

# COM-ML [For SRZ] Communication Data List

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IMR02E07-E2

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

This manual describes the communication data of the COM-ML. For the installation, the detail handling procedures and various function settings, please read if necessary the following separate manuals.

- COM-ML [For SRZ] Installation Manual (IMR02E05-E2): Enclosed with COM-ML
- COM-ML [For SRZ] Quick Instruction Manual (IMR02E06-E2): Enclosed with COM-ML
- COM-ML [For SRZ] Instruction Manual (IMR02E08-E2): Separate (Download or sold separately)

The above manuals can be downloaded from our website:  
URL: [http://www.rkcinst.com/english/manual\\_load.htm](http://www.rkcinst.com/english/manual_load.htm)

## 1. EXPLANATION OF DATA MAP ITEMS

The communication data map shows data which can be used for communication between the PLC/host computer and COM-ML.

Name: Name of communication data

□: Data for each SRZ unit

▲: Data for each channel

On a Z-TIO module (2-channel type), the communication data of CH3 and CH4 becomes invalid.

★: Data for each module

◆: Parameters which can be used in multi-memory area function

◆: Parameters only used for heat/cool control or position proportioning control, therefore data for CH2 and CH4 of Z-TIO module are unused. [Read is possible (0), but the result of Write is disregarded.]

RKC Identifier: Communication identifier of RKC communication

Modbus register address:

A register address of Modbus and EtherNet/IP data item specification

HEX: Hexadecimal DEC: Decimal

Digits: The number of communication data digits in RKC communication

Attribute: A method of how communication data items are read or written when viewed from the host computer is described

RO: Read only data (Host computer or PLC ← The controller)

R/W: Read and Write data (Host computer or PLC ↔ The controller)

Data range and Number of data:

Read or Write range of communication data

[ ]: Number of data (This is the maximum number per communication data that can be handled by one SRZ unit.)

- ASCII code data (Example: 7 digits)
- 16-bit data



Factory set value: Factory set value of communication data

## 2. COMMUNICATION DATA MAP

### ■ Communication data of COM-ML

Name	RKC Identifier	Modbus register address HEX DEC	Digits	Attribute	Data range and Number of data	Factory set value	
Model code (COM-ML) *	ID	— —	32	RO	Model code (character)	—	
Model code (Function module) *	IE	— —	32	RO	Model code (character)	[100]	
ROM version (COM-ML)	VR	— —	8	RO	ROM version	—	
ROM version (Function module) *	VQ	— —	8	RO	ROM version	[100]	
Integrated operating time monitor (COM-ML)	UT	— —	7	RO	0 to 19999 hours	—	
Integrated operating time monitor (Function module) *	UV	— —	7	RO	0 to 19999 hours	[100]	
Error code (COM-ML)	ER	0000 0	7	RO	<ul style="list-style-type: none"> <li>• RKC communication</li> <li>1: Adjustment data error</li> <li>2: Data back-up error<sup>1</sup></li> <li>3: A/D conversion error</li> <li>4: A/D conversion error</li> <li>32: Logic output data error</li> <li>64: Stack overflow<sup>2</sup></li> <li>512: Network module error<sup>2</sup></li> <li>• Modbus</li> <li>b0: Adjustment data error</li> <li>b1: Data back-up error<sup>1</sup></li> <li>b2: A/D conversion error</li> <li>b3, b4: Unused</li> <li>b5: Logic output data error</li> <li>b6: Stack overflow<sup>2</sup></li> <li>b7: Network module error<sup>2</sup></li> <li>b8, b9: Unused</li> <li>b10 to b15: Unused</li> </ul> Data 0: OFF 1: ON [Decimal number: 0 to 615] For the identifier ER, the error condition is shown by the OR of each module. When multiple errors occur, the error No. is the sum value. <sup>1</sup> Common item of the COM-ML and function module <sup>2</sup> Item of the COM-ML [COM-ML: 1, Z-TIO and Z-DIO: 100]	—	
Error code (Function module) *	EZ	0001 0064	1 100	7	RO	<ul style="list-style-type: none"> <li>b0: Adjustment data error</li> <li>b1: Data back-up error<sup>1</sup></li> <li>b2: A/D conversion error</li> <li>b3, b4: Unused</li> <li>b5: Logic output data error</li> <li>b6: Stack overflow<sup>2</sup></li> <li>b7: Network module error<sup>2</sup></li> <li>b8, b9: Unused</li> <li>b10 to b15: Unused</li> </ul> Data 0: OFF 1: ON [Decimal number: 0 to 615] For the identifier ER, the error condition is shown by the OR of each module. When multiple errors occur, the error No. is the sum value. <sup>1</sup> Common item of the COM-ML and function module <sup>2</sup> Item of the COM-ML [COM-ML: 1, Z-TIO and Z-DIO: 100]	—
Backup memory state monitor (COM-ML)	EM	0065 101	1	RO	0: The content of the backup memory does not coincide with that of the RAM.	—	
Backup memory state monitor (Function module) *	CZ	0066 00C9	102 201	1	RO	1: The content of the backup memory coincides with that of the RAM. [COM-ML: 1, Z-TIO and Z-DIO: 100]	—
Unused	—	00CA 00CB	202 203	—	—	—	
Network error code	ES	00CC 0131	204 305	7	RO	0: Normal 1: Network operation not possible [1]	—
Unused	—	00CD	205	—	—	—	

\* Function module: Z-TIO-A/B module or Z-DIO module

Name	RKC Identifier	Modbus register address HEX DEC	Digits	Attribute	Data range and Number of data	Factory set value	
Monitor for the number of connected modules	QK	0132 306	7	RO	0 to 31 [1]	—	
RUN/STOP transfer (Each SRZ unit)	SR	0133 307	1	R/W	0: STOP (Control stop) 1: RUN (Control start) [1]	0	
RUN/STOP transfer (Each module)	SW	0134 0197	308 407	1	R/W	0: STOP (Control stop) 1: RUN (Control start) [100]	0
Control RUN/STOP holding setting (Each module)	X1	0198 01FB	408 507	1	R/W	0: Not holding (STOP start) 1: Holding (RUN/STOP hold) [100]	1
The following items are enabled when the power is turned on again or when control is changed from STOP to RUN.							
Unused	—	8000 8003	32768 32771	—	—	—	
Communication protocol	VP	8004 8005	32772 32773	1	R/W	0: RKC communication 1: Modbus [1]	0
Communication speed	VU	8006 8007	32774 32775	7	R/W	0: 4800 bps 2: 19200 bps 1: 9600 bps 3: 38400 bps [1]	2
Communication data bit configuration	VW	8008 8009	32776 32777	7	R/W	0 to 5 See table 1. [1]	0
Communication interval time	VX	8007 8008	32775 32776	7	R/W	0 to 250 ms [1]	10
Unused	—	8008 8010	32776 32784	—	—	—	
Method for setting the number of connected modules	RY	8011 8012	32785 32786	7	R/W	0: No action. 1: Automatically set the maximum number of connected function modules only when power is turned on. 2: Execute automatic setting of the maximum number of connected function modules. <sup>1</sup> [1]	1
Number of connected modules <sup>2</sup> (Z-TIO module)	QY	8013 8014	32787 32788	7	R/W	0 to 16 Maximum number of Z-TIO modules connected to COM-ML. [1]	—
Number of connected modules <sup>2</sup> (Z-DIO module)	QU	8014 8015	32788 32789	7	R/W	0 to 16 Maximum number of Z-DIO modules connected to COM-ML. [1]	—
Unused	—	8015 801A	32789 32794	—	—	—	
First-byte of IP address	QB	801B 801C	32795 32796	7	R/W	0 to 255 [1]	192
Second-byte of IP address	QC	801C 801D	32796 32797	7	R/W	0 to 255 [1]	168
Third-byte of IP address	QD	801D 801E	32797 32798	7	R/W	0 to 255 [1]	1
Fourth-byte of IP address	QE	801E 801F	32798 32799	7	R/W	0 to 255 [1]	1
DHCP selection	QF	801F 8020	32799 32800	1	R/W	0: DHCP is invalid 1: DHCP is valid [1]	0
Communication data items setting	QG	8020 8051	32800 32849	7	R/W	0 to 65535 [50]	65535
Number of measured data items (IN)	QH	8052 8083	32850 32899	7	R/W	0 to 128 0: Unused [50]	0
Number of setting data items (OUT)	QI	8084 80B5	32900 32949	7	R/W	0 to 127 0: Unused [50]	0
Unused	—	80B6 80B7	32950 32951	—	—	—	
Control RUN/STOP holding setting (Each SRZ unit)	X2	80B7 8021	32951 32952	1	R/W	0: Not holding (STOP start) 1: Holding (RUN/STOP hold) [1]	1

<sup>1</sup> After automatic setting of the number of connected function modules, the value automatically reverts to 0.  
<sup>2</sup> When 1 or 2 is set for the communication identifier RY (method of setting the number of connected modules), the maximum number of connected modules is set automatically. When 0 is set, the maximum number of connected modules is set manually.

Maximum number of connected modules: Maximum address of function modules (address setting switch set value + 1)  
COM-ML uses this set value to calculate the number of channels of communication data (RKC communication only).

Table 1: Data bit configuration

Set value	Data bit	Parity bit	Stop bit	Settable communication
0	8	Without	1	Modbus
1	8	Even	1	
2	8	Odd	1	
3	7	Without	1	RKC communication
4	7	Even	1	
5	7	Odd	1	

Data range: Modbus: 0 to 2 RKC communication: 0 to 5

### ■ Communication data of Z-TIO module

Name	RKC Identifier	Modbus register address HEX DEC	Digits	Attribute	Data range and Number of data	Factory set value
Measured value (PV) *	M1	01FC 023B	508 571	7	RO	Input scale low to Input scale high [64]
Comprehensive event state *	AJ	023C 027B	572 635	7	RO	<ul style="list-style-type: none"> <li>• RKC communication</li> <li>Least significant digit to 4th digit: Event 1 state to Event 4 state</li> <li>5th digit: Heater break alarm state</li> <li>6th digit: Temperature rise completion</li> <li>7th digit: Burnout</li> <li>Data 0: OFF 1: ON</li> <li>• Modbus</li> <li>b0 to b3: Event 1 state to Event 4 state</li> <li>b4: Heater break alarm state</li> <li>b5: Temperature rise completion</li> <li>b6: Burnout</li> <li>b7 to b15: Unused</li> </ul> Data 0: OFF 1: ON [Decimal number: 0 to 127] [64]
Operation mode state monitor *	L0	027C 02BB	636 699	7	RO	<ul style="list-style-type: none"> <li>• RKC communication</li> <li>Least significant digit: Control STOP</li> <li>2nd digit: Control RUN</li> <li>3rd digit: Manual mode</li> <li>4th digit: Remote mode</li> <li>5th digit to Most significant digit: Unused</li> <li>Data 0: OFF 1: ON [64]</li> </ul>

Name	RKC Identifier	Modbus register address HEX DEC	Digits	Attribute	Data range and Number of data	Factory set value
Operation mode state monitor *	L0	027C 02BB	636 699	7	RO	<ul style="list-style-type: none"> <li>• Modbus</li> <li>b0: Control STOP</li> <li>b1: Control RUN</li> <li>b2: Manual mode</li> <li>b3: Remote mode</li> <li>b4 to b15: Unused</li> <li>Data 0: OFF 1: ON</li> <li>[Decimal number: 0 to 15] [64]</li> </ul>
Unused	—	02BC 02CB	700 715	—	—	—
Manipulated output value (MV) monitor [heat-side] *	O1	02CC 030B	716 779	7	RO	PID control or heat/cool PID control: -5.0 to +105.0 % Position proportioning control (FBR input): 0.0 to 100.0 % [64]
Manipulated output value (MV) monitor [cool-side] *	O2	030C 034B	780 843	7	RO	-5.0 to +105.0 % [64]
Current transformer (CT) input value monitor *	M3	034C 038B	844 907	7	RO	CTL-6-P-N: 0.0 to 30.0 A CTL-12-S56-10L-N: 0.0 to 100.0 A [64]
Set value (SV) monitor *	MS	038C 03CB	908 971	7	RO	Setting limiter (low) to Setting limiter (high) [64]
Remote setting (RS) input value monitor *	S2	03CC 040B	972 1035	7	RO	Setting limiter (low) to Setting limiter (high) [64]
Burnout state monitor *	B1	040C 044B	1036 1099	1	RO	0: OFF 1: ON [64]
Event 1 state monitor *	AA	044C 048B	1100 1163	1	RO	0: OFF 1: ON [64]
Event 2 state monitor *	AB	048C 04CB	1164 1227	1	RO	If the Event 3 type is temperature rise completion, check the temperature rise completion state in the comprehensive event state. (The Event 3 state monitor does not turn ON.) [Each 64]
Event 3 state monitor *	AC	04CC 050B	1228 1291	1	RO	—
Event 4 state monitor *	AD	050C 054B	1292 1355	1	RO	—
Heater break alarm (HBA) state monitor *	AE	054C 058B	1356 1419	1	RO	0: OFF 1: ON [64]
Output state monitor *	Q1	058C 059B	1420 1435	7	RO	<ul style="list-style-type: none"> <li>• RKC communication</li> <li>Least significant digit to 4th digit: OUT1 to OUT4</li> <li>5th digit to Most significant digit: Unused</li> <li>Data 0: OFF 1: ON</li> <li>[Decimal number: 0 to 15] [16]</li> </ul>
Memory area soak time monitor *	TR	059C 05DB	1436 1499	7	RO	<ul style="list-style-type: none"> <li>• 0 minutes 00 seconds to 199 minutes 59 seconds:</li> <li>RKC communication: 0.00 to 199:59 (min:sec)</li> <li>Modbus: 0 to 11999 seconds</li> <li>• 0 hours 00 minutes to 99 hours 59 minutes:</li> <li>RKC communication: 0.00 to 99:59 (hrs:min)</li> <li>Modbus: 0 to 5999 minutes [64]</li> </ul>
Unused	—	05DC 05EB	1500 1515	—	—	—
Holding peak value ambient temperature monitor *	Hp	05EC 062B	1516 1579	7	RO	-10.0 to +100.0 °C or 14.0 to 212.0 °F [64]
Unused	—	062C 063B	1580 1595	—	—	—
Logic output monitor 1 *	ED	063C 064B	1596 1611	7	RO	<ul style="list-style-type: none"> <li>• RKC communication</li> <li>Least significant digit to 4th digit: Logic output 1 to 4</li> <li>5th digit to Most significant digit: Unused</li> <li>Data 0: OFF 1: ON</li> <li>[Decimal number: 0 to 255] [16]</li> </ul>
Logic output monitor 2 *	EE	— —	— —	7	RO	<ul style="list-style-type: none"> <li>• RKC communication</li> <li>Least significant digit to 4th digit: Logic output 5 to 8</li> <li>5th digit to Most significant digit: Unused</li> <li>Data 0: OFF 1: ON</li> </ul>
Unused	—	064C 080B	1612 2059	—	—	—
PID/AT transfer *	G1	080C 084B	2060 2123	1	R/W	0: PID control 1: Autotuning (AT) * * Automatically reverts to 0 after autotuning ends. [64]
Auto/Manual transfer *	J1	084C 088B	2124 2187	1	R/W	0: Auto mode 1: Manual mode [64]
Remote/Local transfer *	C1	088C 08CB	2188 2251	1	R/W	0: Local mode 1: Remote mode [64]
Unused	—	08CC 08DB	2252 2067	—	—	—
Memory area transfer *	ZA	08DC 091B	2268 2331	7	R/W	1 to 8 [64]
Interlock release *	AR	091C 095B	2332 2395	1	R/W	0: Normal state 1: Interlock release execution [64]
Event 1 set value (EV1) *	A1	095C 099B	2396 2459	7	R/W	Deviation action, Deviation action between channels, Temperature rise completion range *: -Input span to +Input span [64]
Event 2 set value (EV2) *	A2	099C 09DB	2460 2523	7	R/W	Process action, SV action: -Input span to +Input span [64]
Event 3 set value (EV3) *	A3	09DC 0A1B	2524 2587	7	R/W	MV action: -5.0 to +105.0 % [64]
Event 4 set value (EV4) *	A4	0A1C 0A5B	2588 2651	7	R/W	* When temperature rise completion is selected at Event 3 type. [Each 64]

Name	RKC Identifier	Modbus register address HEX DEC	Digits	Attribute	Data range and Number of data	Factory set value
Control loop break alarm (LBA) time *	A5	0A5C 0A9B	2652 2715	7	R/W	0 to 7200 seconds (0: Unused) [64]
LBA deadband *	N1	0A9C 0ADB	2716 2779	7	R/W	0 (0.0) to Input span [64]
Set value (SV) *	S1	0ADC 0B1B	2780 2843	7	R/W	Setting limiter (low) to Setting limiter (high) [64]
Proportional band [heat-side] *	P1	0B1C 0B5B	2844 2907	7	R/W	TC/RTD inputs: 0 (0.0) to Input span (Unit: °C [°F]) Voltage (V)/current (I) inputs: 0.0 to 100.0 % of input span 0 (0.0): ON/OFF action ON/OFF action for both heat and cool actions in case of a heat/cool control type. [64]
Integral time [heat-side] *	I1	0B5C 0B9B	2908 2971	7	R/W	PID control or heat/cool PID control: 0 to 3600 seconds or 0.0 to 1999.9 seconds (0.0: PD action) Position proportioning control: 1 to 3600 seconds or 0.1 to 1999.9 seconds [64]
Derivative time [heat-side] *	D1	0B9C 0BDB	2972 3035	7	R/W	0 to 3600 seconds or 0.0 to 1999.9 seconds (0.0: PI action) [64]
Control response parameter *	CA	0BDC 0C1B	3036 3099	1	R/W	0: Slow 1: Medium 2: Fast P or PD action: 2 (Fast) fixed [64]
Proportional band [cool-side] *	P2	0C1C 0C5B	3100 3163	7	R/W	TC/RTD inputs: 1 (0.1) to Input span (Unit: °C [°F]) Voltage (V)/current (I) inputs: 0.1 to 100.0 % of input span [64]
Integral time [cool-side] *	I2	0C5C 0C9B	3164 3227	7	R/W	0 to 3600 seconds or 0.0 to 1999.9 seconds (0.0: PD action) [64]
Derivative time [cool-side] *	D2	0C9C 0CDB	3228 3291	7	R/W	0 to 3600 seconds or 0.0 to 1999.9 seconds (0.0: PI action) [64]
Overlap/Deadband *	V1	0CDC 0D1B	3292 3355	7	R/W	TC/RTD inputs: -Input span to +Input span (Unit: °C [°F]) Voltage (V)/current (I) inputs: -100.0 to +100.0 % of input span [64]
Manual reset *	MR	0D1C 0D5B	3356 3419	7	R/W	-100.0 to +100.0 % [64]
Setting change rate limiter (up) *	HH	0D5C 0D9B	3420 3483	7	R/W	0 (0.0) to Input span/unit time (0.0): Unused Unit time: 60 seconds (factory set value) [64]
Setting change rate limiter (down) *						

Name	RKC Identifier	Modbus register address HEX DEC	Digits	Attribute	Data range and Number of data	Factory set value
Minimum ON/OFF time of proportioning cycle ▲	VI	11DC 121B	4572 4635	7 R/W	0 to 1000 ms [64]	0
Manual manipulated output value ▲▲	ON	121C 125B	4636 4699	7 R/W	PID control: Output limiter (low) to Output limiter (high) Heat/cool PID control: -Cool-side output limiter (high) to +Heat-side output limiter (high) Position proportioning control (with FBR input): Output limiter (low) to Output limiter (high) Position proportioning control (without FBR input): 0: Close-side output OFF, Open-side output OFF 1: Close-side output ON, Open-side output OFF 2: Close-side output OFF, Open-side output ON [64]	0.0
Area soak time stop function ▲	RV	125C 129B	4700 4763	1 R/W	0: No function 1: Event 1 2: Event 2 3: Event 3 4: Event 4 [64]	0
EDS mode (for disturbance 1) ▲	NG	129C 12DB	4764 4827	1 R/W	0: No function 1: EDS function mode 2: Learning mode 3: Tuning mode EDS function: External disturbance suppression function [Each 64]	0
EDS mode (for disturbance 2) ▲	NX	12DC 131B	4828 4891	1 R/W		0
EDS value 1 (for disturbance 1) ▲	NI	131C 135B	4892 4955	7 R/W	-100.0 to +100.0 %	0.0
EDS value 1 (for disturbance 2) ▲	NJ	135C 139B	4956 5019	7 R/W		0.0
EDS value 2 (for disturbance 1) ▲	NK	139C 13DB	5020 5083	7 R/W		0.0
EDS value 2 (for disturbance 2) ▲	NM	13DC 141B	5084 5147	7 R/W		0.0
EDS transfer time (for disturbance 1) ▲	NN	141C 145B	5148 5211	7 R/W	0 to 3600 seconds or 0.0 to 1999.9 seconds	0
EDS transfer time (for disturbance 2) ▲	NO	145C 149B	5212 5275	7 R/W		0
EDS action time (for disturbance 1) ▲	NQ	149C 14DB	5276 5339	7 R/W	1 to 3600 seconds	600
EDS action time (for disturbance 2) ▲	NL	14DC 151B	5340 5403	7 R/W		600
EDS action wait time ▲ (for disturbance 1)	NR	151C 155B	5404 5467	7 R/W	0.0 to 600.0 seconds	0.0
EDS action wait time ▲ (for disturbance 2)	NY	155C 159B	5468 5531	7 R/W		0.0
EDS value learning times ▲	NT	159C 15DB	5532 5595	7 R/W	0 to 10 times (0: No learning mode)	1
EDS start signal ▲	NU	15DC 161B	5596 5659	1 R/W	0: EDS start signal OFF 1: EDS start signal ON (for disturbance 1) 2: EDS start signal ON (for disturbance 2) [64]	0
Operation mode ▲	EI	161C 165B	5660 5723	1 R/W	0: Unused 1: Monitor 2: Monitor + Event function 3: Control [64]	3
Startup tuning (ST) ▲	ST	165C 169B	5724 5787	1 R/W	0: ST unused 1: Execute once * 2: Execute always * * Automatically reverts to 0 after Startup tuning (ST) ends. [64]	0
Automatic temperature rise learning ▲	Y8	169C 16DB	5788 5851	1 R/W	0: Unused 1: Learning * * Automatically reverts to 0 after automatic temperature rise learning ends. [64]	0
Communication switch (for logic) ▲	EF	16DC 16EB	5852 5867	7 R/W	• RKC communication Least significant digit to 4th digit: Communication switch 1 to 4 5th digit to Most significant digit: Unused Data 0: OFF 1: ON • Modbus b0 to b3: Communication switch 1 to 4 b4 to b15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 15] [16]	0
Unused		16EC 196B	5868 6507			

For communication data (Engineering setting), see the COM-ML [for SRZ] Instruction Manual (IMR02E08-ED).

### Communication data for multi-memory area data (only for Modbus)

Use the register addresses of 386CH to 3DABH to confirm or change set values of parameters in multi-memory areas which are not selected.

For the multi-memory area data, see the COM-ML [for SRZ] Instruction Manual (IMR02E08-ED).

### Communication data of Z-DIO module

Name	RKC Identifier	Modbus register address HEX DEC	Digits	Attribute	Data range and Number of data	Factory set value
Digital input (DI) state 1 ▲	L1	3E6C 3E7B	15980 15995	7 RO	• RKC communication Least significant digit to 4th digit: DI1 to DI4 5th digit to Most significant digit: Unused Data 0: Contact open 1: Contact closed • Modbus b0 to b7: DI1 to DI8 b8 to b15: Unused Data 0: Contact open 1: Contact closed [Decimal number: 0 to 255] [16]	—

Name	RKC Identifier	Modbus register address HEX DEC	Digits	Attribute	Data range and Number of data	Factory set value
Digital input (DI) state 2 ▲	L6			7 RO	Least significant digit to 4th digit: DI5 to DI8 5th digit to Most significant digit: Unused Data 0: Contact open 1: Contact closed	—
Digital output (DO) state 1 ▲	Q2	3E7C 3E8B	15996 16011	7 RO	• RKC communication Least significant digit to 4th digit: DO1 to DO4 5th digit to Most significant digit: Unused Data 0: OFF 1: ON • Modbus b0 to b7: DO1 to DO8 b8 to b15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 255] [16]	—
Digital output (DO) state 2 ▲	Q3			7 RO	Least significant digit to 4th digit: DO5 to DO8 5th digit to Most significant digit: Unused Data 0: OFF 1: ON	—
Unused		3E8C 3FDB	16012 16347			
DO manual output 1 ▲	Q4	3FDC 3EFB	16348 16353	7 R/W	• RKC communication Least significant digit to 4th digit: DO1 manual output to DO4 manual output 5th digit to Most significant digit: Unused Data 0: OFF 1: ON • Modbus b0 to b7: DO1 manual output to DO8 manual output b8 to b15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 255] [16]	0
DO manual output 2 ▲	Q5			7 R/W	Least significant digit to 4th digit: DO5 manual output to DO8 manual output 5th digit to Most significant digit: Unused Data 0: OFF 1: ON	0
DO output distribution selection ▲	DO	3FEC 406B	16364 16491	1 R/W	0: DO output 1: Distribution output [128]	0
DO output distribution bias ▲	O8	406C 40EB	16492 16619	7 R/W	-100.0 to +100.0 % [128]	0.0
DO output distribution ratio ▲	O9	40EC 416B	16620 16747	7 R/W	-9.999 to +9.999 [128]	1.000
DO proportioning cycle time ▲	V0	416C 41EB	16748 16875	7 R/W	0.1 to 100.0 seconds M: Relay contact output D: Open collector output [128]	M output: 20.0 D output: 2.0
DO minimum ON/OFF time of proportioning cycle ▲	VJ	41EC 426B	16876 17003	7 R/W	0 to 1000 ms [128]	0
Unused		426C 432C	17004 17196			

For communication data (Engineering setting), see the COM-ML [for SRZ] Instruction Manual (IMR02E08-ED).

## 3. 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.

### 3.1 CIP Common Object

#### Identity Object (0x01: 01Hex)

##### Object class

ID	Description	Get	Set	Type	Value
1	Revision	Yes	No	UINT	1
EtherNet/IP service					
0x0E	Get_Attribute_Single			None	
0x01	Get_Attribute_All			None	

##### Object instance 1

ID	Description	Get	Set	Type	Value
1	Vendor ID	Yes	No	UINT	394
2	Device type	Yes	No	UINT	0
3	Product code	Yes	No	UINT	8
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	"COM-ML-2"
				STRING	
11	Active Language	Yes	Yes	Struct	
				USINT	"e"
				USINT	"n"
				USINT	"q"
12	Supported Language List	Yes	No	Array of Struct	
				USINT	"e"
				USINT	"n"
				USINT	"q"

EtherNet/IP service		Parameter option	
0x0E	Get_Attribute_Single		None
0x10	Set_Attribute_Single		None
0x05	Reset		0
0x01	Get_Attribute_All		None

Note A bit layout of "Status"  
bit 0: Owned  
bit 2: Configured  
bit 4 to 7: Extended Device Status  
bit 8: Minor Recoverable Fault  
bit 9: Minor Unrecoverable Fault  
bit 10: Major Recoverable Fault  
bit 11: Major Unrecoverable Fault  
(Bit 1, bit 3 and bit 12 to 15 is always 0.)

#### Message Router Object (0x02: 02Hex)

##### Object class

ID	Description	Get	Set	Type	Value
1	Revision	Yes	No	UINT	1
EtherNet/IP service					
0x0E	Get_Attribute_Single			None	
0x01	Get_Attribute_All			None	

#### Object instance

Attributes	Not supported
Services	Not supported

#### Assembly Object (0x04: 04Hex)

##### Object class

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

##### Object instance 100

ID	Description	Get	Set	Type	Value
3	Produced Data	Yes	No	Array of BYTE	
EtherNet/IP service					
0x0E	Get_Attribute_Single			None	

##### Object instance 101

ID	Description	Get	Set	Type	Value
3	Consumed Data	Yes	Yes	Array of BYTE	
EtherNet/IP service					
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	
0x4E	Forward_Close
0x54	Forward_Open

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

##### Object class

ID	Description	Get	Set	Type	Value
1	Revision	Yes	No	UINT	1
EtherNet/IP service					
0x0E	Get_Attribute_Single			None	
0x01	Get_Attribute_All			None	

##### Object instance 1

ID	Description	Get	Set	Type	Value
1	Status	Yes	No	DWORD	1
2	Configuration Capability	Yes	No	DWORD	0000 0014h or 0000 0004h bit 0 and 1: 0 (fixed) bit 2: DHCP Client bit 3: 0 (fixed) bit 4: Configuration Settable bit 5 to 31: 0 (fixed)
3	Configuration Control	Yes	Yes	DWORD	0: non-volatile memory 2: DHCP
4	Physical Link Object Path Size Path	Yes	No	Struct UINT Padded EPATH	2 20 F6 24 01h
5	Interface Configuration IP Address Network Mask Gateway Address Name Server 1 Name Server 2 Domain Name	Yes	Yes	Struct UDINT UDINT UDINT UDINT UDINT STRING	---
6	Host Name	Yes	Yes	STRING	---
EtherNet/IP service					
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
1	Revision	Yes	No	UINT	2
EtherNet/IP service					
0x0E	Get_Attribute_Single			None	
0x01	Get_Attribute_All			None	

##### Object instance 1

ID	Description	Get	Set	Type	Value
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	0
	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	---

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

## 3.2 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
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					
0x0E	Get_Attribute_Single			None	
0x10	Set_Attribute_Single				