YASKAWA ELECTRIC AMERICA,INC.
Tel:+1-847-887-7000
Asia-Pacific
YASKAWA ELECTRIC KOREA CORPORATION
Tel:+82-2-784-7844
YASKAWA ELECTRIC (SINGAPORE) PTE.LTD.
Tel:+65-6282-3003
China
YASKAWA ELECTRIC (SHANGHAI) CO.,LTD.
+86-21-5385-2200

YASKAWA AC Drive V1000
[CIMR-Vxxxxxxxxxx]

Features
1. Synchronous motor capability more compact, greater energy savings
2. Powerful functions for quick installation, easy maintenance
3. Compliance with EU's RoHS standard. Shock-proof, moisture-resistant, and other models also available.

Coming soon

Solenoid Valves

SMC CORPORATION

+81-3-5207-8249
www.smcworld.com

Overseas sales areas:
Europe, North America, Asia-Pacific, China

Fieldbus System Compatible with CompoNet™
[EX120/121/122 Series]

Features
1. Output type : Compatible with NPN(+COM.)/PNP(-COM.)
2. Applicable Solenoid Valve Series : SY,SV,VQ Series
3. Low Power Consumption : SY Series also available with a power saving 0.1W circuit.

CKD CORPORATION

Europe
TEL:+81-(0)568-74-1303
North America
TEL:+81-(0)568-74-1303
Asia-Pacific
TEL:+81-(0)568-74-1303
China
TEL:+81-(0)568-74-1303

www.ckd.co.jp/english

Overseas sales areas:
Europe, North America, Asia-Pacific, China, Other

Pilot type 3•5 ports pilot valve
[4G series]

Features
1. Very long life: more than 60 million times due to elastic seal with few air leakage.
2. Enhanced safety function: Manual override button with protective cover and integrated check valve preventing back pressure.

Koganei Corporation

+81-42-383-7271
www.koganei.co.jp

Overseas sales areas:
Europe, North America, Asia-Pacific

CompoNet-compatible Solenoid Valves
[JA Series]

Features
1. Thin and Compact: Valve width of only 10 mm with effective area of 3.5 mm2.
2. Lower power consumption.
   Standard: 0.5 W Low current type: 0.25 W
3. Two 3-port valves in one body.

CompoNet-compatible Solenoid Valves
[F Series]

Features
1. Single/double dual-use valves.
2. Three of valve widths: 10, 15 and 18 mm
3. Uses dual-use fittings for different tube sizes.

Controllers and Signal Towers

IAI Corporation

www.intelligentactuator.com/

Overseas sales areas:
Europe, North America, Asia-Pacific, China

Controller for RCA/RCA2 Series ROBO CYLINDER
[ACON-C/CG]

Features
1. Designed for 24 VDC servomotors.
2. Multipoint positioning: up to 512 points.
3. High speed: Up to 800 mm/s.

Controller for RCP2/RCP3 Series ROBO CYLINDER
[PCON-C/CG]

Features
1. Designed for 24 VDC pulse motors.
2. Multipoint positioning: up to 512 points.
3. High power in lower speed range.

PATLITE Corporation

+81-6-6763-8220
www.patlite.com

Overseas sales areas:
Europe, North America, Asia-Pacific, China

CompoNet Supported Signal Tower
[LE-K3(B)P/W-RYG]

Features
1. Use of ultra-bright LED enhanced for illumination.
2. Two selectable sound patterns with adjustable volume.

CompoNet Supported Wall-Mount Signal Tower
[WEP-K3(B)-RYG]

Features
1 . A 37.5 mm-thin design that significantly enhances integration with equipment as a built-in signal system.
2. Clear vertical cut lens enhanced for illumination over a wide perspective.
3. Built-in audible alarm.

Gateway

JSK CO., LTD.

+81-72-661-4071
www.nihon-seigyo.co.jp

CompoNet-RS422/485 Converter
[DWPC-001]

Features
1. Connects conventional RS422/485 control devices to CompoNet.
2. Programmable RS422/485 interface realizes easy software implementation.
3. DeviceNet, CC-Link, other protocols are coming soon.

Under development

AIOI•SYSTEMS CO.,LTD.

+81-3-3764-0228
www.hello-aioi.com/en
info@hello-aioi.com

Overseas sales areas:
Europe, North America,
Asia-Pacific, China Other

Gateway Controler for CompoNet
[TW2118]

Features
1. AI-NET-Componet Gateway Controler.
2. Maximum coDrop Light Modules Number is 64.

Coming soon

Connector

Honda-connectors

+81-52-242-2111
www.honda-connectors.co.jp

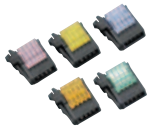
Overseas sales areas:
Europe, North America, China,
Asia-Pacific, Southeast Asia

Connector
[HCN- (S)4( )( )FDG +]
[HCN-TB 4LMZG +]

Features
1. PCB SIDE
•Smaller than conventional product
•Mating area of SLIM TYPE is 8mm, compared with 10mm of conventional product.
2. CABLE SIDE
•INSIDE HOOK(LOCK SYSTEM INSIDE CASE)
•Possible to lead cables to 2 directions out.

Tayco Electronics AMP K.K

+81-44-844-8080
www.tycoelectronics.com

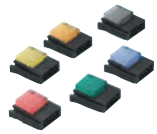


RITS Connector (e-CON)
[X-1473562-4]

Features
1. New Chisel Press Contacts for sensor cables.
2. No special crimping tool required for easy termination.
3. Two contact points for good connection and more security.

3M Company

www.3M.com/interconnects



Mini-Clamp Connector:
[3710x-xxxx-000 FL]

Features
1. IDC technology reduces process/cost of wire termination.
2. Crimped using standard pliers to reduce tool costs.
3. Design offers multiple gauges and wire size diameters.

HARTING

+81-45-476-3456
www.harting.co.jp/
jp@HARTING.com

Overseas sales areas:
Europe, North America, China,
Asia-Pacific

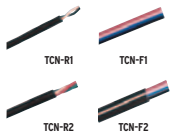
HARAX M12-L
[2103 212 1305]
[2103 212 2305]

Features
1. No special tool required
2. terminate up to 0.75mm2wire
3. IP67 degree of protection(DIN EN60 529,IEC 60 529)

Cable

SWCC SHOWA CABLE SYSTEMS CO., LTD.

+81-3-3597-7117
www.swcc.co.jp



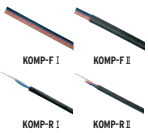
CompoNet Cable

Features
TCN-R1 Round Cable 19AWGx2C(CL3,CM,cUL-CM,75°C)
TCN-R2 Round Cable 19AWGx4C(CL3,CM,cUL-CM,75°C)
TCN-F1 Flat Cable 21AWGx2C+19AWGx2C
TCN-F2 Flat Cable 21AWGx2C+19AWGx2C

Coming soon

KURAMO ELECTRIC.CO.,LTD.

+81-778-22-1500
www.kuramo.co.jp



CompoNet Flat CableCable Ⅰ.Ⅱ
CompoNet Round Cable Ⅰ.Ⅱ
①CompoNet Flat Cable KOMP-FⅠ 21AWG, x 2, 19AWG x 2
②CompoNet Flat Cable KOMP-FⅡ 21AWG x 2, 19AWG x 2
③CompoNet Round Cable KOMP-RⅠ 19AWG x 2
④CompoNet Round Cable KOMP-RⅡ 19AWG x 4

Features
1. CompoNet Flat Cable KOMP-FⅠ
Heat resistance:90 Flame resistance:FT4
UL certification:UL13 CL2 CSA certification:CSA C22.2 No.210
2.CompoNet Flat Cable KOMP-FⅡ
Oil resistance•Heat resistance:90
Flame resistance:UL FLAME EXPOSURE UL certification:UL13 PLTC,UL444 CM
CSA certification:CSA C22.2 No.214
3.CompoNet Round Cable KOMP-FⅠ
CompoNet Round Cable KOMP-RⅡ
Oil resistance Heat resistance:90
Flame resistance:FT4 UL certification:UL13 PLTC,UL444 CMG

NICHIGOH COMMUNICATION ELECTRIC WIRE CO.,LTD

+81-72-923-5104
www.nichigoh.co.jp

UNICOMPO series
•CompoNet Flat type cable (Sheath less):UNICOMPO FC Ⅰ-T
•CompoNet Flat type cable (With Sheath):UNICOMPO FC Ⅱ-T
•CompoNet Round type cable (2c):UNICOMPO RC Ⅰ-T
•CompoNet Round type cable (4c):UNICOMPO RC Ⅱ-T

Features
1. Conformity to UL/cUL standard(CM,CL2)
2. Conformity to NFPA79.NFPA70(NEC)
3. The RC type acquires CE, and is acquiring the FC type

Kanetsu Co.,Ltd

+81-75-662-0996
www.kanetuu.co.jp/
info_kanetsu@kanetuu.co.jp

Overseas sales areas:
Europe, North America, China,
Asia-Pacific, Taiwan, Vietnam

CompoNet Flat Cable I and II

Daiko. E.W.
[KCNF]

Features
1. Enables using unique isolation-displacement connectors for CompoNet.
2. Easy one-step IDC connection without insulation stripping.
3. UL AWM, CSA compliant.

Taiyo Electric Wire & Cable Co., Ltd.
[KCNF-J]

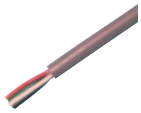
Features
1. Enables using unique isolation-displacement connectors for CompoNet.
2. PVC jackets with polarity guide line for IP54 system.
3. Easy one-step IDC connection without insulation stripping.
4. UL AWM, CSA compliant

Oil-resistant and Highly Flexible Round Cable II for CompoNet

Hanshin Electric Wire & Cable Co., Ltd.
[MRC-4]

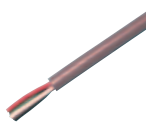
Features
1. The cable can be used for mobile and oil-resistant wiring.
2. Round cable for low cost installation.
3. UL AWM, CSA compliant.

CompoNet Round Cable I and II



Onamba Co., Ltd
[VCTF-2C VCTF-4C]

Features
Round cable for low cost installation.



Kawai Cable, Ltd.
[VCTF-2C VCTF-4C]

Features
Round cable for low cost installation.

Development Support

Development tool

OMRON Corporation

open_integration@omron.co.jp

MPU for CompoNet Slave, MPU for CompoNet Master

Features

Slave: Omron offers the development approach of three types by the function of the slave.

1. Few-Point Slave
   - I/O Size:Digital I/O in MAX 32 points
   - Application interface:Via I/O port
2. Multi-Points Slave
   - I/O size: Outputs: 0 to 256 points (32 bytes)
     Inputs: 0 to 256 points (32 bytes)
   - Apllication interface:DPRAM
3. Protocol stack
   No restriction in MPU and OS

Master: Omron offers two kinds of development approaches.

1. DP-RAMI/F MPU
   Development is unnecessary of the communication protocol.
   The communication protocol including RAS is mounted on MPU.
2. Library
   System Call I/F of ITRON

OMRON Corporation

www.omron.com/

Overseas sales areas:
Asia-Pacific,

On board Connector

[XW7D-PB4-S][XW7D-PB4-R][XW7D-PB4-L]

Features

1. 3 type models are ready to correspond with some applications.
2. Enable to mate DCN4-MD4/DCN4-TB4 with lock lever.
3. UL approved.

HMS INDUSTRIAL NETWORKS Co.,Ltd

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Tel: +46-35-172900
North America
Tel: +1-312-829-0601
China
Tel: +86-10-8532-3183

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info@hms.se
USA
us-sales@hms-networks.com
CHINA
cn-sales@hms-networks.com

Overseas sales areas:
Europe, North America, Asia-Pacific, China

Anybus CompactCom Componet

[ABCC-CPN]

Features

1. Embedded solutions of CompoNet slave for device vendors.
2. Can release the device for CompoNet with short term.
3. Common interface with DeviceNet and EtherNet/IP.

Release:February / 2010

Hilscher GmbH

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North America
Hilscher North America, Inc. (USA)
Tel: +1-630-505-5301
Asia-Pacific
Hilscher GmbH (Germany)
Tel: +49-(0)-6190-9907-0
China
Hilscher GmbH (Shanghai Rep. Office)
Tel: +86-(0)-21-6355-5161
India
Tel: +91-(0)-11-4051-5640

info@hilscher.com

Overseas sales areas:
Europe, North America, Asia-Pacific, China, Other

CompoNet Communication Controller

[netX 50/netX 100/netX 500]

Features

1. CompoNet, DeviceNet, EtherNet/IP and various Fieldbus / Real Time Ethernet on one chip
2. Control by external CPU via DPM or Application can be implemented on the internal ARM (200MHz)
3. UART/USB/SPI/I2C/GPIO/LCD controller/ADC/PWM/DMA/CCD (depends on chip type)

Entrusted development and Support

NSD Co., Ltd.

+81-3-3342-1380
www.nsd.co.jp/english/
ia-info@nsd.co.jp

Overseas sales areas:
North America

CompoNet Master Stack Tool Kit (C-MTK)

[CMK-100]

Features

1. A developers' tool kit to implement communication function for CompoNet master modules
2. CompoNet master protocol stack firmware example source codes and various kinds of technical items are included
3. Software development and its technical survices can be provided , if a industrial device vendor would like to develop CompoNet devices.

CompoNet Slave Stack Tool Kit (C-SSC)

[CSS-200]

Features

1. A developers' tool kit to implement communication function for CompoNet slave modules.
2. CompoNet slave protocol stack firmware example source codes and various kinds of technical items are included.
3. Software development and its technical survices can be provided , if a industrial device vendor would like to develop CompoNet devices.

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