

Issue : 2018.04.10

No. : T306A02Re

Technical manual for

Remote Coupler System

Switch signal 64+32 Signals type

(2A power feeding specification)



Contents

1. Description			
1.1 System description	n	 	5
1.2 System construction	on	 	5
1.3 Basic Function		 	6
1.4 System componer	nts	 	6

2. Specification

2.1 Detectors / Actuators
2.2 Remote Head / Base Head
2.3 Base Amplifier
2.4 Remote Amplifier
2.5 Input Unit
2.6 Output Unit

3. Using the System

3.1 Installation of head	
3.1.1 Operating Diagram	
3.1.2 Influence of Surrounding Metal and Mutual Interference	
3.1.3 Note about heat-generating of Remote head	
3.1.4 Application Note	
3.2 Wirings/Settings	
3.2.1 Base Amplifier	
3.2.2 Remote Amplifier	
3.2.3 Input/Output unit	
3.2.4 Address settings	
3.2.5 Connection examples of the system	
3.2.6 Connection of detector switch	
3.2.7 Connection of Driving unit	
4. DeviceNet Setting (When using base amplifier RL64EA-355DN-000)	
4.1 Device profile	
4.2 Mounting objects	
4.2.1 Identity Object (Class ID : 01h)	
4.2.2 Message Router Object (Class ID : 02h)	
4.2.3 DeviceNet Object (Class ID : 03h)	
4.2.4 Assembly Object (Class ID : 04h)	
4.2.5 Connection Object (Class ID : 05h)	
4.2.6 Discrete Input Point Object (Class ID : 08h)	
4.2.7 Discrete Output Point Object (Class ID : 09h)	
4.2.8 Discrete Input Group Object (Class ID : 09h)	
4.3 EDS file	
5. CC-Link Setting (When using base amplifier RL64E-366CL-000)	
5.1 Memory Mapping	

37

6. EtherN	let/IP Setting (When using base amplifier RL64E-366EI-000)	
6.1	Device profile	39
6.2 I	Mounting objects	39
	6.2. 1 Identity Object (Class ID : 01h)	39
	6.2. 2 Message Router Object (Class ID : 02h)	39
	6.2. 3 Assembly Object (Class ID : 04h)	39
	6.2. 4 Connection Object (Class ID : 05h)	40
	6.2. 5 Discrete Input Point Object (Class ID : 08h)	40
	6.2. 6 Discrete Output Point Object (Class ID : 09h)	40
	6.2. 7 Discrete Input Group Object (Class ID : 1Dh)	41
	6.2. 8 Port Object (Class ID : F4h)	41
	6.2. 9 TCP/IP Interface Object (Class ID : F5h)	41
	6.2.10 Ethernet Link Object (Class ID : F6h)	42
6.3	EDS file	
6.4	Setting of the Ethernet connection	42

42

Safety Advisory

(Read this section thoroughly before using the device)

[Planning the System]

- The Remote Coupler System is a sensor system which supplies power for detector and transmits the detected signal without physical contacts. This system should be used only for the purpose.
- The system is designed to work safely if the Remote Coupler System should be damaged or the power unit malfunctions.
- For conditions of use and power use, so as not to exceed the range of equipment specifications described in this manual, please design a system with care.

[Handling the System]

- Observe the rated voltage which is indicated in the specification. Misuse may cause excessive heat leading to possible fire.
- Take care when connecting the system as incorrect wiring may cause unexpected malfunction of the machine.
- Ensure the power is switched off during installation or maintenance operations.
- Do not dismantle or modify the devices.
 There is a risk that not only cause a failure or malfunction, can cause injury or fire.
- Dispose of the device as an industrial waste.
- When the resin (ABS or ABS + PBT) is used to the case or the transmission surface, please be sure to avoid organic solvent or liquid containing them to splash over.
- Please install cable end "wiring part" in so that there is no water and cutting fluid. (Water is transmitted to the internal from the cable core, there is a possibility of causing a problem such as short circuit or corrosion)
- Please do not face the output sensor to a metal at all times to avoid metal overheating or damage of the components.
- When the unit keeps to be using under out-of-specification distance/center offset/overload status for long time, it may be damaged by overheating.
- Please note that the signal may become unstable (false signal or chattering) when the transmission distance and the center offset are outside the specification range.
- The inzone signal is a preliminary signal for confirming that the output signal is established within the specification range. Please note that it does not guarantee signals output outside the specification range.

1. Description

1.1 Description of the System

"Remote Coupler System • 64+32 Switch signals type" consists of a "Base head / amplifier", a "Remote head / amplifier / Input • Output unit" and this system supplies power (24 V /2 A) and transmits interactive signal simultaneously without physical contact.

The system can transmit max. 64 detected signals and max. 32 control signals. It can construct required input and output signals depends on number of "Input/Output unit".

By using this system, it is possible to drive or control small motors or solenoids mounted on a unit with movement, rotation or change, without cable wiring or connection. It can feed back detected signals from detector switches mounted on the unit to the external controller.

1.2 Construction of the System



Function of each component

- Base part : Consist of Base Head and Base Amplifier, supplies power 24 V DC/2 A to Remote unit without physical contact and transmits max. 64+32 input/output signals and executes input/output data communication with upper unit.
- Remote part : Consist of Remote Head and Remote Amplifier, receives power from Base unit and supplies power to connected Input/Output unit and transmits Input/Output signal.
- Input unit : Connects up to 8 detector switches and transmits detected signal to Remote unit. It can connect up to 4 input units per 1 system.
- Output unit : By the transmitted signal, it operates connected actuators or small motors(max 4 signals). It can connect up to 8 output units per 1 system.

1.3 Basic Function

- Power supply (24 V /2 A) and signal transmission is achieved by inductive coupling.
- The presence of plastic or glass in the transmission space, will not influence to the efficiency of power supply or signal transmission.
- READY or INZONE indication LEDs on the Remote Amplifier / the Base Amplifier and Input / Output Amplifier light when Remote Head and Base Head are in the area allowed to transmit signal (in zone) and the data valid signal is output to an external control unit from the Base Amplifier.
- Output signal from the Amplifier to control unit and input signal from control unit is processed in the programmable controller directly.
- The protection class of the Heads is IP 67, suitable for use in most factory automation environments.

1.4 Components of the System

	Bidirectional transmission [64 outputs + 32 signals] 2A power feedind spec				
Transmitting signals	Detected signals : 64 / Control signals : 32				
Applicable Detector	Detector switches(DC 2-wire and DC 3-wire)				
	(Proximity SW / Ph	oto SW / magnetic SW	/ Limit S	N etc.)	
Base Unit	Base Head			RCH08E-211-PU	
	Base Amplifier	Parallel I/O at once	NPN	RL64E-333N-000	
			PNP	RL64E-333P-000	
		DeviceNet		RL64EA-355DN-000	
		CC-Link		RL64E-366CL-000	
		EtherNet/IP		RL64E-366EI-000	
Remote Unit	Remote Head			RCH08T-211-PU	
	Remote Amplifier	Pin terminal	NPN	RL64T-344N-000	
	with 32 inputs	Connection	PNP	RL64T-344P-000	
		Ring terminal	NPN	RL64T-345N-000	
		Connection	PNP	RL64T-345P-000	
Input/Output Unit	Input Unit		NPN	RLX08-322N	
			PNP	RLX08-322P	
	Output Unit		NPN	RLY04-322N	
			PNP	RLY04-322P	

[Note]

In ordering cable length of Head, add cable length in meters to the end of the type number.

Example : Base Head ; 2 m

RCH08E-211-PU-02

2. Specification

2.1 Detectors / Actuators

Power that Remote Head of this system could supply and specification of [Input/Out Unit] are shown the tables below.

Remote Head		
Power supply	Voltage (Drive voltage)	24 V DC+/-1.5V
	Current (Drive current)	2 A*1

Input Unit			
Input specification	Input logic	NPN or PNP	
	Isolation system	Photo coupler	
	Rated input voltage	24 V DC	
	Rated input current	approx. 7 mA	
	ON voltage	=< 16 V	
	ON current	=< 4 mA	
	OFF voltage	=> 6 V	
	OFF current	=> 1 mA	
	Input resistance	approx. 3.3 K Ohm	

Output Unit			
Output specification	Output logic	NPN or PNP	
	Output system	Open collector	
	Load current	max. 200 mA/ch.	
	Residual voltage	=< 2.5 V	
	Leakage current	=< 0.08 mA	

Drive voltage : The voltage supplied by the system to operate the detector switches and actuators. These must be suitable for operation at the drive voltage.

Drive current : Total current supplied by the system for the detector switches and actuators. Detectors and actuators must be suitable for operation at the drive current. The total current consumption of detectors and actuators, added current consumption of Remote Amplifier, Input unit, Output unit (40 mA per each unit), must not exceed the rated drive current when several detectors / actuators are used.

*1 The available drive current is dependent on the transmission distance between Remote Head and Base Heads and the degree of off-set between them - refer to Transmitting area diagram.

Specification of detector switch

Where standard detector switches are used, the following specifications must be maintained.

Rated voltage	: 24 V DC
Load current	: operates at 7 mA
ON voltage	: =< 6 V
Leakage current	: =< 1 mA

2.2 Remote Head / Base Head

Specifications

		Base Head		Remote Head	
Type number		RCH08E-211-PU		RCH08T-211-PU	
		^		°	
Applicable	NPN	RL64E-333N-000		RL64T-344N-000, RL64T-344P-000	
Amplifier	PNP	RL64E-333P-000		RL64T-345N	-000, RL64T-345P-000
	DeviceNet	RL64EA-355DN-000]	
	CC-Link	RL64E-366CL-000		1	
	EtherNet/IP	RL64E-366EI-000]	
		Rated operating distance	Center off-set		Drive current
Center off-set and D	rive current in		+/- 5 mm		
operating distance		6 9 mm	+/ 2 mm		-< 2 A
Drive veltege		0011111	+/- 3 mm		1 5 V
Drive voltage				24 V DC +/-	1.5 V
Material	Housing	Aluminum cutting + Alumite treatment (Metal part)			
Operating surface		ABS/PBT resin arroy (Resin part)			
Cable		7.8 phi / 2 x 1.25 mm ² + 2 x 0.2 mm ² , PUR shielded			
Supply voltage		24V DC+/-5%			
Current consumption		=< 4 A			
•					
Operating temperatur	e	0+50 deg.C.			
Operating humidity		3590 %			
Storage temperature		-25+70 deg.C.			
Storage humidity		3590%			
Isolation		=> 50 M ohm (at DC 500 VM, Charging unit to Housing)			
Dielectrics strength		AC 1000 V / 1 min. (Charging unit to Housing)			
Vibration rating		1055 Hz / amplitude 1.5 mm / 2 hrs. to each axis X-Y-Z			
Shock rating		50 G / 3 times to each axis X-Y-Z, total 18 times			
Protection class		IP 67			

Dimension



8

2.3 Base Amplifier Parallel Input/Output at once type

Specifications

Type number		NPN	RL64E-333N-000	
		PNP	RL64E-333P-000	
Applicable Base	e Head		RCH08E-211-PU	
Applicable Rem	note Amplifi	er	RL64T-344N-000, RL64T-344P-000, RL64T-345N-000, RL64T-345P-000	
LED Indication			Green : POWER / Yellow : READY	
Housing Materi	al		SPCC-SD	
Connection	Power		Terminal Block : 2 poles x 1	
	Head		Terminal Block : 4 poles x 2	
	Input con	nector	Flat cable connector : 40 poles x 1 (male)	
	Output co	nnector	Flat cable connector : 40 poles x 2 (male)	
Number of Ippu	it cignals			
Number of Out			67 signals (Deta signals : 64, Inzona : 2, Short sireuit detection : 1)	
Supply voltage	rango		$241/DC \pm (50)/(100)/(1$	
Current concur	antion			
	npuon		-<150 IIIA	
Output	Output	NPN	Current sinking	
characteristic	logic	PNP	Current sourcing	
	Output sy	stem	Open collector	
	Leakage	current	=<0.08 mA	
	Residual	voltage	=<2.5 V	
	Load curr	ent	max 50 mA per ourput	
	operation	frequency	20 Hz	
	Circuit pro	otection	Short circuit protected / Surge suppression	
Input	Input	NPN	Current sinking	
characteristic	logic	PNP	Current sourcing	
	Isolation s	system	Photo coupler isolation	
	ON voltage	e/OFF current	=<16 V / =<4 mA	
	OFF voltag	ge/OFF current	=> 6 V / =>1 mA	
	Load curr	ent	7mA per input	
Frequency of operation		y of operation	20 Hz	
Operating tomp	oraturo		0 to 50 dog C	
Operating temp	idity		35 to 00 % PH	
			25 to ±70 deg C	
			10 55 Hz/amplitude 1mm/2hours to each evic V V Z	
Shock rating				
Shock rating			20G / 3 times to each axis X-Y-Z, total 18 times	



DeviceNet Connecting type

[General specific	cations]	
Type number		RL64EA-355DN-000
Applicable Base	e Head	RCH08E-211-PU
Annliaghla Dam	oto Amplifiar	RL64T-344N-000, RL64T-344P-000
	lote Amplinei	RL64T-345N-000,RL64T-345P-000
HousingMateria	l	SPCC-SD
	Power supply	Terminal Block : 2 poles x 1 (Suitable cable : 0.22.5mm ² , stripping length:9mm)
Connection	Head	Terminal Block : 5 poles x 1 (Suitable cable : 0.22.5mm ² , stripping length:9mm)
	DeviceNet	2-piece terminal block : 5 poles x 1 (Suitable cable : 0.22.5mm ² wire-stripping:7mm)
	Protocol	Conform to DeviceNet
	Function	Remote Input /Output (Poll)
Communication	Baud rate	500k/250k/125k Baud (Set up by DIP switch)
specification	Node address	0 to 63 (Set up by rotary switch)
	Number of Input signals	64 signals + 1 Ready signal (9 bytes)
	Number of Output signals	32 signals (4 bytes)
Main unit	Supply voltage	24 V DC +/- 5 % (Ripple less than 1V)
	Current consumption	=<150 mA
DeviceNet	Supply voltage range	11 to 25 V DC
Deviceivet	Current consumption	=<15 mA
Operating temperature		0+50 deg.C.
Operating humidity		3590 % (not to be frozen)
Storage temperature		-25+70 deg.C.
Storage humidit	y	3590 %(not to be frozen)
Vibration rating		1055 Hz/amplitude 1mm/2hours to each axis X-Y-Z
Shock rating		20G / 3 times to each axis X-Y-Z, total 18 times



CC-Link Connecting type

[General specif	ications]					
Type number		RL64E-366CL-000				
Applicable Bas	se Head	RCH08E-211-PU				
Appliaghla Day	noto Amplifior	RL64T-344N-000, RL64T-344P-000				
Applicable Rel	note Ampimer	RL64T-345N-000, RL64T-345P-000				
HousingMateri	al	SPCC-SD				
	Power supply	Terminal Block : 2 poles x 1 (Suitable cable : 0.22.5 mm ² , stripping length: 9 mm)				
Connection	Head	Terminal Block : 5 poles x 1 (Suitable cable : 0.22.5 mm ² , stripping length: 9 mm)				
	CC-Link	2-piece terminal block : 5 poles x 1 (Suitable cable : 0.22.5 mm ² stripping: 7 mm)				
	Protocol	CC-Link (Ver. 1.10)				
	Station type	Remote device station				
Communication	Number of stations occupied	3 stations (RX/RY 96 each bits, RWr/RWw each 12 words)				
specification	Station Number	1 to 62 (Set up by rotary switch)				
specification	Baud rate	156 k / 625 k / 2.5 M / 5 M / 10 M Baud (Set up by rotary switch)				
	Number of Input signals	64 signals (RXn0 RX(n+3)F) + 1 signal (RX(n+4)0) ^{*1}				
	Number of Output signals	32 signals (RYn0 RY(n+1)F) *1				
		r				
Supply voltage	2	24 V DC +/- 5% (Ripple less than 1V)				
Current consu	mption	=< 150 mA				
		r				
Operating tem	perature	0+50 deg.C.				
Operating hum	nidity	3590 % (not to be frozen)				
Storage tempe	erature	-15+70 deg.C.				
Storage humid	lity	3590 %(not to be frozen)				
Vibration rating	9	1055 Hz/amplitude 1mm/2hours to each axis X-Y-Z				
Shock rating		20G / 3 times to each axis X-Y-Z, total 18 times				

*1 n : The address which is allocated for the master station by setting of station number.



EtherNet/IP Connecting type

[General specific	cations]					
Type number		RL64E-366EI-000				
Applicable Base Head		RCH08E-211-PU				
Applicable Dom	oto Amplifiar	RL64T-344N-000,RL64T-344P-000				
	lote Amplinei	RL64T-345N-000, RL64T-345P-000				
HousingMateria	l	SPCC-SD				
	Power supply	Terminal Block : 2 poles x 1 (Suitable cable : 0.22.5 mm ² , stripping length: 9 mm)				
Connection	Head	Terminal Block : 5 poles x 1 (Suitable cable : 0.22.5 mm ² , stripping length:9 mm)				
	Ethernet	RJ-45 female connector x 1				
	Protocol	EtherNet/IP				
	Function	Remote Input /Output (Cyclic)				
Communication	Communication type	Full duplex / half duplex (Automatic negotiation)				
	Baud rate	100M bps / 10M bps (Automatic negotiation)				
specification	IP address	Set up by DIP switch, DHCP, etc.				
	Number of Input signals	64 signals + 1 INZONE signal (9 byte)				
	Number of Output signals	32 signals (4 byte)				
Supply voltage		24 V DC +/- 5 % (Ripple less than 1 V)				
Current consum	ption	=<150 mA				
Operating temp	erature	0+50 deg.C.				
Operating humi	dity	3590 % (not to be frozen)				
Storage temper	ature	-15+70 deg.C.				
Storage humidit	y	3590 % (not to be frozen)				
Vibration rating		1055 Hz / amplitude 1 mm / 2 hours to each axis X-Y-Z				
Shock rating		20 G / 3 times to each axis X-Y-Z, total 18 times				



13

2.4 Remote Amplifier

Remote amplifier with 32 inputs (Pin terminal)

[General specifications]

Type number		NPN	N RL64T-344N-000		
		PNF	P RL64T-344P-000		
Applicable Rem	ote Head		RCH08T-211-PU		
Housing Materia	al		SPCC-CD, Glass-epoxy		
Connection	Hea	d	Terminal Block :4 poles x 2		
	Link		Connector :e-con, 4P x 2		
	Inpu	t	Terminal Block :3poles x 32(Pin terminal)		
			(Suitable cable : 0.141.0 mm ² , stripping length:6 mm)		
Number of Input	signals		NPN/PNP 32 inputs		
Supply voltage r	ange		24 V DC +/- 5 % Incl. Ripple		
Current consum	ption		=<70 mA		
Frequency of op	eration		20 Hz		
Input	ON volta	ge	=<16 V		
characteristic	OFF volta	age	=> 6 V		
	Load curr	ent	7 mA/per input		
	Leakage	current	=<1 mA		
Operating tempe	erature		0 to +50 deg. C.		
Operating humic	dity		35 to 90 % RH		
Storage tempera	ature		-25 to +70 deg. C. [however not to be frozen]		
Storage humidit	у		35 to 90 % RH		
Vibration rating			10 55 Hz, amplitude 1 mm, 2 hours to each axis X-Y-Z		

20G / 3 times to each axis X-Y-Z, total 18 times

Dimension

Shock rating



Remote amplifier with 32 inputs (Ring terminal)

[General specifications]

Locuerar obcour	loutionioj					
Type number		NPN	RL64T-345N-000			
		PNP	RL64T-345P-000			
Applicable Rer	note Head		RCH08T-211-PU			
			·			
HousingMateri	al		SPCC-CD, Glass-epoxy			
-						
Connection	Head		Terminal Block:4 poles x 2			
	Link		Connector : e-con, 4P x 2			
	Input		Terminal Block : 3 poles x 32(Ring terminal)			
			(Suitable terminal : Connection inner diameter 3mm or more, Outer diameter less			
			than 6mm)			
			(Suitable cable : 0.131.5 mm ² , stripping length:6 mm)			
Number of Input signals			NPN/PNP 32 inputs			
Supply voltage	range		24 V DC +/- 5% Incl. Ripple			
Current consul	mption		=<70 mA			
Frequency of c	peration		20 Hz			
Input	ON voltage		=<16 V			
characteristic	OFF voltage		=> 6 V			
	Load current		7 mA/per input			
	Leakage current		=<1 mA			
Operating tem	perature		0 to +50 deg. C.			
Operating hum	nidity		35 to 90% RH			
Storage tempe	erature		-25 to +70 deg. C. [however not to be frozen]			
Storage humid	lity		35 to 90% RH			
Vibration rating]		10 55 Hz, amplitude 1 mm, 2 hours to each axis X-Y-Z			
Shock rating			20G / 3 times to each axis X-Y-Z, total 18 times			



2.5 Input Unit

[General specifications]

Type numb	er <u>NPN</u>	RLX08-322N				
	PNP	RLX08-322P				
Applicable	NPN	RL64T-344N-000, RL64T-345N-000				
Remote Am	plifier PNP	RL64T-344P-000, RL64T-345P-000				
LED Indicat	tion	Yellow : READY				
Housing Ma	aterial	Body : SPCC-SD, Cover plate : Acrylic				
Connection	Input	Terminal Block:27P (Suitable cable : 0.141.0 mm ² , stripping length:6 mm)				
	Link	Connector :e-con, 4Px2				
Current cor	sumption	=<40 mA				
	NPN	Current sinking				
Input	PNP	Current sourcing				
characteristic	Input signals	8signals				
	Isolation system	Photo coupler isolation				
	ON voltage	=<16 V				
	OFF voltage	=> 6 V				
	Load current	7 mA/per input				
	Frequency of operation	20 Hz				
Operating t	emperature	0 to +50 deg. C.				
Operating h	numidity	35 to 90% RH				
Storage temperature		-25 to +70 deg. C.				
Storage hu	midity	35 to 90% RH				
Isolation		=>50 MΩ(at DC 500 VM Between charging unit to Housing)				
Dielectrics	strength	AC 1000 V /1 min. (Between charging unit to Housing)				
Vibration ra	ting	10 55 Hz / amplitude 1.5 mm / 2 hours to each axis X-Y-Z				
Shock ratin	a	50G / 3 times to each axis X-Y-Z. total 18 times				



2.6 Output Unit

[General specifications]

Type number			NPN RLY04-322N				
		PNP	RLY04-322P				
Applicable NPN			RL64T-344N-000, RL64T-345N-000				
Remote Ar	nplifier	PNP	RL64T-344P-000, RL64T-345P-000				
LED Indicat	tion		Yellow : READY				
Housing Ma	aterial		Body : SPCC-SD, Cover plate : Acrylic				
Connection	Output		Terminal Block:12 poles (Suitable cable : 0.141.0 mm ² , stripping length:6 mm)				
	Link		Connector :e-con, 4Px2				
Current cor	sumption		=<40mA				
Output		NPN	Current sinking				
characteristic		PNP	Current sourcing				
	Output signals		5 signals(Date signals : 4 signals, Data valid signal : 1signal)				
	Output syster	m	Open collector				
	Leakage curr	rent	=<0.08 mA				
	Residual volt	tage	=<2.5 V				
	Load current		max.200 mA/per output				
	Frequency of o	operation	20 Hz				
	Circuit protection		Short circuit protected / Surge suppression				
Operating to	emperature		0 to +50 deg. C.				
Operating h	numidity		35 to 90% RH				
Storage ten	nperature		-25 to +70 deg. C.				
Storage hui	midity		35 to 90% RH				
Isolation			=>50M $\Omega(at DC500VM Between charging unit to Housing)$				
Dielectrics	strength		AC1000 V /1 min. (Between charging unit to Housing)				
Vibration ra	ting		10 55 Hz , amplitude 1.5 mm , 2 hours to each axis X-Y-Z				
Shock ratin	g		50 G / 3 times to each axis X-Y-Z, total 18 times				



- 3. Using the System
- 3.1 Installation of head
- 3.1.1 Operating Diagram

[Example : Supply voltage 24V DC]



3.2.2 Influence of surrounding metal and Mutual interference

In order to avoid influence of surrounding metal,or to avoid mutual interference between parallel-mounted sensors,keep the minimum space as described below.



Type number	A(mm)	B(mm)	C(mm)	D(mm)
RCH08T-211-PU	50	45	-	200
RCH08E-211-PU	50	45	45	300

3.1.3 Note about heat-generating of Head part



- Make sure to check there is no metal chips on the operating surface before putting power supply. If power is applied to the Output Head when metal is present within 45 mm of its operating surface, the Output

Head will generate heat and may cause damage to the unit. Also If the unit remains in this condition for a while, the metal side may also become hot and lead unexpected

accidents. Small metal chips /swarf could be over 100 deg. C.

- Wrong signal could be output when operating distance or center offset is out of specification range.
- Metalic chips/ swarf on operating surface will generate heat If power supplied.
 Be sure to remove metal chips from the operating surface of Base Head or Remote Head before active the system.
- 3.1.4 Application Note
- Use a regulated power supply, such as switch-model type.
 Simpler power supplies, such as a full-wave rectification type, will cause the permissible ripple rating to be exceed and may cause malfunction.
- Detectors and actuators must be suitable for operation at 24V DC+-1.5V.
- Total current consumption of detectors and actuators must not exceed the rated drive current. The drive current would change dependending on the transmission distance between Transmitting and Output Heads or the degree of off-set between them - refer to Transmitting area diagram.
- Refer to the specification, install the Heads' operating surface to face each other properly.

3.2 Wirings/Settings

3.2.1 Base Head - Base Amplifier

Parallel input/output type RL64E-333__-000



(1) connector for controller / input

(2),(3) connector for controller / output

(Connectors for above mentiond 1,2 and 3 are inclueded)

- (4) Terminal for Power supply
- (5) Terminal for Base Head
- (6) Terminal for external LED (output)
 - INZ : INZONE /50 mA
 - ALM : Short circuit detection/50mA
 - 24V/0V: Desplay Power supply/max100mA
- (7) LED indication
 - POWER ON : Base Amplifier has power
 - IN ZONE ON : The Remote head is in the operating area of the Base head.

Notes for Wiring

- To avoid malfunction caused by induction noise, cable should be kept apart from motor or other power cables.

- The minimum bending radius for Base Head cable is 50 mm.

- Though the system conforms to EMC Directive and applied with CE mark, they do not adopt measures for serge.

When cable length between Base Amplifier and controller exceeds 30 m, or the cable length to the power supply exceeds 10 m, be sure to take appropriate measure to avoid severe serge.

Maximum cable length is 10 m for Base Head so please pay attention for setting distance with Amplifier.

- Please connect the shield line to D-class grounded metals.
- The housing should be connected to D-class grounded metals.

(1) connector for controller / input

(1) INPUT					
Add ress	Pin No.	Signal	Add ress	Pin No.	Signal
	B20	IN1	N1 A20	IN17	
0	B19	IN2		A19	IN18
	B18	IN3	4	A18	IN19
	B17	IN4		A17	IN20
	B16	IN5		A16	IN21
1	B15	IN6	5	A15	IN22
'	B14	IN7	5	A14	IN23
	B13	IN8		A13	IN24
	B12	IN9		A12	IN25
2	B11	IN10	6	A11	IN26
2	B10	IN11	0	A10	IN27
	B9	IN12		A9	IN28
	B8	IN13		A8	IN29
2	B7	IN14	7	A7	IN30
3	B6	IN15	'	A6	IN31
	B5	IN16		A5	IN32
	B4	NC		A4	NC
	B3	NC		A3	NC
	B2*1	0V		A2	NC
	B1* ¹	0V		A1	NC

*1 '-' of Power supply and B1/B2 of INPUT are connected inside. (2),(3) connector for controller / output

	(2) OUT1						(3) OUT2					
Add	Pin	Signal	Add	Pin	Signal		Add	Pin	Signal	Add	Pin	Signal
ress	No.	Signai	ress	No.	Signal		ress	No.	Signai	ress	No.	Signal
	B20	OUT1		A20	OUT17			B20	OUT33		A20	OUT49
	B19	OUT2		A19	OUT18			B19	OUT34		A19	OUT50
	B18	OUT3]	A18	OUT19			B18	OUT35		A18	OUT51
	B17	OUT4] _	A17	OUT20			B17	OUT36		A17	OUT52
0	B16	OUT5	-	A16	OUT21		4	B16	OUT37		A16	OUT53
	B15	OUT6]	A15	OUT22			B15	OUT38		A15	OUT54
	B14	OUT7		A14	OUT23			B14	OUT39		A14	OUT55
	B13	OUT8		A13	OUT24			B13	OUT40		A13	OUT56
	B12	OUT9		A12	OUT25			B12	OUT41		A12	OUT57
	B11	OUT10		A11	OUT26			B11	OUT42	_	A11	OUT58
	B10	OUT11]	A10	OUT27			B10	OUT43		A10	OUT59
	B9	OUT12		A9	OUT28			B9	OUT44		A9	OUT60
'	B8	OUT13]	A8	OUT29		5	B8	OUT45	'	A8	OUT61
	B7	OUT14]	A7	OUT30			B7	OUT46		A7	OUT62
	B6	OUT15]	A6	OUT31			B6	OUT47]	A6	OUT63
	B5	OUT16]	A5	OUT32			B5	OUT48		A5	OUT64
	B4	NC		A4	INZONE			B4	NC		A4	NC
	B3	NC	1	A3	NC			B3	NC		A3	NC
-	B2*2	24VOUT] -	A2	NC		-	B2*2	24VOUT	-	A2	NC
	B1*2	24VOUT		A1	NC			B1*2	24VOUT		A1	NC

*2 '+' of Power supply and B1/B2 of OUT1, 2 are connected inside.

<Input/output circuit>



0V

0V

21

DeviceNet Connecting type RL64EA-355DN-000

For DeviceNet setting, please refer to 4. Setting of DeviceNet on page 33.



(1) Switch for Node address setting

- (2) Switch for Baud rate setting
- (3) Terminal block for DeviceNet
- (4) Terminal block for Base Head
- (5) Terminal block for Power supply
- (6) Status indicator LED

Notes for Wiring

- To avoid malfunction caused by induction noise, cable should be kept apart from motor or other power cables.
- The minimum bending radius for the Head cable is 50 mm.
- Though the system conforms to EMC Directive and applied with CE mark, they do not adopt measures for serge. When cable length between Base Amplifier and controller exceeds 30 m, or the cable length to the power supply exceeds 10 m, be sure to take appropriate measure to avoid severe serge.

Maximum cable length is 10 m for Base Head so please pay attention for setting distance with Amplifier.

- The housing of RL64EA should be connected to D-class grounded metals.

Be sure to check the ground state before using. DeviceNet power supply 'V-' is connected to its housing inside.

(1) NA Node address setting

X10	tens place setting
X1	ones place setting

(2) DR Baud rate setting

baud	SW1	SW2
125k	OFF	OFF
250k	ON	OFF
500k	OFF	ON
Invalid	ON	ON

(3) DeviceNet wiring

חי		Cable color	signals	
vп	╞╧╧╢	Red	Power supply Cable	V+
VII	╞╧╣║	White	Communication data	CANH
	╞╧╡║		Shield	
	╞╧╡║	Blue	Communication data	CANL
sĸ		Black	Power supply Cable	V-*

 DeviceNet power supply 'V-' of RL64EA-355DN-000 is connected to its housing inside.
 It is recommended to check the grounding state of your system

(6) LED Indication

MS : Modul status (see the table shown below)

NS : Network status (see the table shown below)

Ready : INZONE status ('ON' shows that power supply and signal transmission are performed between both Heads.)

before using.

MS	NS	Contents	Measure
Green LED ON	Green LED ON	Remote I/O and message in communication	Remote I/O or Message communication is carrying out, status good
Green LED ON	Green LED Blink	Waiting on connection/IDLE status	Waiting on connection from master, status good
Green LED ON	Red LED Blink	Bus off, Overlap MACID error	Check node address if its overlapped also the wiring condition After
			checking, reboot the slave.
Green LED ON	Red LED Blink	Communication timeout	After cheking Baud rate and wiring, reboot it.
Green LED ON	OFF	Cheking the Overlapped node address	Check Network power supply. When particular slave is in this
		Network power supply is OFF	status, check if Baud rate and other node is identical, then reboot
			the slave.
Green LED Blink	—	Error on SW setting	SW is out of configulatable range. Set back to correct range
			and reboot the slave.
OFF	OFF	Power supply of device is OFF	

23

CC-Link Connecting type RL64E-366CL-000

For CC-Link setting, please refer to 5. Setting of CC-Link on page 38.



(1) Switch for Station number setting

(2) Switch for Baud rate setting

(3) Terminal Block for CC-Link

(4) Terminal Block for Base head

(5) Terminal block for Power supply

(6) Status indicator LED

Notes for Wiring

- To avoid malfunction caused by induction noise, cable should be kept apart from motor or other power cables.
- The minimum bending radius for Base Head cable is 50 mm.
- Though the system conforms to EMC Directive and applied with CE mark, they do not adopt measures for serge, be sure to take appropriate measure to avoid severe serge, when cable length between Base Amplifier and controller exceeds 30 m, or the cable length to the power supply exceeds 10 m,
- Maximum cable length is 10 m for Base Head so please pay attention for setting distance with Amplifier.
- Base Amplifier should be connected to D-class grounded metals with FG terminal or its housing case.

(1) STATION NO.

X1	1 digit setting					
X10	10 digit setting					
(The settable range 1 62)						

(2) BAUD RATE

baud	SW
156k	0
625k	1
2.5M	2
5M	3
10M	4

(The settable range 0 ... 4)

(3) CC-Link wiring

	Cable	Signal
	(earth)	FG
	shield	SLD
	Yellow	DG
WHLI	White	DB
BL TO	Blue	DA

(FG and SLD are connected to the housing inside.)

(6) LED indication

indication status		status	meaning and action				
Remote C	Coupler system	status					
READY	Green	Power on	-				
Off Power off		Power off	-				
INZONE	Green	Remote head present	Power supply and signal transmission perform normally between Base head and Remote head.				
	Off	No Remote head present	No Remote head is in the transmission area of Base head. When LED turns off even if Remote Head is in the transmission area of Base head, please confirm system constitution.				
CC-Link (communication	etatue					

L RUN	Green	Communicate normally	The communication between Master and Base Amplifer is normal.				
	Off	Communication	The communication between Master and Base Amplifer is not performed.				
		stopped	Following points should be confirmed.				
			- Whether there is any mismatch at the parameter setting of master station and the actual system constitution or not.				
			 Whether there is the duplicated station number or the mismatch of baud rate or not. When the other LED shows the other error, please take proper measures. 				
L ERR.	Off	No error	There is neither a setting error nor a CRC error.				
	Red	CRC error	CRC error due to a noise occurs in the communication data.				
	blinkes		Following points should be confirmed				
	ununiformity		- Whether there are terminal resisters attached at the bose end of trunk line or not.				
			- Devices of each station are grounded correctly or not.				
	Red	Setting changed	The station number or the baud rate was changed during operation.				
	blinkes		- Restart to make the changed setting valid.				
	uniformity		 Return the rotary switch to the setting at the time of the power on, when it was changed by mistake. 				
	Red	Setting fales	Station number or baud rate is out of the permissible setting range.				
			- Please restart after set the rotary switch correctly.				
SD	Green blinkes	Sending data	This LED blinks every time the data sending is performed.				
	Off	No data sending	The data sending is not performed.				
RD	Green	Receiving data	This LED lights every time the data reception carrier is detected.				
	Off	No data receiving	The data reception carrier is not detected.				
			- Confirm whether the performance of the master station is normal and whether				
			there is any problem with wiring.				

EtherNet/IP Connecting type RL64E-366EI-000

For EtherNet/IP setting, please refer to 6. EtherNet/IP setting on page 39.



Notes for Wiring

- To avoid malfunction caused by induction noise, cable should be kept apart from motor or other power cables.

- The minimum bending radius for Base Head cable is 50 mm.
- Though the system conforms to EMC Directive and applied with CE mark, they do not adopt measures for serge, be sure to take
 - appropriate measure to avoid severe serge, when cable length between Base Amplifier and controller exceeds 30 m, or the cable length to the power supply exceeds 10 m,
 - Maximum cable length is 10 m for Base Head so please pay attention for setting distance with Amplifier.
 - The housing should be connected to D-class grounded metals.

(1) IP ADDRESS Setting IP address.

. ,	•
SW	IP address
0	Internal retention setting or the value by DHCP/BootP
1~254	192.168.0.X
1	

(Settable range X : 0...254)

% Printed as "1" side is the MSB(Upper) and printed as "8" side is the LSB(lower) side.

(2) Ethernet connector pin asignment (RJ-45 Female)

Pin No.	Signal	
1	Transmitted data.	TD+
2	Transmitted data.	TD-
3	Received data.	RD+
4	Not used.	
5	Not used.	
6	Received data.	RD-
7	Not used.	
8	Not used.	

(5)LED indication

[Remote coupler system status]

L			
READY	Green	Power ON	-
	OFF	Power OFF	-
INZONE	Green	Inzone	Power supply and signal transmission perform normally between Base head and Remote head.
	OFF	Outzone head	No Remote head is in the transmission area of Base head. Even if Remote Head is in the transmission area of Base head, if LED turns off, please confirm system constitution.

[EtherNet/IP communication status]

MS	Green	Correct operation	Correct operation
	Green blinkng	Connection time-out / Scanner Idle	Waiting for Connection from Scanner. If this status keeps for long time, scanner is in an Idle status and there may be no connection establishment action performed. Please check to see whether the scanner is working properly or there is an unusual wiring or network configuration.
	Red blinking	Minor failure	Minor failures occur in systems. When it indicates something abnormal at the other LED, please take individual counter measures.
	Red	Major failure	Major failures occur in systems. Please reboot a system
	OFF	Power OFF	•
NS	Green	Scanner connected	More than one connections with Scanner were established. Communication of data is performed normally.
	Green blinkng	No connection	Connection with Scanner is not established.
	Red blinkng	Connection time-out	Although Connection was established once, it has timed out now. Check whether Scanner is normal and whether there are any abnormalities in Network configuration or wiring.
	Red	Overlapped IP address	Duplication of the IP address is detected. Re-set to avoid an IP address overlap.
	OFF	Wrong setup of IP address	IP address is not set up or DIP switch is out of setting range. Set up effective IP address again.
LINK	Green	Connection of ethernet is detected.	Valid connection exists.
	OFF	Unconnected ethernet.	Valid connection does not exist. Check whether there are any abnormalities in Network configuration or wiring.
ACT	Green blinking	Data is transmitted and received.	Whenever data is transmitted or received, it blinks.
	OFF	Data isn't transmitted and received.	Transmission or reception of data are not performed.

3.2.2 Remote Head - Remote Amplifier

Remote Amplifier with 32 inputs



- (1) Terminal for Remote Head
- (2) not used -
- (3), (4) Connector for Link system. Each pin of No.3 and 4 is connected iside.(5),(6) Terminal for Detector Sensors : (5) for 1...16, (6) for 17...32

Notes for Wiring

- To avoid malfunction caused by induction noise, cable should be kept apart from motor or other power cables.
- The minimum bending radius for the Head cable is 50 mm.
- Though the system conforms to EMC Directive and applied with CE mark, they do not adopt measures for serge.
 Be sure to take appropriate measure to avoid severe serge.
 Maximum cable length is 5 m for Remote Head so please pay attention for setting distance with Amplifier.
- Please connect the shield line to D-class grounded metals.
- -The cable length from the Remote head to the Remote amplifier can be up to 5 m.

3.2.3 Remote Amplifier - Input/Output unit



Notes for Wiring

- Up to 12 units (8 for Input / 8 for Output unit) can be connected.

Please make sure the total current consumption of each unit (and Remote Amplifier), detecting switches or solenoids should not exceed the current capacity of the Remote Head

- Power supply ternimal of the Output Unit is for confirming output volatage, so please don't connect the power supply.

About cable length

- Cables linking between each unit should not exceed 2m.

-When extending the input unit including the input unit and the extension Remote amplifier from the Remote amplifier, the total cable length from the remote amplifier can be up to 4 m.

- When only the output unit is connected from the Remote amplifier, total cable length can be up to 10 m.



3.2.4 Address setting



- Remote coupler system use up to 8 addresses (0 to 7) for connected Input /output units. The address is set with 'S1' switch of each unit.
- When using Remote Amplifier with 32 inputs, Remote Amplifier will ocupy 4 addresses, so when connecting input unit to this Remote Amplifier, please pay attention not to overlap the addresses.

Remote Amplifier(RL64T-344_/345_-000)

By switching the SW No.1 on S1, it sets either upper 0 to 3 or lower 4 to 7.



Switch No. 1 : Address OFF : Address: 0...3 (Factory setting) ON : Address: 4...7

Switch No. 2,3 : OFF (do not change them)



Switch No. 4 : Master/Slave

This switch is used for setting master/ slave when 2 remote amplifiers are connected. (The OFF in the case of only one) (OFF: Master, ON: Slave) In this case the input unit cannot be connected.

Input Unit(RLX08-322__)

By SW No.1,2,3 of S1, it sets up the addresses (0 to 7) and SW No.4 will not be used. Please set it up carefully not to overlap Remote Amplifier address.



Address		0	1	2	3	4	5	6	7
	1	OFF	ON	OFF	ON	OFF	ON	OFF	ON
SW No.	2	OFF	OFF	ON	ON	OFF	OFF	ON	ON
	3	OFF	OFF	OFF	OFF	ON	ON	ON	ON
Remote Ampl address	ifier		4 t	o 7			0 t	o 3	

Output Unit(RLY04-322_)

By SW No.1,2,3 of S1, it sets up the addresses (0 to 7), SW No.4 will not be used. It is allowed to overlap the Remote Amplifier address and input Unit address.



Address		0	1	2	3	4	5	6	7
	1	OFF	ON	OFF	ON	OFF	ON	OFF	ON
SW No.	2	OFF	OFF	ON	ON	OFF	OFF	ON	ON
	3	OFF	OFF	OFF	OFF	ON	ON	ON	ON

<Example> Address : 1

3.2.5 Connection examples of the system

Examples of connection and address for each systems are as follows. In these figures _______ shows straight link cable , ______ shows cross link cable. See "Preparing cable for link system" on page.29 for details.



(2) 32 Input signals + 4 Output signals



(3) 48 Input signals + 8 Output signals



(4) 64 Input signals (Remote Amplifier 2 units) + 8 Output signals



Cross cable should be used between master & slave Remote amplifier and slave & first output unit.

3.2.6 Wiring for Detector switch

NPN Input Unit RLX08-322N

Remote Amplifier RL64T-344N-000, RL64T-345N-000

<Detector switch 3 wire / NPN type >



Remote Amplifier

<Detector switch 2 wire type / Mechanical limit switch>



PNP Input Unit RLX08-322P

Remote Amplifier RL64T-344P-000, RL64T-345P-000

<Detector switch 3 wire / NPN type >



<Detector switch 2 wire type / Mechanical limit switch> Remote Amplifier



- Terminal block of Input unit

Terminal No.1...8 are Data signal



3.2.7 Wiring for Actuator 1

NPN Output Unit RLY04-322N







- Terminal block of Output unit

Terminal No.1...4 are Data signal and Terminal No.5 is Data varid.



32

4 Setting of DeviceNet (When using Base Amplifier RL64EA-355DN-000)

4.1 Device profile

General data	Vendor code	43:BALLUFF, Inc.		
	Type of device	General Purpose Discrete I/O/device type:7		
Product code		16		
	NetworkCurrent	Approx. 10mA(at DC24V)		
	consumption			
	Type of connector	Open connector		
Pysical layer isolation		Isoration		
	LED	Module, Netwark, Ready		
	Setting of MACID	By Rotary SW		
	Bit rate	By DIP SW		
	Supported Bit rate	125k, 250k, 500k baud		
Communication	Pridefined Master/Slave	Group2OnlyServer		
data	Connection Set			
	UCMM support	No		

4.2 Mounting object

4.2.1 Identity Object(class ID:01h)

- Class Attribute No
- Class service
 - No

Instance Attribute

ID	Access rule	Title	Data type	Value
1	GET	Vender ID	UINT	43
2	GET	Device Type	UINT	7
3	GET	Product Code	UINT	16
4	GET	Revision	STRUCT	1.2
5	GET	Status	WORD	DeviceNet spec.
6	GET	Serial Number	UDINT	Setting by each unit
7	GET	Product Name	SHORT-STRING	RL64EA-355DN-000

Instance service

service code	service
05	Reset(Parameter type=0, 1)
0E	Get_Attribute_Single

4.2.2 Message Router Object(Class ID:02h)

Class Attribute						
No						
Class service						
No						
Instance Attribute						
No						
Instance service						
No						

4.2.3 DeviceNet Object(Class ID:03h)

Class Attribute

ID	Access rule	Title	Data type	Value			
1	GET	Revision	USINT	2			
Clas	Class service						
serv	service code service						
0E Get_Attribute_Single							

Instance Attribute

ID	Access rule	Title	Data type	Value
1	GET	MAC ID	USINT	0 to 63
2	GET	Baud Rate	USINT	0 to 2
3	GET	BOI	BOOL	DeviceNet spec.
5	GET	Allocation Information	STRUCT	Device Net spec.
		Allocation Choice Byte	BYTE	
		Master's MAC ID	USINT	
6	GET	MAC ID switch changed	BOOL	0: No change
				1: Power supply ON/Changed after Reset
7	GET	Baud rate switch changed	BOOL	0:No change
				1:Power supply ON/Chaged after Reset
8	GET	MAC ID switch value	USINT	0 to 99
9	GET	Baud rate switch value	USINT	0 to 3

Instance service

service code	service
0E	Get_Attribute_Single
4B	Allocation_Master/Slave Connection_Set
4C	Release_Group_2_Identifer_Set

4.2.4 Assembly Object(Class ID:04h)

Class Attribute No Class service No

Instance Attribute(11h)

ID	Access rule	Title	Data size	Value
3	GET	DATA	9 byte	

Instance Attribute(24h)

ID	Access rule	Title	Data size	Value
3	GET/SET	DATA	4 byte	

Instance service

service code	service
0E	Get_Attribute_Single
10	Set_Attribute_Single

Assembly DATA format

Instance Attribute(11h)

	,	/						
Byte	Bit7	Bit6	Bit 5	B it 4	B it 3	Bit 2	B it 1	B it 0
0	Discrete							
	Input8	Input7	Input6	Input5	Input4	Input3	Input2	Input1
1	Discrete							
	Input16	Input15	Input14	Input13	Input12	Input11	Input10	Input9
7	Discrete							
	Input64	Input63	Input62	Input61	Input60	Input59	Input58	Input57
8	Status							

Instance Attribute(24h)

Byte	B it 7	B it 6	B it 5	B it 4	B it 3	B it 2	B it 1	B it 0
0	Discrete							
	Output8	Output7	Output6	Output5	Output4	Output3	Output2	Output1
1	Discrete							
	Output16	Output15	Output14	Output13	Output12	Output11	Output10	Output9
2	Discrete							
	Output24	Output23	Output22	Output21	Output20	Output19	Output18	Output17
3	Discrete							
	Output32	Output31	Output30	Output29	Output28	Output27	Output26	Output25

4.2.5 Connection Object (Class ID:05h)

Class Attribute No Class service

No

Instance Attribute(1h):Explicit Message connection

ID	Access rule	Title	Data type	Value
1	GET	State	USINT	DeviceNet spec.
2	GET	Instance_type	USINT	0
3	GET	Transport Class Trigger	BYTE	83h(server, Class 3)
4	GET	Produced_Connection_Id	UINT	DeviceNet spec.
5	GET	Consumed_Connection_Id	UINT	DeviceNet spec.
6	GET	Initial_Comm_Characteristics	BYTE	21h
7	GET	Produced_Connection_Size	UINT	FFFFh
8	GET	Consumed_Connection_Size	UINT	FFFFh
9	GET/SET	Expected_Pcket_rate	UINT	DeviceNet spec.
12	GET/SET	Watchdog_Timeout_Action	USINT	DeviceNet spec.
13	GET	Produced_Connection_Path_Length	UINT	0
14	GET	Produced_Connection_Path	EPATH	NULL
15	GET	Consumed_Connection_Path_Length	UINT	0
16	GET	Consumed_Connection_Path	EPATH	NULL
17	GET	Produce_Inhibit _Time	UINT	0

Instance Attribute (2h):I/O Poll Message connection

ID	Access rule	Title	Data type	Value
1	GET	State	USINT	Device Net spec.
2	GET	Instance_type	USINT	01(I/O Msg)
3	GET	Transport Class Trigger	BYTE	83h(server, Class 3)
4	GET	Produced_Connection_Id	UINT	DeviceNet spec.
5	GET	Consumed_Connection_Id	UINT	DeviceNet spec.
6	GET	Initial_Comm_Characteristics	BYTE	Poll:01h
7	GET	Produced_Connection_Size	UINT	9h
8	GET	Consumed_Connection_Size	UINT	4h
9	GET/SET	Expected_Pcket_rate	UINT	DeviceNet spec.
12	GET/SET	Watchdog_Timeout_Action	USINT	DeviceNet spec.
13	GET	Produced_Connection_Path_Length	UINT	6
14	GET	Produced_Connection_Path	EPATH	20 04 24 17 30 03
15	GET	Consumed_Connection_Path_Length	UINT	6
16	GET	Consumed_Connection_Path	EPATH	20 04 24 24 30 03
17	GET	Produce_Inhi B it _Time	UINT	0

Instance service				
service code service				
05	Reset			
0E	Get_Attribute_Single			
10	Set_Attribute_Single			

4.2.6 Discrete Input Point Object (Class ID:08h)

Clas	Class Attribute						
ID	Access rule	Title	Data type	Value			
1	GET	Revision	UINT	2			
2	GET	Max_Instance	UINT	64			
Clas	Class service						
service code		service					
0E		Get_Attribute_Single					

Instance Attribute(1h to 64h)

ID	Access rule	Title	Data type	Value
3	GET	Value	BOOL	By Input

Instance service					
service code	service				
0E	Get_Attribute_Single				

4.2.7 Discrete Output Point Object(Class ID:09h)

Class Attribute No Class service No

Instance Attribute(1h to 32h)

ID	Access rule	Title	Data type	Value
3	GET/SET	Value	BOOL	

Instance service

service code	service					
0E	Get_Attribute_Single					
10	Set_Attribute_Single					

4.2.8 Discrete Input Group Object(Class ID:1Dh)

Class Attribute No Class service

No

Instance Attribute(1h)

ID	Access rule	Title	Data type	Value
5	GET	Status	BOOL	Communication Head
				In communication(Ready):1,
				Not in communication:0

Instance service

service code	service
0E	Get_Attribute_Single

4.2 EDS file

EDS file (configuration file) is present on the CD included with the product, in the following folder. Please use it to import the Configurator.

Folder : ¥T012A01_TKN***** ¥English ¥Remote System ¥RL64EA-355DN-000

5 Setting of CC-Link (When using Base Amplifier RL64E-366CL-000)

5.1 Memory Mapping

Input and output signal

	Bas	e amplifier>Master unit	Mas	ster unit>Base amplifier
	Device No.	signal	Device No.	signal
	RXn0		RYn0	To RI 64T
			\checkmark	
		From RL64T	RY(n+1)F	32 output
area		64 input	RY(n+2)0	
ser	RX(n+3)F			
) Š	RX(n+4)0	InZone signal		not use
	RX(n+4)1			
		not use	↓	
	RX(n+4)F		RY(n+4)F	
	RX(n+5)0		RY(n+5)0	
	l v	unusable	\downarrow	unusable
	RX(n+5)7		RY(n+5)7	
rea	RX(n+5)8 *1	Flag of an initial data process request	RY(n+5)8* ¹	Flag of an initial data process complete
u a	RX(n+5)9 *1	Flag of an initial data setting complete	RY(n+5)9* ¹	Flag of an initial data setting request
sten	RX(n+5)A* ²	Flag of error status	RY(n+5)A* ²	Flag of an error reset request
Sys	RX(n+5)B* ¹	Flag of Remote READY	RY(n+5)B	
	RX(n+5)C			unusable
		unusable	↓	ulusable
	RX(n+5)F		RY(n+5)F	

Resister

	Base amplifier>Master unit		Master unit>Base amplifier	
	Device No.	signal	Device No.	signal
User	RWrn0 ↓ RWr(n+B)F	not use	RWwn0 ↓ RWw(n+B)F	not use

n : An address allocated for the master station by the setting of station number.

 *1 This products does not need initial processing, and the READY flag RX(n+5)B becomes ON automatically after powered. And Flag of an initial data process request:RX(n+5)8,Flag of an initial data process complete:RY(n+5)8, Flag of an initial data setting request:RY(n+5)9 and Flag of an initial data setting complete:RX(n+5)9 become not use.

*2 Because this product does not have a peculiar error, Flag of error status:RX(n+5)A and Flag of an error reset request :RY(n+5)A become not use.

6 Setting of EtherNet/IP (When using RL64E-366EI-000)

6.1 Device profile

General data

Vendor code	1115 : B & PLUS
Device type 7 : General Purpose Discrete I/O	
Product code	1
Connector type	RJ-45 female connector
LED	MS(Module Status), NS(Netwark Status), LINK, ACT, READY, INZONE

6.2 Mounting object

6. 2. 1 Identity Object (Class ID : 01h)

Class attribute

ID	Access rule	Title	Data type	Value		
1	GET	Revision	USINT	1		
Class	Class service					
service code		service				
01		Get_Attribute_All				
0E Get_Attrik		Get_Attribute_Single				
Instan	ce attribute (01h)				

ID	Access rule	Ti	itle	Data type	Value
1	GET	Vender ID		UINT	1115
2	GET	D	evice Type	UINT	7
3	GET	Product Code		UINT	1
4	GET		evision	STRUCT	
			Major Revision	USINT	1
			Minor Revision	USINT	1
5	GET	S	tatus	WORD	(Depending on EtherNet/IP status)
6	GET	S	erial Number	UDINT	(peculiar at every unit)
7	GET	Р	roduct Name	SHORT-STRING	RL64E-366EI-000
Instar	nce service				

service code	service
01	Get_Attribute_All
05	Reset (Parameter type = 0,1)
0E	Get_Attribute_Single

6. 2. 2. Message Router Object (Class ID : 02h)

)
)
)
)

6. 2. 3 Assembly Object (Class ID : 04h)

Class	s attribute			
ID	Access rule	Title	Data type	Value
1	GET	Revision	USINT	2
2	GET	Max Instance	USINT	199
Class	service			
servi	ce code	service		
0E		Get_Attribute_Single		
Insta	nce attribute(11h)		
ID	Access rule	Title	Data size	Value
3	GET	DATA	9byte	(Depending on the input)
Insta	nce attribute(24h)		
ID	Access rule	Title	Data size	Value
3	GET/SET	DATA	4byte	(Depending on the output)
Insta	nce service			
servi	ce code	service		
0E		Get_Attribute_Single		
10		Set Attribute Single		

Assembly DATA Format

Instance attribute(11h)

Byte	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	BitO
0	Discrete							
	Input8	Input7	Input6	Input5	Input4	Input3	Input2	Input1
1	Discrete							
	Input16	Input15	Input14	Input13	Input12	Input11	Input10	Input9
:								
ŀ								
7	Discrete							
	Input64	Input63	Input62	Input61	Input60	Input59	Input58	Input57
8	Status							

Instance attribute(24h)

Byte	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	BitO
0	Discrete							
	Output8	Output7	Output6	Output5	Output4	Output3	Output2	Output1
1	Discrete							
	Output16	Output15	Output14	Output13	Output12	Output11	Output10	Output9
2	Discrete							
	Output24	Output23	Output22	Output21	Output20	Output19	Output18	Output17
3	Discrete							
	Output32	Output31	Output30	Output29	Output28	Output27	Output26	Output25

6. 2. 4 Connection Manager Object (Class ID : 06h)

	· · ·
Class attribute	no
Class service	no
Instance attribute	no
nstance service	no
service code	service
54	Forward_Open
4E	Forward_Close

6. 2. 5 Discrete Input Point Object (Class ID : 08h)

Class attribute

ID	Access rule	Title	Data type	Value		
1	GET	Revision	UINT	2		
2	GET	Max Instance	UINT	64		
Class	Class service					
service code		service				
0E		Get_Attribute_Single				

Instance attribute(01h \sim 64h)

ID	Access rule	Title	Data type	Value		
3	GET	Value	BOOL	(Depending on the input)		
Instan	Instance service					
service code service						
0E Get_Attribute_Single						

6. 2. 6 Discrete Output Point Object (Class ID : 09h)

Class attribute no

Class service no

Instance attribute (01h \sim 32h)

ID	Access rule	Title	Data type	Value
3	GET/SET	Value	BOOL	(Depending on the output)

Instance service

Service code	service
0E	Get_Attribute_Single
10	Set_Attribute_Single

6. 2. 7 Discrete Input Group Object (Class ID : 1Dh)

Class attribute no

Class service no

Instance attribute(01h)

ID	Access rule	Title	Data type	Value
5	GET	Status	BOOL	Head communicates (Ready) : 1
				non-communication : 0
Instance service				
Service code		service		
0E		Get_Attribute_Single		

6. 2. 8 Port Object (Class ID : F4h)

Class	attribute				
ID	Access rule	Title		Data type	Value
1	GET	R	evision	USINT	1
2	GET	M	lax Instance	USINT	2
3	GET	N	umber of instances	USINT	1
8	GET	Entry Port		USINT	2
9	GET	Port Instance Info		STRUCT	
			Port Type	UINT	0
			Port Number	UINT	2
Class	service	-		•	<u>`</u>
service code service		ervice			
01 Get_Attribute_All					
0E	0E Get_Attribute_Single				
Instan	ce attribute(02h)				

ID	Access rule	Ti	tle	Data type	Value
1	GET	P	ort Type	UINT	0
2	GET	P	ort Number	UINT	2
3	GET	Li	nk Object	STRUCT	^
			Path Size	UINT	2
			Link Path	Padded-EPATH	20 F5 24 01h
4	GET	P	ort Name	SHORT-STRING	TCP/IP
7	GET	N	ode Address	Padded-EPATH	(*1)
Instan	Instance service				
service code		se	ervice		
01		G	et_Attribute_All		
0E		G	et_Attribute_Single		

6. 2. 9 TCP/IP Interface Object (Class ID : F5h)

Class attribute

ID	Access rule	Title	Data type	Value
1	GET	Revision	USINT	1
Class service				
service code		service		
01		Get_Attribute_All		
0E		Get_Attribute_Single		

41

Instance attribute(01h)

ID	Access rule	Title	Data type	Value
1	GET	Status	DWORD	(*1)
2	GET	Configuration Capability	DWORD	36h
3	GET/SET	Configuration Control	DWORD	(*1)
4	GET	Physical Link Object	STRUCT	
		Path Size	UINT	2
		Path	Padded-EPATH	20 F5 24 01h
5	GET/SET	Interface Configuration	STRUCT	
		IP Address	UDINT	(*1)
		Network Mask	UDINT	(*1)
		Gateway Address	UDINT	(*1)
		Name Server	UDINT	(*1)
		Name Server 2	UDINT	(*1)
		Domain Name	STRING	(*1)
6	GET/SET	Host Name	STRING	(*1)
8	GET/SET	TTL Value	USINT	Default Value : 1
9	GET/SET	Mcast Config	STRUCT	
		Alloc Control	USINT	Default Value : 0
		Reserved	USINT	-
		Num Mcast	UINT	Default Value : 32
		Mcast Start Addr	UDINT	Default Value : indefinite

Instance service

service code	service
01	Get_Attribute_All
0E	Get_Attribute_Single
10	Set_Attribute_Single

6. 2. 10 Ethernet Link Object (Class ID : F6h)

Class attribute

ID	Access rule	Title	Data type	Value
1	GET	Revision	USINT	3
Class service				
service code		service		
01		Get_Attribute_All		
0E		Get_Attribute_Single		

Instance attribute(01h)

ID	Access rule	Т	itle	Data type	Value
1	GET	lr	nterface Speed	DWORD	(*1)
2	GET	lr	nterface Flags	DWORD	(*1)
3	GET	Ρ	hysical Address	UINT	(peculiar MAC address at each unit)
6	GET/SET	lr	nterface Control	STRUCT	
			Control Bits	WORD	Default Value : 1
			Forced Interface Speed	USINT	Default Value : 0

Instance service

service code	service
01	Get_Attribute_All
0E	Get_Attribute_Single
10	Set_Attribute_Single

*1) The item which value changes by setting of Ethernet connection.

6.3 EDS file

EDS file (configuration file) is present on the CD included with the product, in the following folder. Please use it to import the Configurator.

Folder : ¥T012A01_TKN***** ¥English ¥Remote System ¥RL64E-366EI-000

6.4

Setting of the Ethernet connection

< Start up setting >

DIP switch

If set the value of DIP switch to the range of 1...254 and start it up, it start up with the IP address which corresponds to the value.

IP address will be 192.168.0.1... 254, the upper 24 bits are fixed, the DIP switch value would be contained to lower 8 bits.

(Please note, for DIP switch, printed as "1" is MSB(upper) and "8" is LSB (lower)

The default gateway is fixed in 0.0.0.0, the subnet mask is fixed at 255.255.255.0, DHCP client function become OFF. The setting is reflected only at startup, even if DIP switch operated after startup, setting won't be changed.

DHCP/BootP

When it was startup with the condition the Value of the DIP switch is set to "0" and the DHCP client function is set to "ON", it startup by automatically aquisition of the setting of Ethernet connection from the DHCP server or BootP server whichever exists on the network.

If no response is received from the server, it switches to startup by using internal retention setting.

DHCP client function can be set by the Web browser and the configuration tool and also set to ON/OFF as desired by the object operation.

Internal retention settings

This product memorizes the last setting as the internal retention setting, which was performed except made by the DIP switch.

When it was startup with the condition the Value of the DIP switch is set to "0" and the DHCP client function is set to "QFE" is starting with the hyperbolic starting startin

, it switches to startup by using DHCP automatically, if no response is received from the server, it stop working without of settings. In that case, please perform settings using other methods.

< Settings at any time >

<u>ARP</u>

By using ARP protocol, IP address settings can be done at any time.

As an example, command is shown below when performing the setting from the MS-DOS promt on the Windows machines

arp -s <IP address> <MAC address>

ping <IP address>

arp -d <IP address>

The default gateway is fixed in 0.0.0.0, the subnet mask is fixed at 255.255.255.0, DHCP client function become OFF. The setting is reflected immediately.

Configuration tool (AnybusIPconfig)

This product uses the EtherNet/IP interface module (Anybus-S EtherNet/IP)made by HMS Industrial Networks AB.By installing the configuration tool (Anybus IPconfig) on a Windows machine, detection of products that exist on the network, and a detailed set of Ethernet connection is possible.Run [Anybus IPconfig Setup 2.0.1.1.exe] present on the CD included with the product, in the following folder, please complete the installation according to the instructions on the screen

screen. Folder : ¥T012A01_TKN***** ¥English ¥Remote System ¥RL64E-366EI-000

If [Anybus IPconfig] is started and [Scan] button is clicked, corresponding product that is present on the network is detected, the list is displayed. ("ABS-EIP" will be displayed to items of Type)Please select this product with reference to the MAC address. Settings window opens when you double-click, then please enter each item and click the "Set" button.

The settings will reflect immediately.

Web Browser

If the configuration is completed in any way, the page that allows setting of detailed configuration of the Ethernet connection by specifying an IP address from a Web browser can be opened.

Address to be accessed is shown as below;

http://<IP address>/

Enter each item, and click the "STORE CONFIGURATION" button.

The settings will reflect after a restart.

Objest operation

By operation of EtherNet/IP related objects, which has been implemented in this product, detailed setting of the Ethernet connection can be done.

Please refer to the 6.2. Implementation objects. Details of each object are in accordance to the EtherNet/IP specifications.



Mail : b-plus-usa@b-plus-kk.com Web : http://www.b-plus-kk.com

* Infor may change the mention contents such as specifications without a notice. Thank you for understanding