New Product

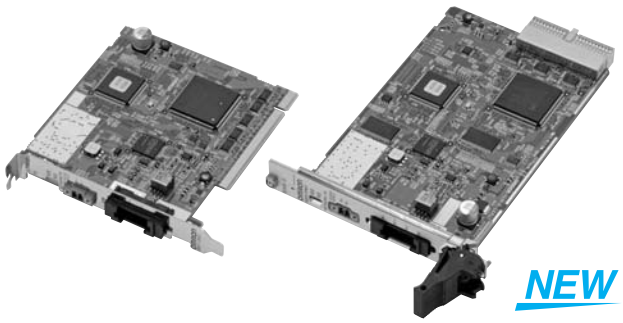
OMRON

CompoNet Master Board for PCI Bus/CompactPCI Bus

3G8F7-CRM21/3G8F8-CRM21

CompoNet Master Board for PC which provides ultra-high speed control

- Two type product variation of PCI Bus type and Compact PCI Bus type
- Windows-base environment. Compatible with other OS, too when shared memory area is used.
- Combine PC with High-speed communicaiton network "CompoNet" to achieve further fast communications.
- Familiar C/C++/VB based programming.



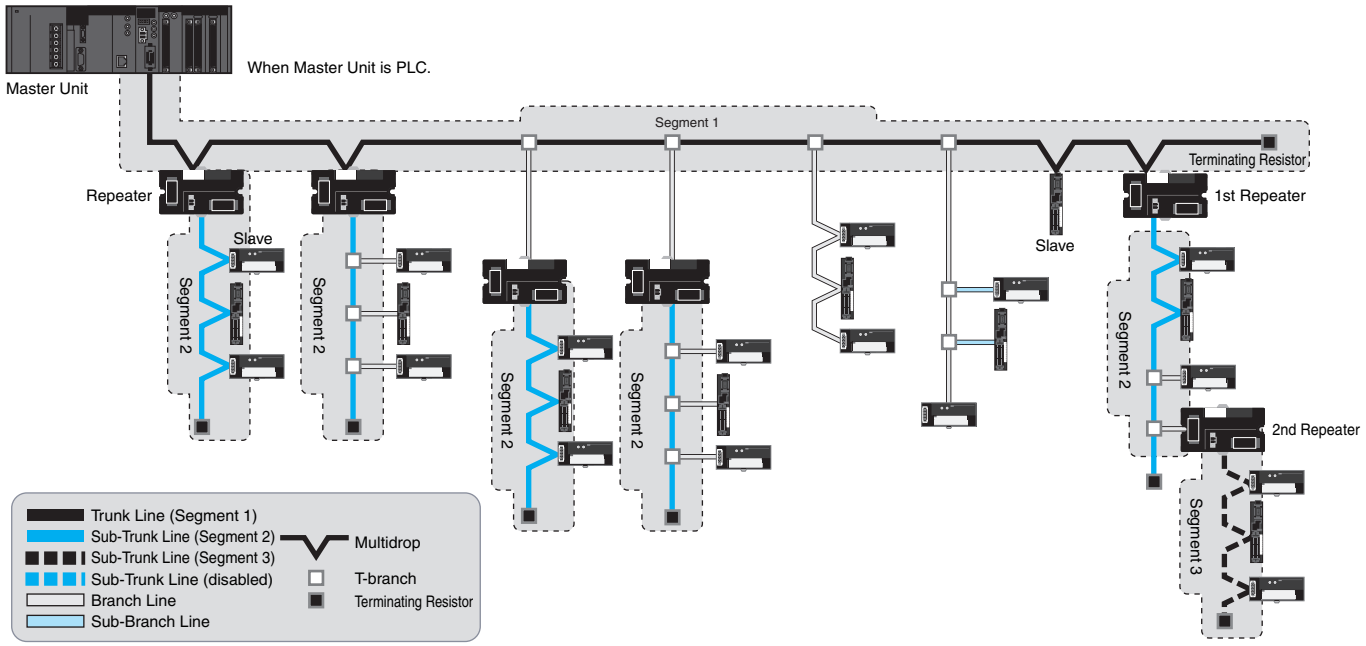
Ordering Information

International Standards

- The standards are abbreviated as follows: U: UL, U1: UL (Class I Division 2 Products for Hazardous Locations), C: CSA, UC: cULus, UC1: cULus (Class I Division 2 Products for Hazardous Locations), CU: cUL, N: NK, L: Lloyd, and CE: EC Directives.
- Contact your OMRON representative for further details and applicable conditions for these standards.

Name	Specification	Model	Standards
CompoNet Master Board for PCI Bus	PCI bus Rev2.2 5V	**3G8F7-CRM21**	CE
CompoNet Master Board for CompactPCI Bus	PICMG 2.0 R3.0 5V 32-Bit 3U	**3G8F8-CRM21**	CE

Communications Specifications



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					

Communications Specifications

Item	Specifications
Communications protocol	CompoNet Network protocol
Types of communications	Remote I/O communications, i.e., program-less, constant data sharing with Slave Units; and message communications, i.e., occasional (as required) explicit message communications with Slave Units and occasional (as required) Explicit message communications with PLC
Data rate	4 Mbps *1, 3 Mbps, 1.5 Mbps or 93.75 kbps
Modulation	Base band
Coding	Manchester code
Error control	Manchester code rules, CRC
Communications media *2	Round cable I (2-conductor cable) and Round cable II (4-conductor cable), Flat Cable I (DCA4-4F10) and Flat Cable II (DCA5-4F10)
Communications distance and wiring	Communication Specifications Page 1.
Connectable Slave Units	CompoNet Slave Units
Maximum I/O capacity	Word Slave Units: 1,024 inputs and 1,024 outputs, 2,048 points in total; Bit Slave Units: 256 inputs and 256 outputs, 512 points in total
Maximum number of nodes	Word Slave Units: 64 input nodes and 64 output nodes; Bit Slave Units: 128 input nodes and 128 output nodes; Repeater Units: 64 nodes
Bits allocated per node address	Word Slave Units: 16 bits; Bit Slave Units: 2 bits
Maximum number of nodes per trunk line or sub-trunk line	32 nodes including Repeater Units
Applicable node addresses	Word Slave Units: IN0 to IN63 and OUT0 to OUT63; Bit Slave Units: BIT IN0 to IN127 and BIT OUT0 to OUT127; Repeater Units: 0 to 63
Condition to use Repeater Units	Up to 64 Repeater Units can be connected per network (Master Board). (Up to 32 Repeater Units can be connected per trunk line or sub-trunk line.) Repeater Units can be connected to create a maximum of 2 segment layers from the Master Board.
Signal lines	Two lines: BDH (communications data high) and BDL (communications data low)
Power lines	Two lines: BS+ and BS- (power for communications and for internal circuits of Slave Unit supplied from the Master Board or a Repeater Unit)
Communications power voltage	24 VDC±10%
Connection forms	When either Round cable II or Flat Cable I or II is used at data rate setting in 93.75 kbps: No restriction Other cables or other data rates: Trunk line-branch line formation
	Connections for Slave Units and Repeater Units: T-branch or multidrop connections

*1. Slave Units that are pre-connected with cables are not usable at this data rate. Because the data rate does not support T-branch connection, which is the only possible connection for the Slave Units with pre-connected cables.
*2. Round cable I, round cable II, Flat Cable I, and Flat Cable II are all different in cable type. When two or more of them are to be wired in a network, a Repeater Unit must be used to separate the cable for the trunk line and for a sub-trunk line.

General Specifications

Item	Specifications	
	3G8F7-CRM21 (PCI)	**3G8F8-CRM21 (CompactPCI)**
Bus specification	PCI bus Rev2.2 5 V	PICMG 2.0 R3.0 5 V 32-Bit 3U
Number of mountable boards	4 pieces	7 pieces
Compatible OS	Microsoft Windows 2000 / XP (32 Bit version) / Vista (32 Bit version) Other OS can be used, when the shared memory interface is directly accessed.	
Weight	90 g max.	150 g max.
Operation voltage	Internal power supply: 5 VDC±5% 3.3 VDC is not used.	
Consumption current	Internal power supply: 5 VDC and 1.5 A max Communications power supply: 24 VDC and 80 mA max	
Vibration resistance	Conform to IEC60068-2-6. 10 to 57 Hz, Amplitude 0.075 mm, 57 to 150 Hz Acceleration 9.8 m/s², 80 min in each direction of X, Y and Z (8 min of each sweep time × 10 sweeps = total 80 min)	
Shock resistance	Conform to IEC60068-2-27. 147 m/s², 3 times in each direction of X, Y and Z.	
Ambient operating temperature	0 to 55°C	0 to 55°C
Ambient operating humidity	0% to 80% RH (with no condensation)	0% to 90% RH (with no condensation)
Ambient operating atmosphere	No corrosive gas	
Storage temperature	-20 to +60°C	

Development Environment

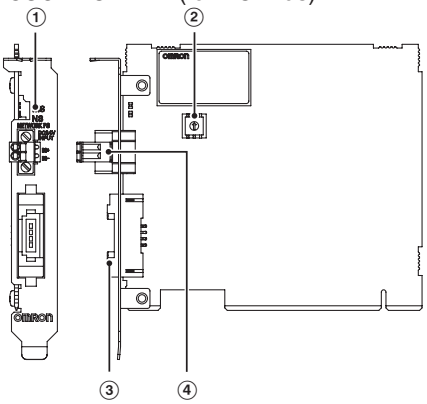
- Microsoft Visual C++ (Ver 6.0 to Ver 2008)
- Microsoft Visual Basic (Ver 6.0)
- CODEGEAR C++ Builder (Ver 5 to Ver 2009)

Precautions for Correct Use

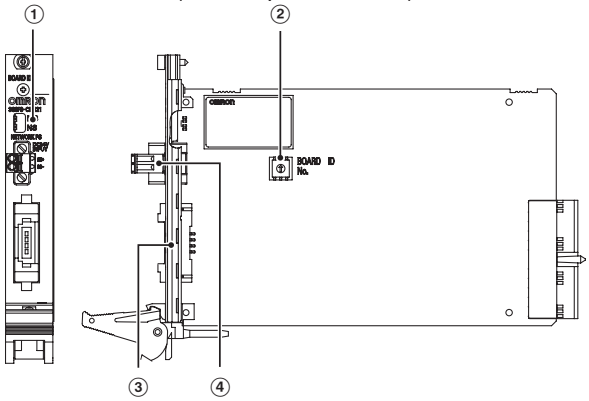
When you use the Board in an OS other than Windows by directly accessing the shared memory interface, provide the development environment applicable for the OS.

Component Name and Function

3G8F7-CRM21 (for PCI Bus)



3G8F8-CRM21 (for Compact PCI Bus)



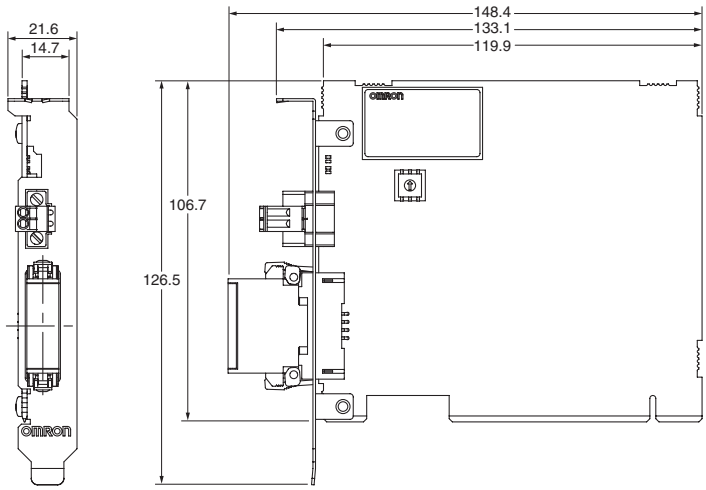
Number	Name	Function
①	LED Indicators (MS and NS)	They indicate the Module Status (MS) and Network Status (NS) that are defined in the CompoNet protocol.
②	Board ID Switch	This is used to set the board ID. The number must not overlap the IDs for other CompoNet Master Boards mounted on the same personal computer.
③	Communications connector	This is used to connect to the communications cable. The terminals BS+ and BS- are for communications power supply. The terminals BDH and BDL are for communications data. The BS+ and BS- can be used only for round cable II or Flat Cable I or II. They output the communications power from the power supply connected to the communications power supply connector. *1
④	Communications power supply connector	This is used to connect a 24-VDC power supply when either round cable II or Flat Cable I or II is used. The communications power is supplied through this connector and the round cable II, Flat Cable I or Flat Cable II to the Slave Units and Repeater Units on the trunk line. *2

*1. By attaching an Open Type Connector for Unit connection, the communications connector can be converted to a terminal-block type.
*2. Do not connect anything to this connector when a round cable I is used.

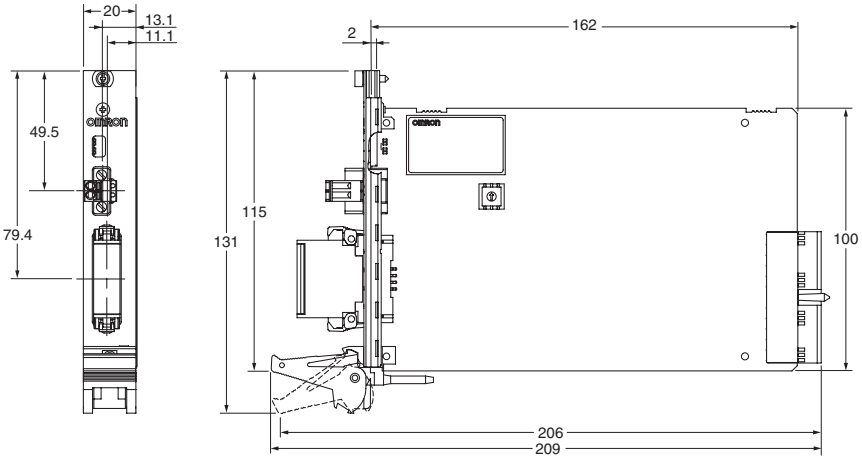
Dimensions

(unit: mm)

3G8F7-CRM21 (PCI)



3G8F8-CRM21 (CompactPCI)



- The application examples provided in this catalog are for reference only. Check functions and safety of the equipment before use.
- Never use the products for any application requiring special safety requirements, such as nuclear energy control systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, or other application invalving serious risk to life or property, without ensuring that the system as a whole has been designed to address the risks, and that the OMRON products are properly rated and installed for the intended use within the overall equipment or system.

Warranty and Limitations of Liability

WARRANTY

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Note: Do not use this document to operate the Unit.

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