



EtherNet/IP™ Communication Converter

COM-ME-2 [For SRZ] Object Model

IMR02E38-E1

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In order to achieve maximum performance and ensure proper operation of the instrument, carefully read all the instructions in this manual. Please place the manual in a convenient location for easy reference.

For the installation, the detail handling procedures and various function settings, please read if necessary the following separate manuals.

- COM-ME-2 [For SRZ] Installation Manual (IMR02E40-ED);Enclosed with COM-ME-2
- COM-ME-2 [For SRZ] Host Communication Data List (IMR02E37-ED); Enclosed with COM-ME-2
- COM-ME-2 [For SRZ] Instruction Manual (IMR02E39-ED); Separate (Download or sold separately)

These manuals can be downloaded from the official RKC website:
<https://www.rkcinst.co.jp/english/download-center/>

1. OBJECT MODEL

EtherNet/IP™ is an implementation of CIP (Common Industrial Protocol) on Ethernet and TCP/IP. CIP is defined by means of an object model.

1.1 CIP Common Object

■ Identity Object (0x01: 01Hex)

● Object class

	ID	Description	Get	Set	Type	Value
Attributes	1	Revision	Yes	No	UINT	2
	2	Max Instance	Yes	No	UINT	1
EtherNet/IP service			Parameter option			
Services	0x0E	Get_Attribute_Single	None			

● Object instance 1

Attributes	ID	Description	Get	Set	Type	Value
	1	Vendor ID	Yes	No	UINT	394
	2	Device type	Yes	No	UINT	0x2B
	3	Product code	Yes	No	UINT	10
	4	Revision	Yes	No	Struct	
		Major revision			USINT	1
		Minor revision			USINT	1
	5	Status	Yes	No	WORD	Note
	6	Serial number	Yes	No	UDINT	(Unique serial number)
	7	Product name	Yes	No	Struct	
	Length			SHORT	8	
	Name			SHORT_STRING	"COM-ME-2"	

Enfernevr service		Parameter option
Services	0x0E_Get_Attribute_Single	None
	0x05_Reset	0: Power Cycling
		1: Factory Default (Set the SelectAcid to enable)
	0x01_Get_Attribute_All	None
Note	A bit layout of "Status"	
	bit 0: Owned	bit 9: Minor Unrecoverable Fault
	bit 2: Configured	bit 10: Major Recoverable Fault
	bit 4 to 7: Extended Device Status	bit 11: Major Unrecoverable Fault
	bit 8: Minor Recoverable Fault	(Bit 1, bit 3 and bit 12 to 15 is always 0.)

■ Message Router Object (0x02: 02Hex)

● Object class

Attributes	Not supported
Services	Not supported

● Object instance

Attributes	Not supported
Services	Not supported

■ Assembly Object (0x04: 04Hex)

● Object class

	ID	Description	Get	Set	Type	Value
Attributes	1	Revision	Yes	No	UINT	2
	2	Max Instance	Yes	No	UINT	(Highest instance number)
EtherNet/IP service			Parameter option			
Services	0x0E	Get_Attribute_Single	None			

● Object instance 100

	ID	Description	Get	Set	Type	Value
Attributes	3	Produced Data	Yes	No	Array of BYTE	
	EtherNet/IP service		Parameter option			
Services	0x0E	Get_Attribute_Single				

● Object instance 101

	ID	Description	Get	Set	Type	Value
Attributes	3	Consumed Data	Yes	Yes	Array of BYTE	
	EtherNet/IP service			Parameter option		
Services	0x0E	Get_Attribute_Single	None			
	0x10	Set_Attribute_Single	None			

■ Connection Manager Object (0x06: 06Hex)

● Object class

Attributes	Not supported
Services	Not supported

● Object instance

Attributes	Not supported	
	EtherNet/IP service	Parameter option
Services	0x4E Forward_Close	
	0x54 Forward_Open	

■ DLR Object (0x47: 47Hex)

● Object class

	ID	Description	Get	Set	Type	Value
Attributes	1	Revision	Yes	No	UINT	3
	EtherNet/IP service			Parameter option		
Services	0x0E	Get_Attribute_Single	None			

● Object instance 1

	ID	Description	Get	Set	Type	Value
Attributes	1	Network Topology	Yes	No	USINT	0: Linear 1: Ring
	2	Network Status	Yes	No	USINT	0: Normal 1: Ring Fault 2: Unexpected Loop Detected 3: Partial Network Fault 4: Rapid Fault/Restore Cycle
Services	10	Active Supervisor Address	Yes	No	Struct	bit 0: Announce-based Ring Node bit 1: Beacon-based Ring Node bit 2 to 4: 0 (fixed) bit 5: Supervisor Capable bit 6: Redundant Gateway Capable bit 7: Flush_Table frame Capable bit 8 to 31: 0 (fixed)
		Supervisor IP Address			UDINT	
		Supervisor MAC Address			ARRAY of 6 USINTs	
Services	12	Capability Flags	Yes	No	DWORD	

EtherNet/IP service			Parameter option			
Services	0x0E	Get_Attribute_Single	None			
	0x01	Get_Attribute_All	None			

■ QoS Object (0x48: 48Hex)

● Object class

	ID	Description	Get	Set	Type	Value
Attributes	1	Revision	Yes	No	UINT	1
	EtherNet/IP service		Parameter option			
Services	0x0E	Get_Attribute_Single				

● Object instance 1

	ID	Description	Get	Set	Type	Value
Attributes	4	DSCP Urgent	Yes	Yes	USINT	
	5	DSCP Scheduled	Yes	Yes	USINT	
	6	DSCP High	Yes	Yes	USINT	
	7	DSCP Low	Yes	Yes	USINT	
	8	DSCP Explicit	Yes	Yes	USINT	
EtherNet/IP service			Parameter option			
Services	0x0E	Get_Attribute_Single	None			
	0x10	Set_Attribute_Single	None			

■ TCP/IP Interface Object (0xF5: F5Hex)

● Object class

	ID	Description	Get	Set	Type	Value
Attributes	1	Revision	Yes	No	UINT	4
	EtherNet/IP service		Parameter option			
Services	0x0E	Get_Attribute_Single				

● Object instance 1

	ID	Description	Get	Set	Type	Value
Attributes	1	Status	Yes	No	DWORD	bit 0 to 3: Interface Configuration Status bit 4: Mcast Pending bit 5: Interface Configuration Pending bit 6: AcdStatus bit 7: AcdFault bit 8: IANA Port Admin Change Pending bit 9: IANA Protocol Admin Change Pending bit 10 to 31: 0 (fixed)
	2	Configuration Capability	Yes	No	DWORD	0000 0014h or 0000 0004h bit 0 to 1: 0 (fixed) bit 2: DHCP Client bit 3: 0 (fixed) bit 4: Configuration Settable bit 5: Hardware Configurable bit 6: Interface Configuration Change Requires Reset bit 7: AcdCapable bit 8 to 31: 0 (fixed)
Services	3	Configuration Control	Yes	Yes	DWORD	0: non-volatile memory 2: DHCP
	4	Physical Link Object	Yes	No	Struct	0
Services	5	Path Size	Yes	Yes	UINT	
		Path			Padded EPATH	
Attributes	5	Interface Configuration	Yes	Yes	Struct	---
		IP Address			UDINT	
		Network Mask			UDINT	
		Gateway Address			UDINT	
		Name Server 1			UDINT	
		Name Server 2			UDINT	
		Domain Name			STRING	
Services	6	Host Name	Yes	Yes	STRING	---
	10	SelectAcd	Yes	Yes	BOOL	0: disable 1: enable
Attributes	11	LastConflictDetected	Yes	Yes	Struct	0: NoConflictDetected 1: Probelpv4Address 2: OngoingDetection 3: SemiActiveProbe
		AcddActivity			UDINT	
Services	13	Encapsulation Inactivity Timeout	Yes	Yes	UINT	0 = Disable timeout 1-3600 = timeout in seconds

EtherNet/IP service			Parameter option			
Services	0x0E	Get_Attribute_Single	None			
	0x01	Get_Attribute_All	None			
	0x10	Set_Attribute_Single	None			

■ Ethernet Link Object (0xF6: F6Hex)

● Object class

	ID	Description	Get	Set	Type	Value
Attributes	1	Revision	Yes	No	UINT	4
	2	Max Instance	Yes	No	UINT	2
	3	Number of Instances	Yes	No	UINT	2
EtherNet/IP service			Parameter option			
Services	0x0E	Get_Attribute_Single	None			

● Object instance 1

	ID	Description	Get	Set	Type	Value
Attributes	1	Interface Speed	Yes	No	UDINT	10 or 100
	2	Interface Flags	Yes	No	DWORD	---
	3	Physical Address	Yes	No	6 USINT	(MAC ID)
	4	Interface Counters	Yes	No	Struct	
		In Octets			UDINT	---
		In Ucast Packets			UDINT	---
		In NUcast Packets			UDINT	---
		In Discards			UDINT	---
		In Errors			UDINT	---
		In Unknown Protos			UDINT	---
		Out Octets			UDINT	---
		Out Ucast Packets			UDINT	---
		Out NUcast Packets			UDINT	---
		Out Discards			UDINT	---
		Out Errors			UDINT	---
	5	Media Counters	Yes	No	Struct	
		Alignment Errors			UDINT	---
		FCS Errors			UDINT	---
		Single Collisions			UDINT	---
		Multiple Collisions			UDINT	---
	SQE Test Errors			UDINT	---	
	Deferred Transmissions			UDINT	---	
	Late Collisions			UDINT	---	
	Excessive Collisions			UDINT	---	
	MAC Transmit Errors			UDINT	---	
	Carrier Sense Errors			UDINT	---	
	Frame Too Long			UDINT	---	
	MAC Receive Errors			UDINT	---	
6	Interface Control	Yes	Yes	Struct		
	Control Bits			WORD	---	
	Forced Interface Speed			UINT	---	
7	Interface Type	Yes	No	USINT	2: Twisted-pair	
8	Interface State	Yes	No	USINT	1: The interface is enabled and is ready to send and receive data	
10	Interface Label	Yes	No	SHORT_STRING	"Ethernet Port P1"	
11	Interface Capability	Yes	No	Struct		
	Capability Bits			DWORD	Bit map	
	Speed/Duplex Options			Struct		
				USINT	Number of elements	
				Array of Struct		
				UINT		
					Semantics are the same as the Forced Interface Speed in the Interface Control attribute: speed in Mbps.	
					0=half duplex	
					1=full duplex	
					2-255=Reserved	
	EtherNet/IP service		Parameter option			
Services	0x0E	Get_Attribute_Single	None			
	0x01	Get_Attribute_All	None			
	0x10	Set_Attribute_Single	None			
	0x4C	Get_And_Clear	None			

EtherNet/IP service			Parameter option			
Services	0x0E	Get_Attribute_Single	None			
	0x01	Get_Attribute_All	None			
	0x10	Set_Attribute_Single	None			
	0x4C	Get_And_Clear	None			

● Object instance 2

1.2 Application Object

■ Controller Object (0x64: 64Hex)

● Object class

Attributes	Not supported				
Services	Not supported				

● Object instance □ (□: 1 to 255)

	ID	Description	Get	Set	Type	Value
Attributes	100	Data 0	Yes	Yes	UINT	Note
	101	Data 1	Yes	Yes	UINT	Note
	⋮	⋮	⋮	⋮	⋮	⋮
	148	Data 48	Yes	Yes	UINT	Note
	149	Data 49	Yes	Yes	UINT	Note
EtherNet/IP service			Parameter option			
Services	0x0E	Get_Attribute_Single	None			
	0x10	Set_Attribute_Single	None			

Note Modbus address data specified in the Controller Communication Item Setting Object (0xC5).
The instance number indicates how many data items the data is from the Modbus address data specified in the attribute ID of 0xC5.
When an RO item is written to, the value reverts to the original value several seconds later. Items that are not used are RO, and the data is 0.
Example: Data of instance 2, attribute 100 is the data of "first Modbus address + 1" specified in attribute 100 of 0xC5.

■ Controller Communication Item Setting Object (0xC5: C5Hex)

● Object class

Attributes	Not supported				
Services	Not supported				

● Object instance 1

	ID	Description	Get	Set	Type	Value
Attributes	100	Item setting of Data 0	Yes	Yes	UINT	Note
	101	Item setting of Data 1	Yes	Yes	UINT	Note
	⋮	⋮	⋮	⋮	⋮	⋮
	148	Item setting of Data 48	Yes	Yes	UINT	Note
	149	Item setting of Data 49	Yes	Yes	UINT	Note
EtherNet/IP service			Parameter option			
Services	0x0E	Get_Attribute_Single	None			
	0x10	Set_Attribute_Single	None			

Note Set the first Modbus address of the data used in the Controller Object (0x64).
If not used, set 0xFFFF.

■ Controller Communication Measured Data Item (IN) Setting Object (0xC6: C6Hex)

● Object class

Attributes	Not supported				
Services	Not supported				

● Object instance 1

	ID	Description	Get	Set	Type	Value
Attributes	100	The number of Measured Data Item (IN) of Data 0	Yes	Yes	USINT	0 to 128 (0: Unused)
	101	The number of Measured Data Item (IN) of Data 1	Yes	Yes	USINT	0 to 128 (0: Unused) *
	⋮	⋮	⋮	⋮	⋮	⋮
	148	The number of Measured Data Item (IN) of Data 48	Yes	Yes	USINT	0 to 128 (0: Unused) *
	149	The number of Measured Data Item (IN) of Data 49	Yes	Yes	USINT	0 to 128 (0: Unused) *
EtherNet/IP service			Parameter option			
Services	0x0E	Get_Attribute_Single	None			
	0x10	Set_Attribute_Single	None			

* A cumulative number of data items of up to 128 from attribute 100 is valid. A setting above this will be disregarded.

■ Controller Communication Set Data Item (OUT) Setting Object (0xC7: C7Hex)

● Object class

Attributes	Not supported				
Services	Not supported				

● Object instance 1

	ID	Description	Get	Set	Type	Value
Attributes	100	The number of Set Data Item (OUT) of Data 0	Yes	Yes	USINT	0 to 127 (0: Unused)
	101	The number of Set Data Item (OUT) of Data 1	Yes	Yes	USINT	0 to 127 (0: Unused) *
	⋮	⋮	⋮	⋮	⋮	⋮
	148	The number of Set Data Item (OUT) of Data 48	Yes	Yes	USINT	0 to 127 (0: Unused) *
	149	The number of Set Data Item (OUT) of Data 49	Yes	Yes	USINT	0 to 127 (0: Unused) *
EtherNet/IP service			Parameter option			
Services	0x0E	Get_Attribute_Single	None			
	0x10	Set_Attribute_Single	None			

* A cumulative number of data items of up to 127 from attribute 100 is valid. A setting above this will be disregarded.

	Regardless of the setting of this object, "setting state selection" is assigned to the first-word of the set data item (OUT).					
		Description	Get	Set	Type	Value
	First-word of set data item (OUT)	Setting state selection	Yes	Yes	UINT	Bit data bit 0: Data setting disabled/enabled 0: Setting disabled 1: Setting enabled bit 1 to 15: Unused

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