RCA iC60 Remote Control

iC60 Circuit Breakers
Reference Manual

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All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to observe this information can result in injury or equipment damage.

Table of Contents

Safety Information

Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result** in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

About the Book

At a Glance

Document Scope

This manual is intended for designers and installers of control systems and electrical protection systems.

Validity Note

RCA iC60 remote controls are designed for remote control of iC60 circuit breakers.

Related Documents

Title of Documentation	Reference Number
Instruction Sheet for RCA iC60 Remote Controls (English, Dutch, French, German, Italian, Portuguese, Spanish, Chinese, Russian)	S1A4079001

You can download these technical publications and other technical information from our website at http://download.schneider-electric.com

Chapter 1
Presentation

What Is in This Chapter?

This chapter contains the following topics:

Presentation

Introduction

The RCA iC60 remote control is used for remote control of an iC60 circuit breaker. A number of different models are available:

- With or without Ti24 interface
- For iC60 circuit breakers with 1 to 4 poles

Functions Common to All RCA iC60 Remote Controls

The following functions are common to all RCA iC60 remote control models:

- Remote electrical control (opening and closing) of iC60 circuit breakers with or without Vigi add-on RCD, with or without auxiliary, by means of two control inputs (latched and impulse-type)
- Authorization or inhibition of remote reclosing of the circuit breaker following an electrical fault
- Local control via the handle
- Padlocking to secure the circuit
- Operation mode: mode 1 for local or centralized control

Functions of RCA iC60 Remote Controls With Ti24 Interface

Remote control models with a Ti24 interface additionally allow:

- Remote control via a PLC, monitoring system or any other device with 24 Vdc inputs/outputs. This interface complies with the requirements of standard IEC 61131-2
- Remote indication of opening/closing of the circuit breaker with a volt-free changeover contact
- A second operation mode in addition to mode 1: mode 3 for centralized control with local override

Identification/Catalog Numbers

The catalog numbers for RCA iC60 remote controls corresponding to the circuit breaker type are as follows:

iC60 Circuit Breaker Type	RCA iC60 Without Ti24 Interface Ti24		RCA iC60 With Ti24 Interface Ti24	
	Product Designation	Catalog Number	Product Designation	Catalog Number
1P, 1P+N, 2P	RCA iC60 2P	A9C70112	RCA iC60 Ti24 2P	A9C70122
3P, 4P	RCA iC60 4P	A9C70114	RCA iC60 Ti24 4P	A9C70124

The composition rule for catalog numbers A9C701•• is as follows:

Field	A9	C	701	• = 1 or 2	• = 2 or 4
Meaning	Acti 9 range	Control	RCA iC60 remote control	1 = without Ti24 interface 2 = with Ti24 interface	2 = 1/2 poles 4 = 3/4 poles

Example: Catalog number A9C70124 corresponds to an RCA iC60 remote control with Ti24 4P interface.

Description of Optional Auxiliaries

The unit comprising the RCA iC60 remote control and iC60 circuit breaker can be combined with:

- Tripping auxiliaries
- Indication auxiliaries

Circuit breaker tripping auxiliaries allow the circuit breaker to be electrically tripped externally.

Product Designation	Catalog Number	Description
iMX	A9A26476 A9A26977 A9A26978	Shunt release
iMX+OF	A9A26946 A9A26947 A9A26948	Shunt release with voltage presence check
iMN	A9A26959 A9A26960 A9A26961	Undervoltage release
iMNs	A9A26963	Undervoltage release for a period exceeding 200 ms
iMNx	A9A26969 A9A26971	Undervoltage release independent of the power supply voltage
iMSU	A9A26500	Voltage set point release

Circuit breaker indication auxiliaries indicate the state of the circuit breaker.

Product Designation	Catalog Number	Description
iOF	A9A26924 A9A26869	Circuit breaker open/closed indication contact
iSD	A9A26927 A9A26855	Circuit breaker trip state indication contact
iOF/SD+OF	A9A26929	Circuit breaker open/closed and circuit breaker trip state indication contact
iOF+SD24	A9A26897	Circuit breaker open/closed and circuit breaker trip state 24 Vdc indication contact

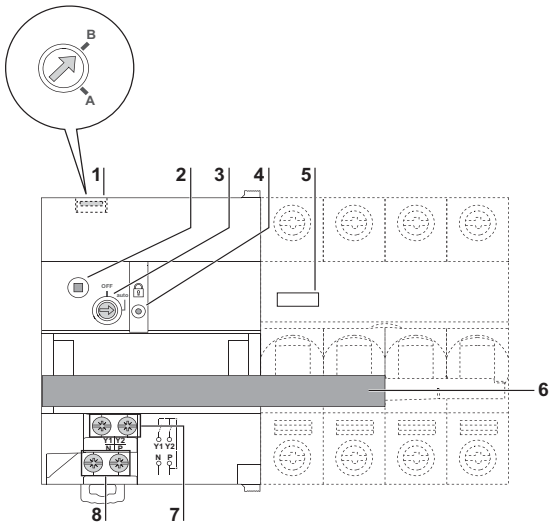
The iMDU adapter auxiliary allows the RCA iC60 remote control to be used with differing control voltages.

Product Designation	Catalog Number	Description
iMDU	A9C18195	24 or 48 Vac/dc – 230 Vac adapter module

Description

RCA iC60 Remote Control Without Ti24 Interface

A9C70112
A9C70114
Mode 1



1 Operation mode selector switch (mode 1 A, mode 1 B)
2 Operating state LED
3 Remote control inhibition selector switch
4 Padlocking device (RCA iC60 remote control padlocking)
5 Circuit breaker trip state LED (mechanical LED)
6 Opening/closing handle for RCA iC60 remote control
7 Y1/Y2 control input terminal block
8 230 Vac power supply terminal block

Selector switches on the RCA iC60 remote control without Ti24 interface:

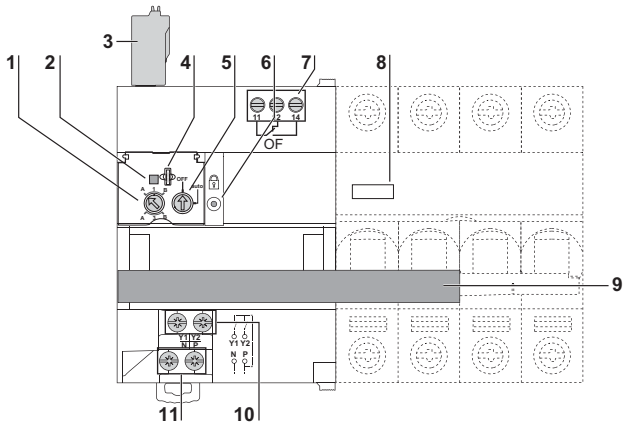
No.	Switch	Position	Description
1	Operation mode (version without Ti24 interface)	Mode 1 A 	Mode A: Reclosing authorized after tripping.
		Mode 1 B 	Mode B: Reclosing inhibited after tripping.
3	Inhibition of remote control		Remote control inhibited
			Remote control authorized

LEDs on the RCA iC60 remote control without Ti24 interface:

No.	LED	State	Description
2	Remote control operating state		Remote control is operational. All of these conditions are satisfied: ● Voltage present ● Remote control authorized (inhibition selector switch set to auto) ● Remote control overheat protection not tripped
			Remote control is not operational. One of these conditions is satisfied: ● Remote control not authorized (inhibition selector switch set to OFF) ● Reclosing after tripping not authorized (operation mode selector switch set to B)
			Remote control overheat protection tripped Remote control not possible at present.
5	Circuit breaker trip state		Circuit breaker not tripped
			Circuit breaker tripped

RCA iC60 Remote Control With Ti24 Interface

A9C70122
A9C70124
Mode 1
Mode 3



1 Operation mode selector switch (mode 1 A, mode 1 B, mode 3 A, mode 3 B)
2 Operating state LED
3 Ti24 interface terminal block
4 Sealing of operating modes
5 Remote control inhibition selector switch
6 Padlocking device (RCA iC60 remote control padlocking)
7 Circuit breaker state indication contact terminal
8 Circuit breaker trip state LED (mechanical LED)
9 Opening/closing handle for RCA iC60 remote control
10 Y1/Y2 control input terminal block
11 230 Vac power supply terminal block

Selector switches on the RCA iC60 remote control with Ti24 interface:

No.	Switch	Position	Description
1	Operation mode	Mode 1 A 	Mode A: Reclosing authorized after tripping. Remote control set to mode 1.
		Mode 1 B 	Mode B: Reclosing inhibited after tripping. Remote control set to mode 1.
		Mode 3 A 	Mode A: Reclosing authorized after tripping. Remote control set to mode 3.
		Mode 3 B 	Mode B: Reclosing inhibited after tripping. Remote control set to mode 3.
5	Inhibition of remote control		Remote control inhibited
			Remote control authorized

LEDs on the RCA iC60 remote control with Ti24 interface:

No.	LED	State	Description
2	Remote control operating state		Remote control is operational. All of these conditions are satisfied: ● Voltage present ● Remote control authorized (inhibition selector switch set to auto) ● Remote control overheat protection not tripped
			Remote control is not operational. One of these conditions is satisfied: ● Remote control not authorized (inhibition selector switch set to OFF) ● Reclosing after tripping not authorized (operating mode selector switch set to B)
			Remote control overheat protection tripped Remote control not possible at present.
8	Circuit breaker trip state		Circuit-breaker not tripped
			Circuit-breaker tripped

Technical Characteristics

General Characteristics

Characteristics		Value
Degree of protection (IEC 60529)	Device alone	IP20
	Device in a modular enclosure	IP40 (insulation class II)
Degree of protection (IEC 62262:2002)		IK05
Degree of pollution (IEC 60947)		3
Rail mounting		35 mm DIN
Installation position		Any
Supply voltage Ue		230 Vac, 50–60 Hz
Insulation voltage Ui		phase-neutral: 250 V
Rated impulse withstand voltage Uimp		• 4 kV (OVC III class 1) • 6 kV (OVC III class 2) on the product front panel and on the 24 V interface (Ti24)
Operating temperature		-25°C to +60°C
Storage temperature		-40°C to +85°C
Tropicalization		Execution 2 (93% relative humidity at +40°C)
Weight		< 0.5 kg
Mechanical durability (NC/NO)		10,000 cycles
Resistance to voltage dips		IEC 61 000-4-11 class III
Immunity to power supply frequency variation		IEC 61 000-4-28 and IACS E10
Harmonic resistance		IEC 61 000-4-13 class 2
Immunity to electrostatic discharge	air	8 kV, IEC 61 000-4-2
	contacts	4 kV, IEC 61 000-4-2
Immunity to radiated magnetic fields		12 V/m up to 3 GHz, IEC 61 000-4-3
Immunity to fast transients		4 kV from 5 to 100 kHz, IEC 61 000-4-4
Surge immunity		IEC 61 000-4-5
Immunity to conducted magnetic fields		10 V from 150 kHz to 80 MHz, IEC 61 000-4-6
Immunity to magnetic fields at line frequency		level 4 30 A/m according to IEC 61 000-4-8 and IEC 61 000-4-9
Fire resistance (glow wire)	for live parts	960°C 30 s/30 s according to IEC 60 695-2-10 and IEC 60 695-2-11
	for other parts	650°C 30 s/30 s according to IEC 60 695-2-10 and IEC 60 695-2-11
	for handle	750°C 30 s/30 s according to IEC 60 695-2-10 and IEC 60 695-2-11
Conducted emissions		CISPR 11/22
Radiated emissions		CISPR 11/22
Resistance to corrosive atmospheres (4-gas test)		IEC 60721-3-3 category 3C2
Salt mist		Severity 2 according to IEC 60068-2-52
Environment		Conforms to RoHS directives, halogen free

Control Circuit

Characteristics		Value
Control voltage Uc of inputs Y1, Y2		230 Vac (according to IEC 61131)
Duration of command pulse for input Y2	Minimum	200 ms
	Maximum	–
Maximum response time of RCA iC60 remote control		500 ms
Consumption		≤ 1 W
Inrush consumption		1000 VA for 1P and 2P RCA iC60 1400 VA for 3P and 4P RCA iC60
Length of control wires for inputs Y1 and Y2 under 230 Vac		• cable: 100 m • wires in a cable sheath: 500 m

Remote Indication/Control

Characteristics		Value
Capacity of OF changeover contact	Minimum	10 mA (24 Vac/dc)
	Maximum	1 A (230 Vac)
Consumption of inputs Y1/Y2		230 Vac type 1 according to IEC 61131-2

NOTE: OF contacts can change state for less than 10 ms. These brief changes of state (bounce) must not be taken into account and must be filtered by a device external to RCA iC60.

Ti24 Interface (According to IEC 61131)

Characteristics	Value
Consumption of input Y3	230 Vac type 1 according to IEC 61131-2
Maximum capacity of OF/SD outputs	100 mA DC according to IEC 61131-2
Length of control wires for finput Y3 under 24 Vdc/Ac	500 m

Chapter 2
Installation

What Is in This Chapter?

This chapter contains the following topics:

Assembly

Introduction

The RCA iC60 remote control is used in conjunction with an iC60 circuit breaker for its remote control. It is possible to add optional auxiliaries to the iC60 + RCA iC60 unit.

Rules for Combination With Circuit Breakers

The table below shows the rules for combining RCA iC60 remote controls with iC60 circuit breakers, based on the number of poles on each unit.

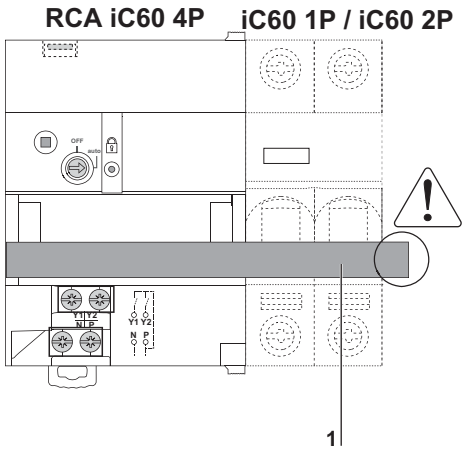
	iC60 1P	iC60 2P	iC60 3P	iC60 4P
RCA iC60 2P	√	√	–	–
RCA iC60 4P	–	–	√	√

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Do not use an RCA iC60 4P remote control with iC60 1P or 2P circuit breakers. The second circuit breaker connected is at risk of being pulled away by the RCA iC60 remote control handle.

Failure to follow these instructions will result in death or serious injury.



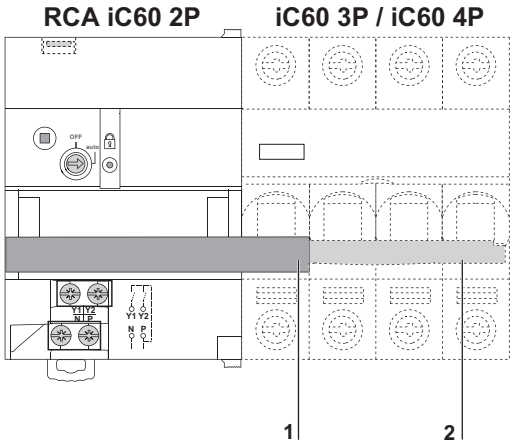
1 Opening/closing handle for RCA iC60 remote control

NOTICE

HAZARD OF IMPROPER OPERATION

Do not use an RCA iC60 2P remote control with iC60 3P or 4P circuit breakers.

Failure to follow these instructions can result in equipment damage.



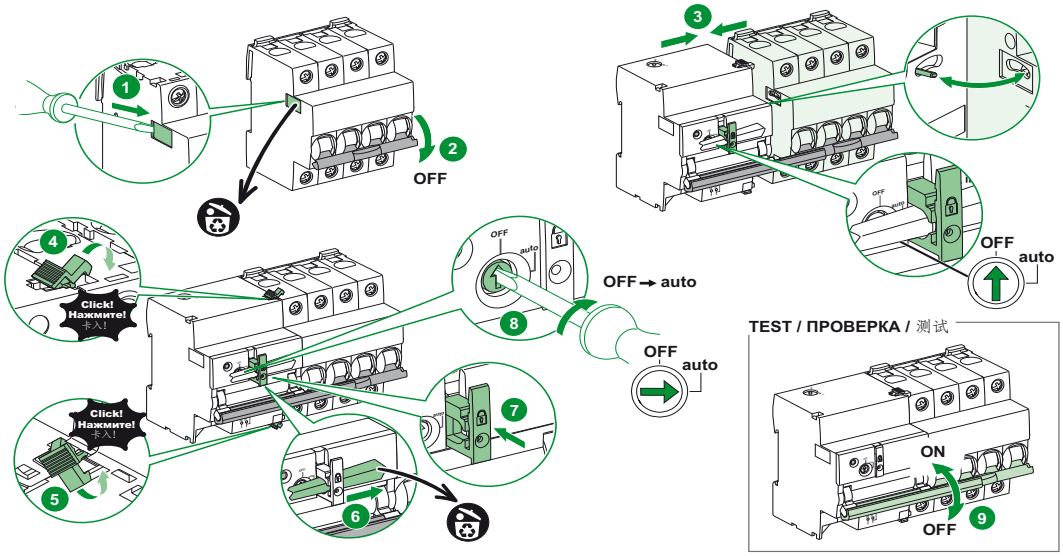
1 Opening/closing handle for RCA iC60 remote control
2 Opening/closing handle for iC60 circuit breaker

Assembly Procedure With Circuit Breaker

Requirements:

- Move the RCA iC60 remote control handle to the open position (OFF).
- Move the iC60 circuit breaker handle to the open position (OFF).
- Check that the padlocking device on the RCA iC60 remote control is open (device pulled out).

Step	Action
1	Remove the blanking plate on the left-hand side of the iC60 circuit breaker using a screwdriver.
2	• Set the remote control inhibitor switch to OFF to unlock the padlocking device. • Connect the RCA iC60 remote control to the iC60 circuit breaker, ensuring that the release rod is inserted correctly.
3	Close the locking tab located on top of the RCA iC60 remote control.
4	Close the locking tab located underneath the RCA iC60 remote control.
5	On a new product remove the piece of card holding the padlocking device in the open position.
6	Push back the padlocking device.
7	Check that the unit has been assembled correctly by moving the handle from the ON to the OFF position and back again.



Assembly with Optional Auxiliaries

Once the RCA iC60 remote control has been assembled with the iC60 circuit breaker, the following auxiliaries can be added:

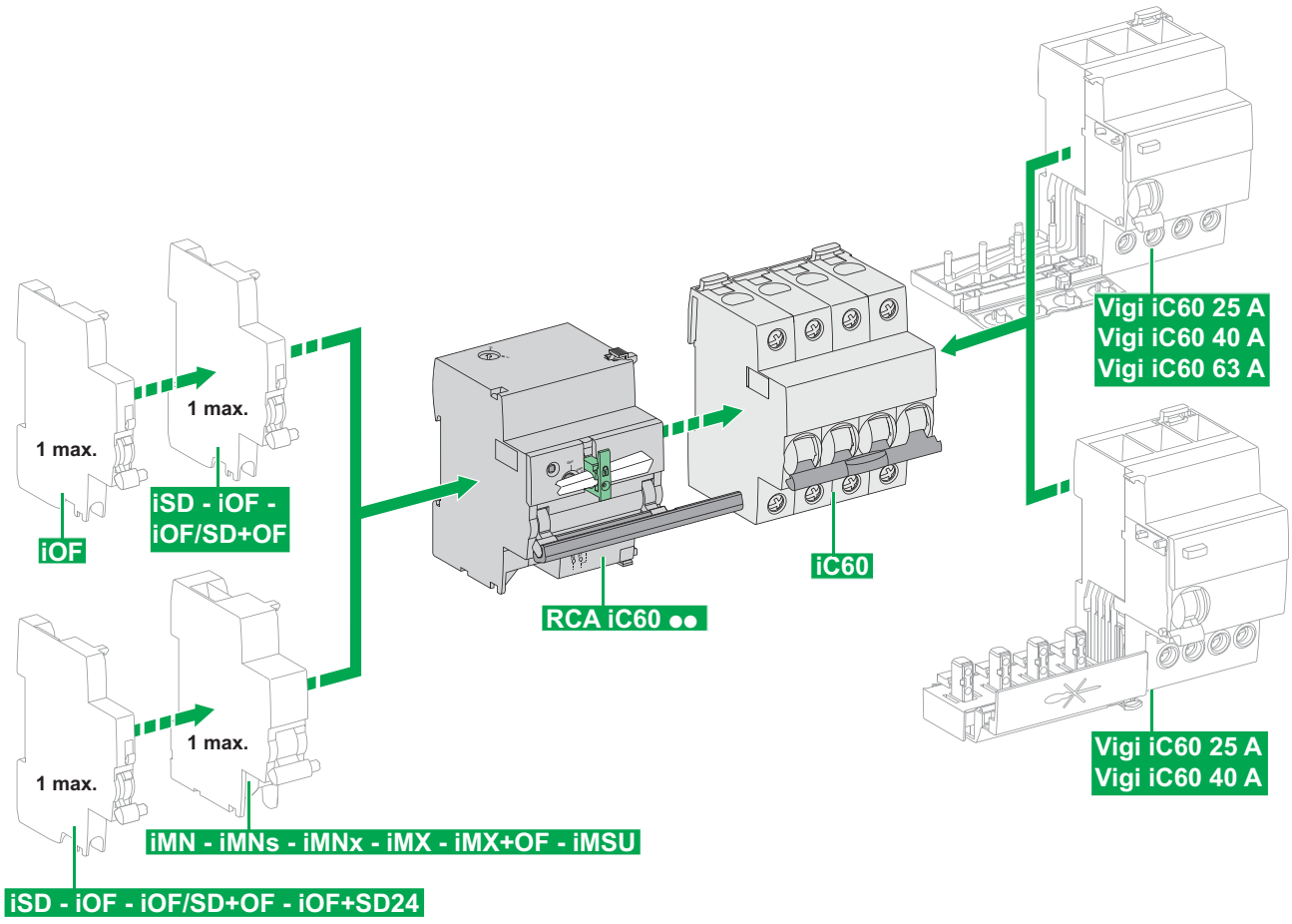
- 1 Vigi iC60 auxiliary
- A maximum of 2 circuit breaker indication or tripping auxiliaries, subject to the combination rules specified in the table below.

The following table shows the possible combinations of indication or tripping auxiliaries in position 2 depending on the auxiliary in position 1. The auxiliary in position 1 is located closest to the remote control.

Position 1° / 2°	iOF	iSD	iOF/SD+OF	iOF+SD24	iMX	iMX+OF	iMN	iMNs	iMNx	iMSU
iOF	√	√	√	–	√	√	√	√	√	√
iSD	–	–	–	–	√	√	√	√	√	√
iOF/SD+OF	–	–	–	–	√	√	√	√	√	√
iOF+SD24	–	–	–	–	√	√	√	√	√	√
iMX	–	–	–	–	–	–	–	–	–	–
iMX+OF	–	–	–	–	–	–	–	–	–	–
iMN	–	–	–	–	–	–	–	–	–	–
iMNs	–	–	–	–	–	–	–	–	–	–
iMNx	–	–	–	–	–	–	–	–	–	–
iMSU	–	–	–	–	–	–	–	–	–	–

The indication or tripping auxiliaries:

- Must be mounted to the left of the RCA iC60 remote control
- Must not be mounted between the RCA iC60 remote control and the iC60 circuit breaker



Assembly Procedure with Auxiliaries

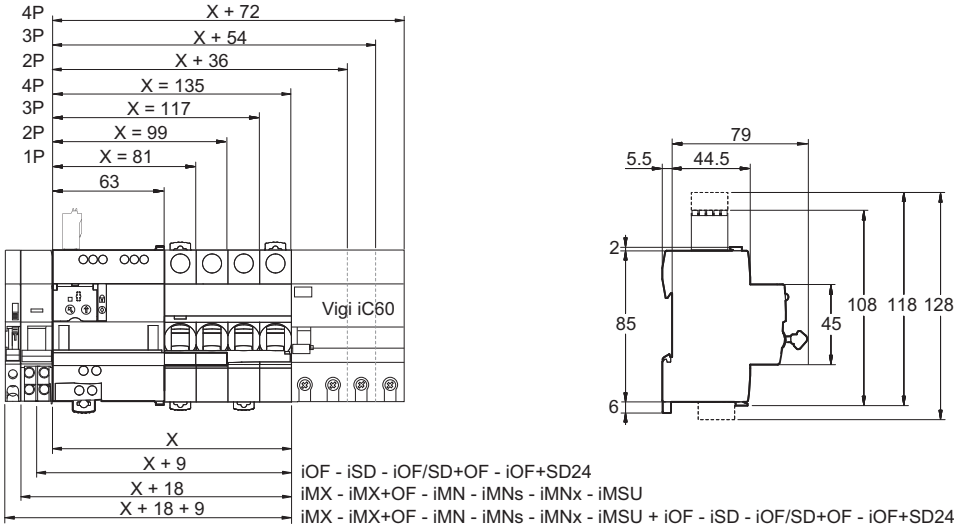
Requirements:

- Move the RCA iC60 remote control handle to the open position (OFF).
- Move the iC60 circuit breaker handle to the open position (OFF).
- Check that the padlocking device on the RCA iC60 remote control is open (device pulled out).

Step	Action
1	Remove the blanking plate on the left-hand side of the RCA iC60 remote control using a screwdriver.
2	• Set the remote control inhibitor switch to OFF to unlock the padlocking device. • Assemble the RCA iC60 remote control with the auxiliary.
3	On a new product remove the piece of card holding the padlocking device in the open position.
4	Push back the padlocking device.
5	Check that the unit has been assembled correctly by moving the handle from the ON to the OFF position and back again.
6	Follow the same procedure to add an additional auxiliary.

Dimensions

The dimensions of the RCA iC60 remote control assembled with an iC60 circuit breaker and, optionally, with a Vigi iC60 and an indication/tripping auxiliary are as follows:



The widths of the indication/tripping auxiliaries are as follows:

Auxiliary	Type	Width
Indication	iOF - iSD - iOF/SD+OF - iOF+SD24	9 mm
Tripping	iMX - iMX+OF - iMN - iMNs - iMNx - iMSU	18 mm
Indication + tripping	iOF - iSD - iOF/SD+OF - iOF+SD24 + iMX - iMX+OF - iMN - iMNs - iMNx - iMSU	27 mm

The additional widths of the Vigi iC60 auxiliaries are as follows:

Auxiliary	Type	Width
Vigi iC60	2P	36 mm
	3P	54 mm
	4P	72 mm

Connection

Safety Instructions

⚠ ⚠ DANGER

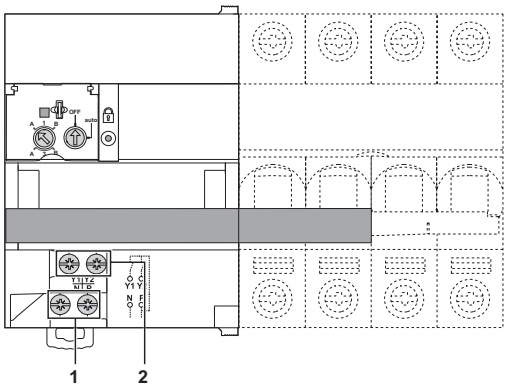
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Wear appropriate personal protective equipment and follow the standard electrical safety precautions.
- Only qualified electricians who have read the relevant instructions are authorized to install this equipment.
- NEVER work alone.
- Disconnect all current and voltage sources before carrying out visual inspections, testing or maintenance work on this equipment. Always assume that all circuits are live until they have been de-energized, tested and labeled. Pay particular attention to the design of the power supply circuit. Take account of all power supply sources, including in particular feedback possibilities.
- Before closing the covers and doors, carefully inspect the working area to ensure that no tools or other items have been left inside the equipment.
- Take care when removing or replacing panels. In particular, make sure that they do not touch live busbars. To minimize the risk of injury, avoid handling panels.
- If this equipment is to remain in good working order it must be handled, installed and operated correctly. Failure to comply with basic installation instructions may lead to injury and may damage the electrical equipment or other property.
- NEVER shunt an external fuse/circuit breaker.
- This equipment must be installed inside a suitable electrical cabinet.

Failure to follow these instructions will result in death or serious injury.

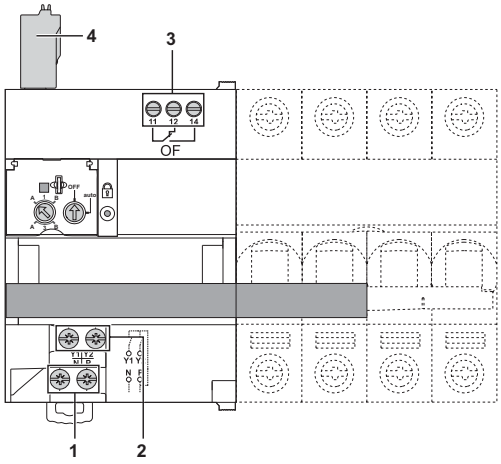
Connection Blocks

The figure below shows the 2 connection blocks for an RCA iC60 remote control without Ti24 interface.



1 230 V AC power supply terminal block
2 Y1/Y2 control input terminal block

The figure below shows the 4 connection blocks for an RCA iC60 remote control with Ti24 interface.



1 230 Vac power supply terminal block
2 Y1/Y2 control input terminal block
3 OF circuit breaker state indication contact terminal block
4 Ti24 interface I/O terminal block

Description of Terminals

1 230 Vac power supply terminal block

Terminals	Function
N	Neutral
P	Phase

2 Y1/Y2 control input terminal block

Terminals	Function
Y1	Mode 1: latched order local control input Mode 3: remote control authorization with Y3 (Y1: latched order control)
Y2	Mode 1: impulse-type local control input Mode 3: local control override (Y2: latched order control)

3 OF circuit breaker state indication contact terminal block

Terminals	Contact	Function
11-14	NO (normally open)	Circuit breaker state: open
11-12	NC (normally closed)	Circuit breaker state: closed

4 Ti24 interface I/O terminal block (A9C70122, A9C70124)

Terminal	Function
0 V	0 Vdc power supply
OF	Control circuit state indication (open/closed)
$\overline{SD}$	Circuit breaker tripping indication
Y3	Latched order centralized control input
24 V	24 Vdc power supply

Connection Characteristics

No.	Terminal block	Tightening torque	Stripping length	Wire size			
				Solid	Flexible	Flexible with ferrule	2 cables
1	Power supply (230 Vac)	1 N.m	10 mm	0.5 to 10 mm²	0.5 to 6 mm²	0.5 to 4 mm²	0.5 to 2.5 mm²
2	Inputs Y1/Y2						
3	OF output	0.7 N.m	8 mm	0.5 to 2.5 mm²		0.5 to 1.5 mm²	0.5 to 1.5 mm²
4	TI24 interface	–	10 mm	0.2 to 1.5 mm²		0.25 to 0.75 mm²	–

Wiring Schemes

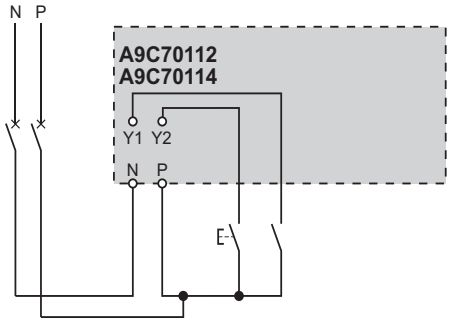
NOTICE

RISK OF MALFUNCTION

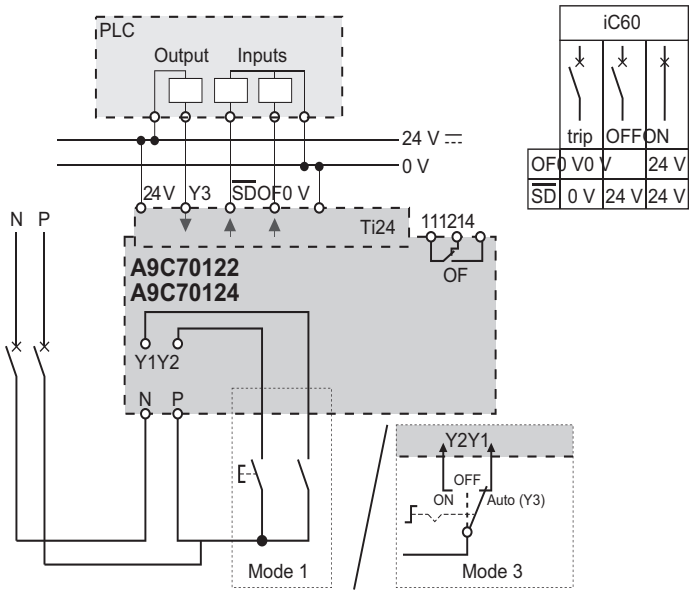
- In three-phase applications, use the same phase to connect the power supply and inputs Y1 and Y2.
- The recommended power rating of the RCA iC60 remote control power supply is at least 500 VA. If the RCA iC60 remote control is used in conjunction with auxiliaries, the power rating of the RCA iC60 remote control power supply must be greater than or equal to 1000 VA.

Failure to follow these instructions can result in equipment damage.

The diagram below shows the connection of an RCA iC60 remote control without Ti24 interface:



The diagram below shows the connection of an RCA iC60 remote control with Ti24 interface:

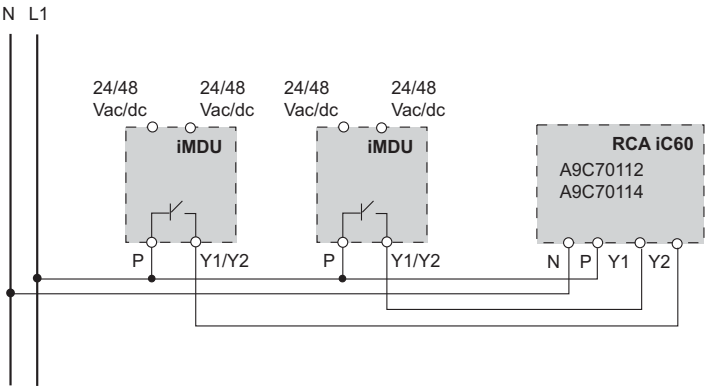


NOTE: The OF contact information (control circuit state indication - open/closed) must be filtered for a minimum time of 10 milliseconds.

Power Supply to Control Inputs via an iMDU Auxiliary

The Y1/Y2 control inputs of RCA iC60 remote controls operate with a voltage of 230 Vac. An iMDU auxiliary allows an RCA iC60 remote control to be controlled by means of a 24/48 Vac/dc output.

The diagram below shows the connection of the control inputs of the RCA iC60 remote control by means of iMDU auxiliaries.



The catalog number for the iMDU auxiliary can be found in the corresponding section *(see page 11)*.

Chapter 3
Use

What Is in This Chapter?

This chapter contains the following topics:

Safety Instruction

Safety Message

NOTICE
RISK OF DAMAGING THE RCA iC60 SWITCHGEAR When the switch is OFF, position the padlocking device in retracted position before moving the lever. **Failure to follow these instructions can result in equipment damage.**

Operation Modes

Introduction

All versions of the RCA iC60 remote control, with and without TI24 interface, have 2 control inputs (Y1 and Y2). In addition, the version with TI24 interface has an additional control input (Y3) dedicated to control from a PLC.

The RCA iC60 version without Ti24 interface has just one operating mode (mode 1). The RCA iC60 version with Ti24 interface has two operating modes (mode 1 and mode 3).

The RCA iC60 version with Ti24 interface allows remote indication of the circuit breaker state.

Description of the Operation of Mode 1 for Versions Without Ti24 Interface

Mode 1 is used for local opening/closing of the circuit breaker:

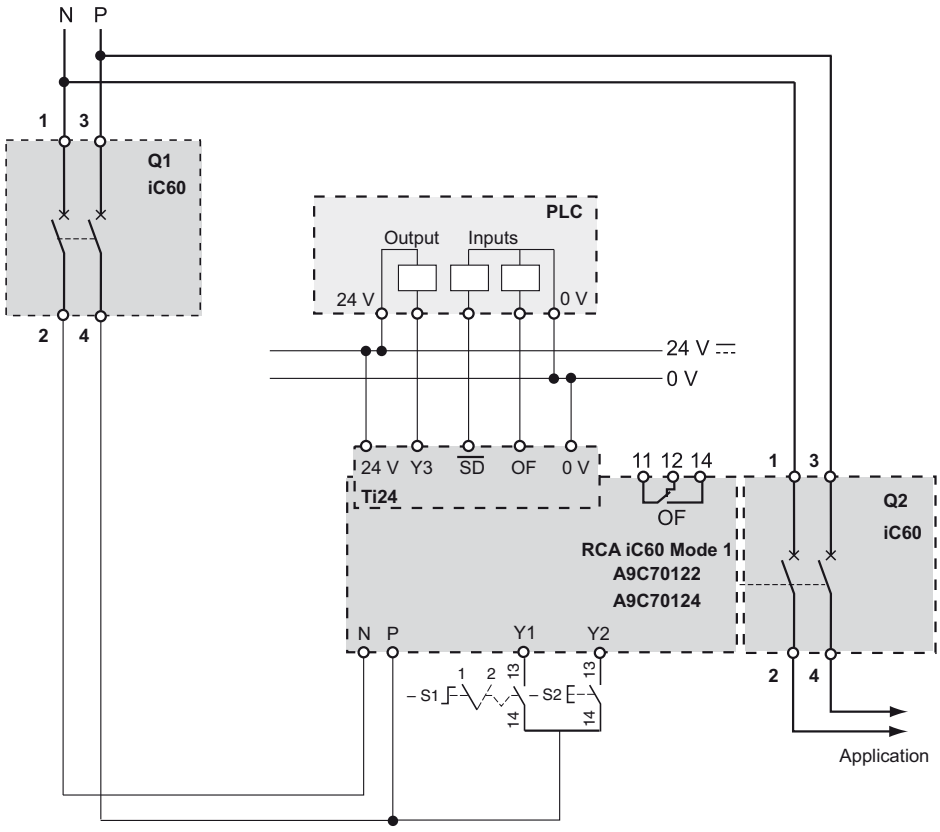
- The commands come from different control points; they are executed in the order in which they arrive.
- Y1: Latched order local control
- Y2: Impulse-type local control

Description of the Operation of Mode 1 for Versions With Ti24 Interface

Mode 1 is used for local or centralized opening/closing of the circuit breaker:

- The commands come from different control points; they are executed in the order in which they arrive.
- Y1: Latched order local control
- Y2: Impulse-type local control
- Y3 (Ti24): Latched order centralized control

The figure below shows a connection example for a remote control operating in mode 1 with Ti24 interface:



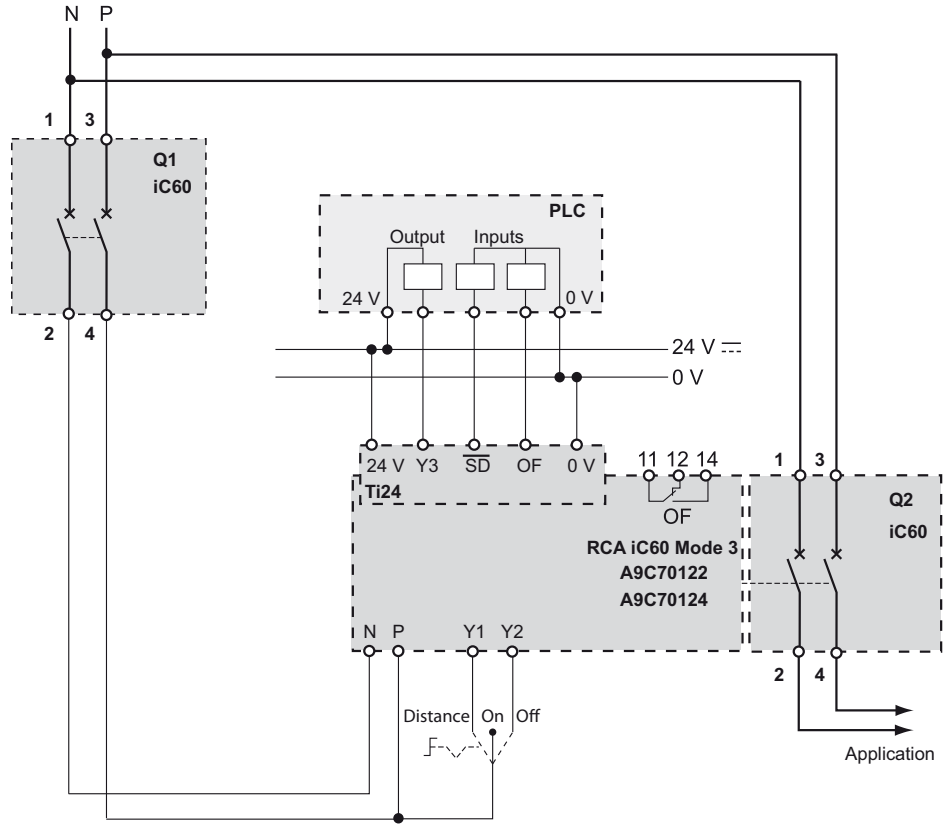
NOTE: The OF contact information (control circuit state indication - open/closed) must be filtered for a minimum time of 10 milliseconds.

Description of the Operation of Mode 3 for Versions With Ti24 Interface

Mode 3 is used for centralized opening/closing of the circuit breaker and local override. There are 3 positions, giving a choice between:

- Centralized control by PLC
- Local forced start
- Local forced stop

The figure below shows a connection example for a remote control operating in mode 3:



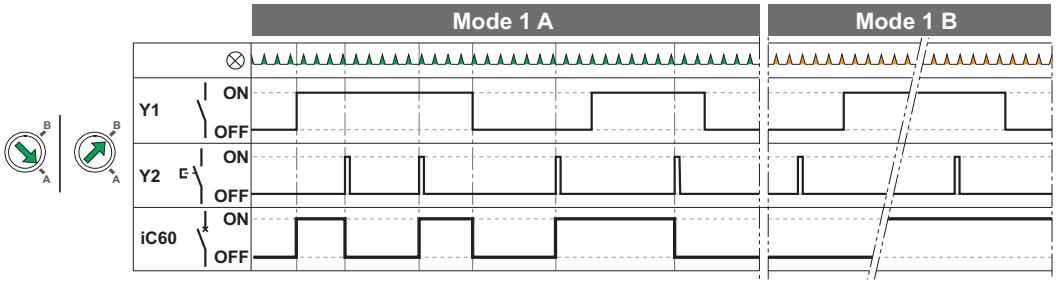
NOTE: The OF contact information (control circuit state indication - open/closed) must be filtered for a minimum time of 10 milliseconds.

Operation in Mode 1 for Versions Without Ti24 interface

Operation is as follows:

- When input Y1 is set to 1 the circuit breaker is closed; when input Y1 is set to 0 the circuit breaker is open.
- A pulse at input Y2 causes the circuit breaker to change state (open/closed).

The figure below shows the operation of the version without Ti24 interface.

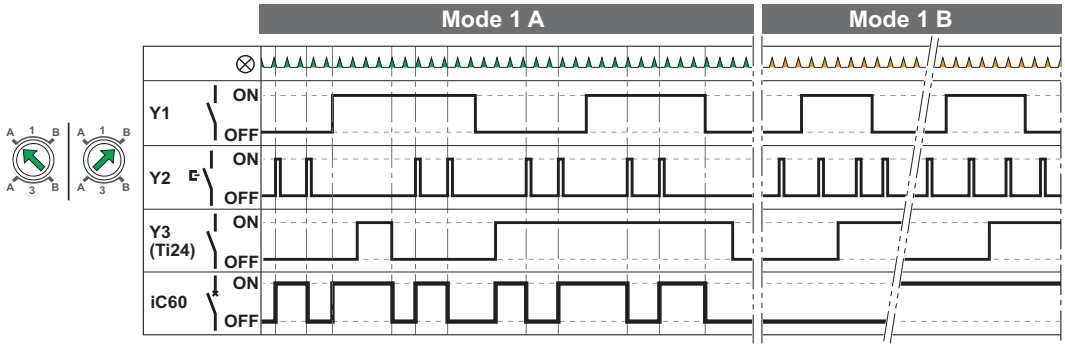


Operation in Mode 1 for Versions With Ti24 interface

Operation is as follows:

- When input Y1 or input Y3 (Ti24) is set to 1, the circuit breaker is closed; when input Y1 and input Y3 (Ti24) are set to 0, the circuit breaker is open.
- A pulse at input Y2 causes the circuit breaker to change state (open/closed).

The figure below shows the operation in mode 1 of versions with Ti24 interface.



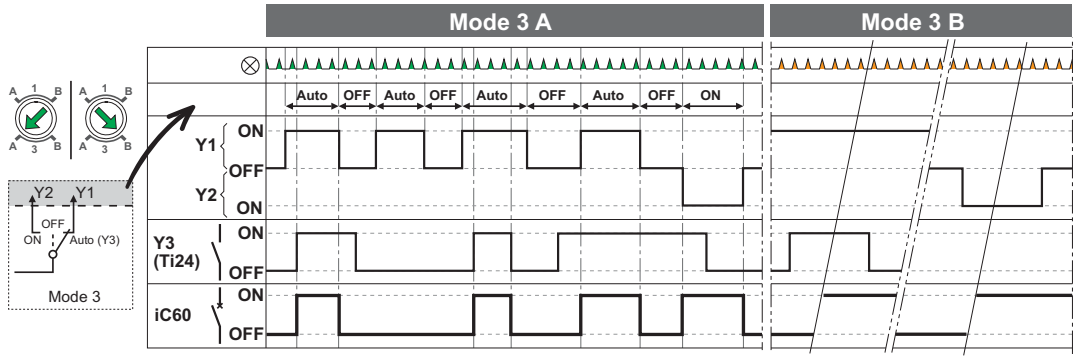
Operation in Mode 3 for Versions With Ti24 interface

Mode 3 is designed for applications with centralized control. It allows the operation to be manually overridden if necessary.

Operation is as follows:

State of Inputs Y1 and Y2		Operation	Description
Y1	Y2		
0	1	Forced start	The circuit breaker is closed
0	0	Stop	The circuit breaker is open
1	0	Centralized control	The circuit breaker is controlled by input Y3 (Ti24)

The figure below shows the operation in mode 3 of versions with Ti24 interface.



RCA iC60 Remote Control Automatic Overheat Protection

Description

If the RCA iC60 remote control receives too many control orders in too short a time period, overheat protection is automatically activated (Overheat) to limit the device's potential temperature rise and maintain its service life.

Remote control is then not possible and the status LED flashes slowly orange .

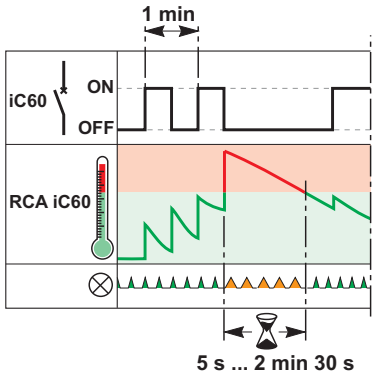
This safety feature is automatically disabled when the device's estimated temperature returns to a satisfactory level. Control is then possible again and the status LED flashes green .

Operating Principle

The remote control does not incorporate an internal temperature sensor. Its temperature therefore cannot be measured; it can only be estimated by an algorithm that takes account of the following criteria:

- The frequency of control orders
- The duration of control orders
- The cooling time between two control orders

The figure below shows how remote control overheat protection works.



If the time between 2 controls is less than 1 minute, the RCA iC60 remote control is likely to switch to automatic overheat protection for a period of between 5 seconds and 2 minutes 30 seconds.

Activation of Overheat Protection

During normal remote control operation, overheat protection will hardly ever be activated, since circuit breaker control does not require a high frequency of commands.

Overheat protection will be activated more frequently at the time the device is installed or during the test phase when it needs to be controlled more frequently.

Correct Use of the RCA iC60 Remote Control

Overheat protection is at its minimum level if the device has not received a control order for 1 hour. It is then possible to carry out 16 successive contact open or close orders before overheat protection is activated.

The remote control can tolerate a rate of 1 contact opening/closing cycle per minute. If this frequency increases, overheat protection is likely to activate automatically.

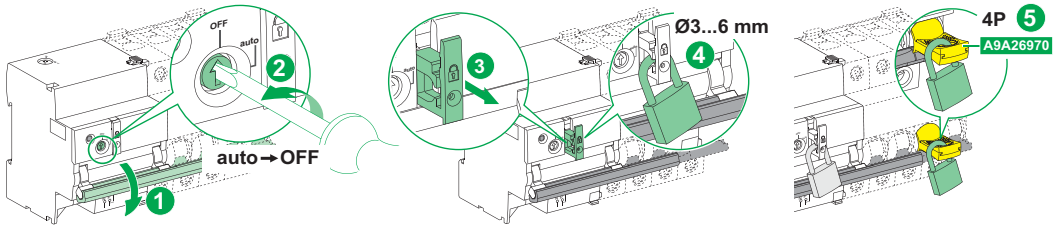
When overheat protection is activated for the first time, it lasts approximately 5 seconds. This duration then increases to allow the device to cool between two successive control orders. The maximum duration for overheat protection is 2 minutes 30 seconds.

NOTE: Cutting the power to the remote control does not reset the overheat protection algorithm.

Padlocking and Sealing

Padlocking

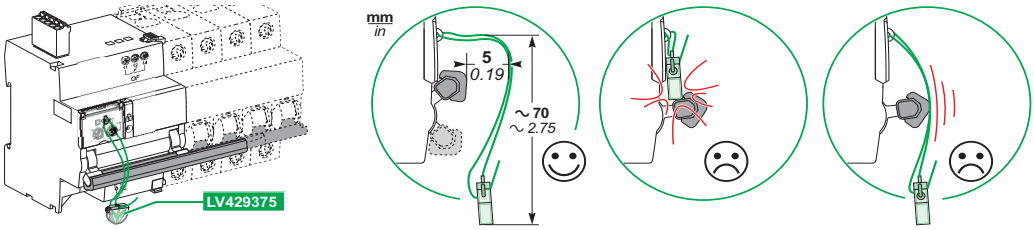
This procedure shows how to padlock the remote control and the circuit breaker before starting electrical work. It is impossible to reclose the remote control and circuit breaker either remotely or locally without removing the padlock and pushing in the padlocking device.



Step	Action
1	Open the circuit breaker by moving the handle down.
2	Set the remote control inhibitor switch to the OFF position.
3	Pull out the RCA iC60 remote control padlocking device.
4	Attach the padlock (diameter 3 to 6 mm) to the padlocking device.
5	On 3P/4P circuit breaker modules attach a second padlock to the circuit breaker using the A9A26970 accessory.
6	The remote control and the circuit breaker are electrically padlocked.

Sealing the Front Panel

The RCA iC60 remote control versions with Ti24 interface have a sealable cover to prevent access to the operating mode settings. The LV429375 sealing kit should be used. As illustrated in the figure below, the sealing wire should be shaped to ensure it remains outside the range of movement of the handle.



Chapter 4
Application Examples

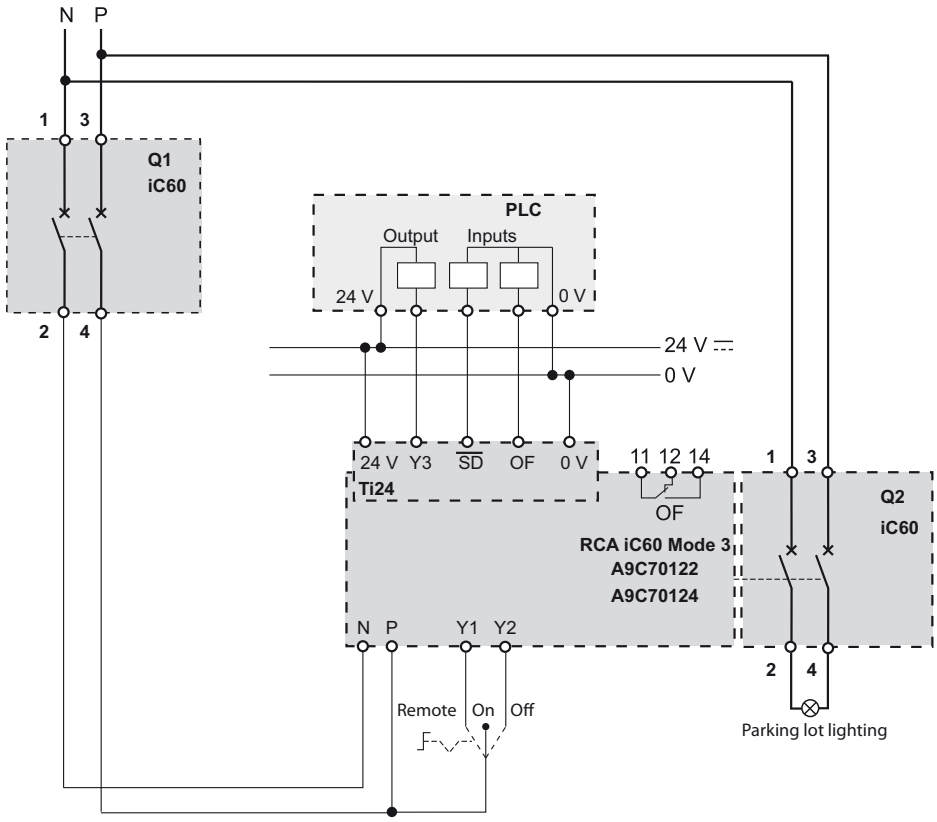
What Is in This Chapter?

This chapter contains the following topics:

Application Example of Remote Control With Ti24 Interface in Mode 3

Application Example of Supermarket Parking Lot Lighting

The diagram below represents the use of the remote control operating in mode 3 for supermarket parking lot lighting.



NOTE: The OF contact information (control circuit state indication - open/closed) must be filtered for a minimum time of 10 milliseconds.

The 3-position selector switch can be used to select the following functions:

- Remote: installation controlled remotely via PLC
- Off: local forced stop of installation
- On: local forced start of installation

Normal control of the lighting circuit is via the PLC. If the PLC is unavailable or if an exception occurs, the operator can manually override a control using a 3-position selector switch:

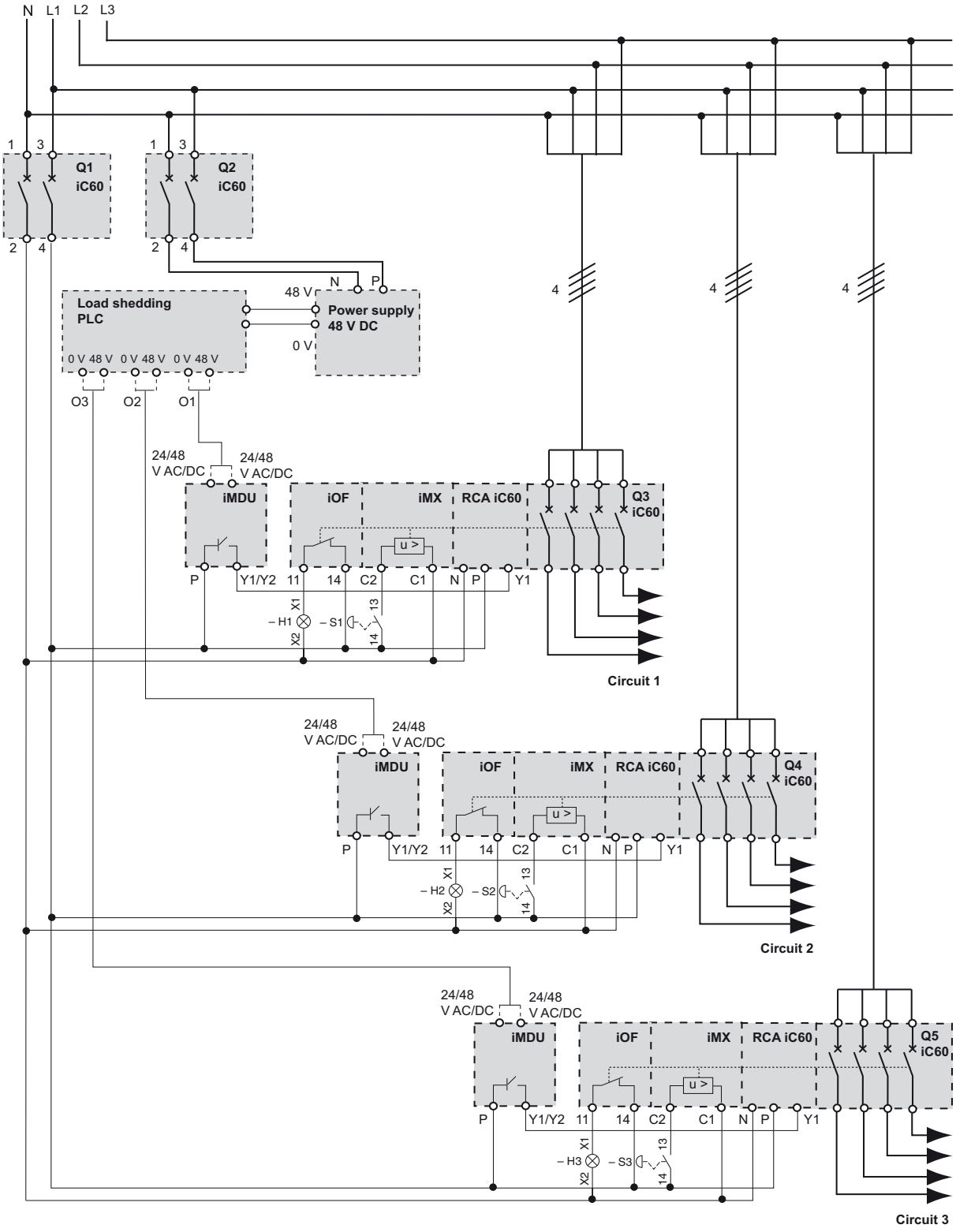
- Remote position: only commands from the PLC are executed
- Off position: commands from the PLC are not executed; the lighting circuit remains open
- On position: commands from the PLC are not executed; the lighting circuit remains closed

Application Example of Remote Control Without Ti24 Interface

Application Example of a Start of Group With Remote Control

The RCA iC60 remote control can be used to reclose a start of group remotely, following an emergency stop trip, without the need for manual intervention on the panel. The operating mode selector switch must be set to A (remote reclosing of the circuit breaker authorized after tripping). Each circuit can be independently de-energized locally to allow maintenance work, etc.

The diagram below represents the use of the remote control to control several circuits simultaneously.



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