This document contains general descriptions and/or general technical specifications of the products mentioned. It cannot be used to determine the suitability or reliability of these products for specific user applications. It is the responsibility of each user or integrator to conduct the appropriate risk analysis in full, assessing and testing products as regards the application in which they will be used and the execution of this application. Neither Schneider Electric nor any of its affiliated companies or subsidiaries can be held responsible for incorrect use of the information contained in this document. If you have any suggestions for improvements or correction, or have found errors in this publication, please notify us.

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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 ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When equipment is used for applications with technical safety requirements, follow the relevant instructions.

Failure to use Schneider Electric software or approved software with our hardware products may result in injury, harm, or improper operation.

Failure to follow this instruction can result in injury or equipment damage.

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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 one of these symbols to a "Danger" safety label on a device indicates that an electrical hazard exists, which will result in death or personal injury if the instructions are not followed.

This is the safety alert symbol. It warns you of a risk of physical injury. You must comply strictly with the safety instructions associated with this symbol to avoid injuring yourself or putting your life in danger.

**DANGER**

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

**WARNING**

**WARNING** indicates a potentially hazardous situation which could result in death or serious injury.

**CAUTION**

**CAUTION** indicates a potentially hazardous situation which could result in minor or moderate injury.

**NOTICE**

**NOTICE** indicates practices that do not involve the risk of bodily injury.

PLEASE NOTE

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

A qualified person is one who has skills and knowledge related to the construction, operation and installation of electrical equipment, and has undertaken safety training in how to identify and avoid the hazards involved.
At a Glance

Aim of This Document
This manual provides diagnostic assistance in the form of logic diagrams.

Area of Application
The Acti 9 communication system can be easily integrated into any building management architecture. It combines command and control functions and protection functions designed for energy efficiency solutions in any type of environment. Based on the Modbus master protocol, the Acti 9 communication system allows data to be exchanged with switchboards in real time. Monitoring and command and control are therefore possible for each circuit or load. This system's pre-wired connectors can save time and prevent wiring errors during installation.

Reference Documents

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User Comments
We welcome your comments about this document. You can reach us by e-mail at techpub@schneider-electric.com.
Acti 9 Smartlink Diagnostics

General Flow Chart

Checks to be performed first:
- the Modbus master is operative and sending requests

Problem on all Acti 9 Smartlinks in a Modbus master loop?

Problem on a single Acti 9 device connected to the Acti 9 Smartlink?

Problem on changes of state only?

Case 1 diagnostics page 8

Case 2 diagnostics page 10

Checks:
- conformity of the Modbus master wiring rules
- presence of the Modbus master network
- 24 V DC power supply

Comments
Case 3 diagnostics page 12

Case 4 diagnostics page 14

Case 5 diagnostics page 16

Case 6 diagnostics page 18

Case 7 diagnostics page 20

Case 8 diagnostics page 22
Case 1 - Problem on All Devices on an Acti 9 Smartlink

No communication or communication fault between the Modbus master and one of the Acti 9 Smartlink slaves.

Note: the other Acti 9 Smartlinks, on the same Modbus master line, are operational.

Checks to be performed first:
- check the connection between the Modbus master and Acti 9 Smartlink
- check that the 24 V DC power supply is powered up
- check presence of the master transmission from the Modbus master line

Check the 24 V DC power supply circuit

Voltage present at the Acti 9 Smartlink 24 V terminals?

Set the thumbwheels to the chosen slave address

"Status" LED color?

"COM" LED active?

"COM" LED flashing?

Comments
Auto-go running (slave auto-configuration sequences)

End of the Auto-go sequence?

Communication established?

Intermittent loss of communication?

Probable causes: EMC

Probable causes: lightning strike

Probable causes: 230 V on 24 V DC circuit

Probable causes: EMC

Wiring conformity checks:
- Modbus master (screening shield, twisted wires)
- ground, polarity, 2 or 4 wires for all slaves, matching, etc.

One of the Acti 9 Smartlink channels is short-circuited or overloaded

Disconnection of channel x

“Status” LED green?

Have all the channels been disconnected?

OK

Brought into conformity?

Disconnect the pre-wired connectors individually one after another to identify the faulty channel

End of the Auto-go sequence?

OK

Checks: conformity of the Modbus wiring rules (ground, polarity, 2 or 4 wires for all slaves, matching, etc.)

Find and eliminate the causes

Consider replacing the Acti 9 Smartlink
Case 2 - Problem on Changes of State Only
Problem with an Acti 9 device connected to the Acti 9 Smartlink: changes of state not seen by the Modbus master.

Note: products connected on the other channels are working.

Devices with 230 V AC power supply
- Reflex iC60
- iACT24
- iATL24
- RCA

Devices without power supply
- OF+SD24 for iC60, iID, ARA, RCA
- OF+SD24 for C60, C120, DPN

Checks to be performed first:
- check that the pre-wired connector is in place
- check that the link between the auxiliary and its product is working

Device requiring a 230 V power supply?
- NO

Device supplied with 230 V?
- YES

Check the power supply circuit and whether the 230 V AC power supply is present at the terminals
- NO

Check and consider replacing the pre-wired connector
- YES
Changes of state seen by the Modbus master?

NO

YES

OK

Consider replacing the device

Consider that the Acti 9 Smartlink channel may be faulty
Case 3 - Reflex iC60
Problem with an Reflex iC60 connected to the Acti 9 Smartlink: the Reflex iC60 cannot be controlled remotely from the Modbus master.

Note: products connected on the other channels are working.

Checks to be performed first:
- check that the pre-wired connector is in place
- check the mode configured on Reflex iC60
- check that it is consistent with the control circuit diagram

Is the Reflex iC60 powered up? (LED on)
- YES
  - Is the LED on the Reflex iC60 flashing red?
    - YES
      - Overheat protection active. Wait for automatic restarting
    - NO
      - Is control possible from the PB on the front panel?
        - YES
          - Reclose the Reflex iC60 (handle on Auto)
        - NO
          - Is the handle on the Reflex iC60 on Auto?
            - YES
              - Reclose the Reflex iC60 (handle on Auto)
            - NO
              - Check the 230 V AC control circuit power supply is present

- NO
  - Check the 230 V AC control circuit power supply is present
  - Is the Reflex iC60 powered up? (LED on)
    - YES
      - Overheat protection active. Wait for automatic restarting
    - NO
      - Consider replacing the Reflex iC60
Consider replacing the Reflex iC60

The configured mode is consistent with the control diagram?

YES

Is the Reflex iC60 in mode 3?

YES

Is control possible from the Modbus master?

YES

Consider replacing the Reflex iC60

NO

Check and consider replacing the pre-wired connector

Is control possible from the Modbus master?

YES

Consider that the Acti 9 Smartlink channel may be faulty

NO

Check the wiring and position of the external switch “central-local”

Is input Y1 powered up?

YES

Is the Reflex iC60 in mode 3?

NO

Alter the mode selected on the Reflex iC60

The configured mode is consistent with the control diagram?

NO

Is control possible from the Modbus master?

NO

The configured mode is consistent with the control diagram?

YES

Is control possible from the Modbus master?

YES

The configured mode is consistent with the control diagram?
Case 4 - RCA

Problem with an RCA connected to the Acti 9 Smartlink: the RCA cannot be controlled remotely from the Modbus master.

*Note: products connected on the other channels are working.*

Checks to be performed first:
- check that the pre-wired connector is in place
- check that the mode configured on the RCA is consistent with the control circuit diagram

---

Is the RCA powered up? (LED on)?

- **YES**
  - Is the RCA on Auto (switch)?
    - **NO**
      - Check the 230 V AC control circuit power supply is present
    - **YES**
      - Is the RCA powered up? (LED on)?
        - **NO**
          - Check the wiring and position of the external switch "central-local"
        - **YES**
          - Color of the RCA LED?
            - **GREEN**
              - Mode 3 selected?
                - **NO**
                  - The RCA inhibitor switch is?
                    - **On B**
                      - Control impossible if the circuit breaker has opened due to an electrical fault!!
                    - **On A**
                      - RCA LED flashing?
                        - **Quickly**
                          - Overheat protection active. Wait for automatic restarting
                        - **Slowly**
                          - The RCA inhibitor switch is?
                            - **Set the RCA switch to Auto**

---

Comments
Check and consider replacing the pre-wired connector.

Consider that the Acti 9 Smartlink channel is faulty.
Case 5 - iACT24
Problem with an iACT24 connected to the Acti 9 Smartlink: the contactor cannot be controlled remotely from the Modbus master.
Note: products connected on the other channels are working.

Checks to be performed first:
- check that the pre-wired connector is in place
- check that the yellow clips are in place on the iACT24 and the ICT
- check that the local control diagram is consistent with central control

- Voltage present on the Ph/N terminals?
  - YES
  - NO
    - Voltage present on Y1?
      - YES
      - Contactor version with manual control?
        - NO
        - Set the contactor manual control to Auto
        - YES
      - NO
        - Check the 230 V AC control circuit power supply
        - YES
        - Check the position of the external switch AUTO - ON - OFF
        - NO

Comments
Is local control possible?

- NO: Consider replacing the iACT24 (+ ICT)
- YES: Check and consider replacing the pre-wired connector

Is control possible from the Modbus master?

- NO: Consider replacing the iACT24 (+ ICT)
- YES: Check and consider replacing the pre-wired connector

Is local control possible?

- NO: Consider replacing the iACT24 (+ ICT)
- YES: Check and consider replacing the pre-wired connector

Consider the Acti 9 Smartlink channel may be faulty

OK
Acti 9 Smartlink Diagnostics

Case 6 - iATL24
Problem with an iATL24 connected to the Acti 9 Smartlink: the contactor cannot be controlled remotely from the Modbus master.

Note: products connected on the other channels are working.

Checks to be performed first:
- check that the pre-wired connector is in place
- check that the yellow clips are in place on the iATL24 and the iTL
- check that the local control diagram is consistent with central control

Voltage present on the Ph/N terminals?

Voltage present on Y1?

Remote control switch version with AUTO-OFF switch?

Is the remote control switch AUTO-OFF switch set to Auto?

Check the external switch position AUTO - ON - OFF

Check the 230 V AC control circuit power supply

Set the remote control switch AUTO-OFF switch to Auto

Checks to be performed first:
- check that the pre-wired connector is in place
- check that the yellow clips are in place on the iATL24 and the iTL
- check that the local control diagram is consistent with central control

Comments
Check and consider replacing the pre-wired connector

Consider replacing the iATL24 (+TL)

Consider that the Acti 9 Smartlink channel may be faulty

Is local control possible?

Is control possible from the Modbus master?

Is control possible from the Modbus master?

Is control possible from the Modbus master?

OK

NO

NO

NO

YES

YES

YES

NO

NO

YES
Case 7 - Kilowatt-Hour Meter

Problem with a Schneider Electric kilowatt-hour meter connected to the Acti 9 Smartlink:
- no meter changes seen by the Modbus master.
- the meter value does not match the estimate.

Note: products connected on the other channels are working.

Checks to be performed first:
- check that the pre-wired connector is in place
- check the control circuit power supply is active

Voltage present on the Ph/N terminals?  

YES  

NO  

Check the 230 V AC control circuit power supply

Meter changes on the front panel? (LED)  

YES  

NO  

Check the wiring and the load consumption on metered circuit

Is current flowing through the metered circuit?  

YES  

NO  

Schneider Electric meters

| EM2000T |
| EM2010  |
| EM3110  |
| EM3155  |
| EM3210  |
| EM3255  |

Comments
Check and consider replacing the pre-wired connector.

Consider replacing the kilowatt-hour meter.

Meter changes on the front panel? (LED)

YES

NO

Meter changes seen by the Modbus master?

YES

NO

Check and consider replacing the pre-wired connector.

YES

NO

Consider replacing the kilowatt-hour meter.

YES

NO

Consider that the Acti 9 Smartlink channel may be faulty.

YES

NO

Does the meter value match the estimated value?

YES

NO

Check that the pulse weight is correctly configured.

OK

YES

NO

Meter changes seen by the Modbus master?
Case 8 - Other Products
Problem with a device not equipped with a Ti24 interface connected to the Acti 9 Smartlink (Schneider Electric or third-party products)

*Note: products connected on the other channels are working.*

Checks to be performed first depending on device configuration: check that the link between the auxiliary and its product is working.

Device requiring an auxiliary power supply (230 V, 24 V, etc.)

NO

Device powered up?

YES

Check the input circuit wiring

NO

Changes of state seen by the Modbus master?

NO

Check the power supply circuit and whether the auxiliary voltage is present

YES

Comments
Is remote control possible from the Modbus master?

- **YES**
  - Check the control circuit wiring at the Acti 9 Smartlink output

- **NO**
  - NO