Supply Partners 433KIT

Product Manual

Overview

1.1 Introduction

This manual provides instructions for pairing an Elsema PCK43304W transmitter with PCR43301240RE receiver(s). When purchased as part of the 433KIT or 433KITREC, they will require programming. If you need to configure the converters differently, or if you are working with other models, please contact Supply Partners for guidance and support.

Please read this manual in full **before** commencing installation, and ensure all instructions are followed carefully throughout the process.

If you are unsure about any aspect of the procedures or technical content outlined in this document, we recommend contacting Supply Partners for further guidance or clarification.

The information presented in this manual was accurate at the time of publication. However, product specifications may change without notice. Additionally, illustrations included are intended to clarify configuration concepts and installation steps; actual components at your installation site may vary slightly from the diagrams shown.

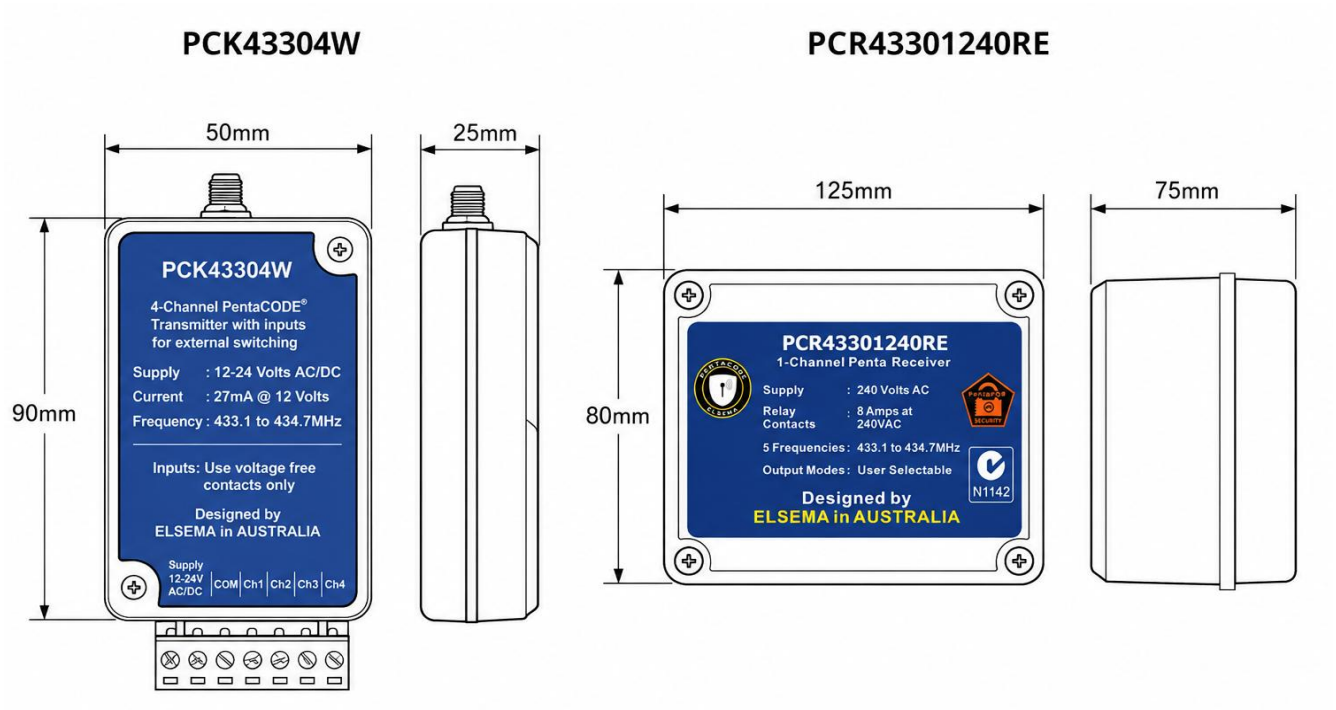
1.2 Warranty

This product is supplied with a 12 month back-to-base manufacturer warranty.

1.3 433KIT Usage

The Supply Partners 433KIT is typically used for remote contactor tripping where a wireless contact closure is required, such as in conjunction with an interface/network protection relay. It is also suitable for disconnecting solar inverters when used with a generator or ATS, helping prevent inverter operation during generator supply. The kit provides a practical alternative where running control cabling is difficult or impractical, with wireless transmission between the transmitter input and receiver relay output.

Dimensions



1.4 Component Specifications

Parameter		Value
PCK43304W Transmitter	Supply Voltage	12 to 24V AC/DC or 12V battery
	Frequency Band	433.100 to 434.700 MHz
	Inputs	4 dry contacts, optically isolated
	Operating Range	Up to 500m with ANT433S antenna
	Dimensions / Weight	90mm x 50mm x 25mm / 70g
	Compatible Receivers	All 433MHz Penta series
PCR43301240RE Receiver	Supply Voltage	100 to 240V AC mains
	Frequency Band	433.100 to 434.700 MHz
	Receiver Sensitivity	Better than 0.316uV (-117dBm)
	Coding System	12-way dip switch or encrypted coding
	Outputs	2 voltage-free changeover relay outputs, rated at 8A at 240VAC
	Relay Contacts	Common (C), Normally Closed (NC) and Normally Open (NO)
	Antenna	ANT433 series for long range applications; antenna wire for short range applications
	Dimensions / Weight	125mm x 80mm x 75mm / 330g
ANT433M Long Range Antenna	Frequency	428 to 437 MHz
	Tuned Bandwidth	9 MHz
	Gain	6.0 dBi
	VSWR (Return Loss)	< 1.5 : 1 over 9 MHz
	Impedance	50 Ohms
	Maximum Power	50 Watt
	Radiated Pattern	Low angle omni directional
	Construction	Stainless steel
	Length / Weight	1 meter / 420g
	Coaxial Length	3.6 meters, standard
	Termination	SMA, standard
ANT433S Medium Range Antenna	Frequency	425.00 to 442.50 MHz
	Tuned Bandwidth	17.50 MHz
	Gain	4.5 dBi
	VSWR (Return Loss)	< 1.5 : 1 over 15 MHz
	Impedance	50 Ohms
	Maximum Power	25 Watt
	Radiated Pattern	Omni directional
	Construction	Molded flexible rubber (Polyolefin)
	Length	38 cm / 270g
	Coaxial Length	3.6 metres, standard with N-connector base with part number AB3.6SMA
	Termination	SMA, standard

1.4 Component Specifications (Continued)

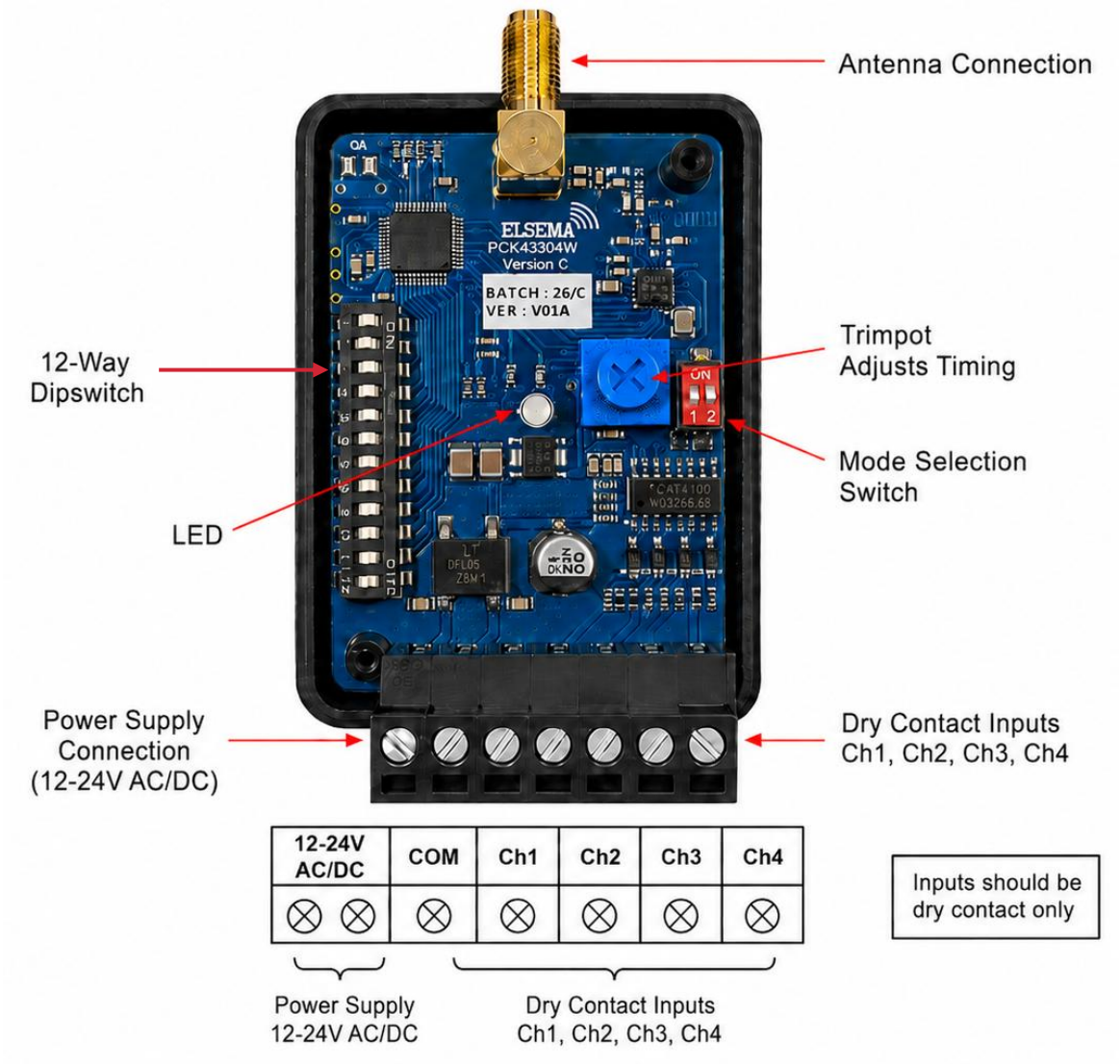
Parameter		Value
39.01.8.230.0060 Finder Relay	Brand	Finder
	Coil Voltage	230V ac
	Product Type	Interface Relay
	Contact Configuration	SPDT
	Mount Type	DIN Rail
	Series	39
	Terminal Type	Push-in
	Switching Current	6A
	Switching AC Voltage	250V ac
	Coil Current	4.3mA
	Minimum Operating Temperature	-40°C
	Maximum Operating Temperature	70°C
	Contact Material	Silver Alloy
	Width	90.7mm
	Standards/Approvals	CE, EAC
	Length	6.2mm
	Height	87mm
HDR-30-24	Product Type	DIN rail power supply
	Input Voltage	85 to 264V AC, 277V AC operational
	Input Frequency	47 to 63Hz
	Input Current	0.88A at 115V AC, 0.48A at 230V AC
	Output Voltage	24V DC
	Output Current	1.5A
	Rated Power	36W
	Output Voltage Adjustment Range	21.6 to 29V DC
	Dimensions / Weight	35mm x 90mm x 54.5mm (W x H x D) / 0.12kg
	Mounting	DIN rail TS35/7.5 or TS35/15

1.5 Bill of Materials

	Component	Quantity
433KIT	PCK43304W	1
	PCR43301240RE	1
	ANT433M	1
	ANT433S	1
	AB10.0SMA	1
	39.01.8.230.006	2
	HDR-30-24	1
433KITREC	PCR43301240RE	1
	ANT433S	1
	AB10.0SMA	1

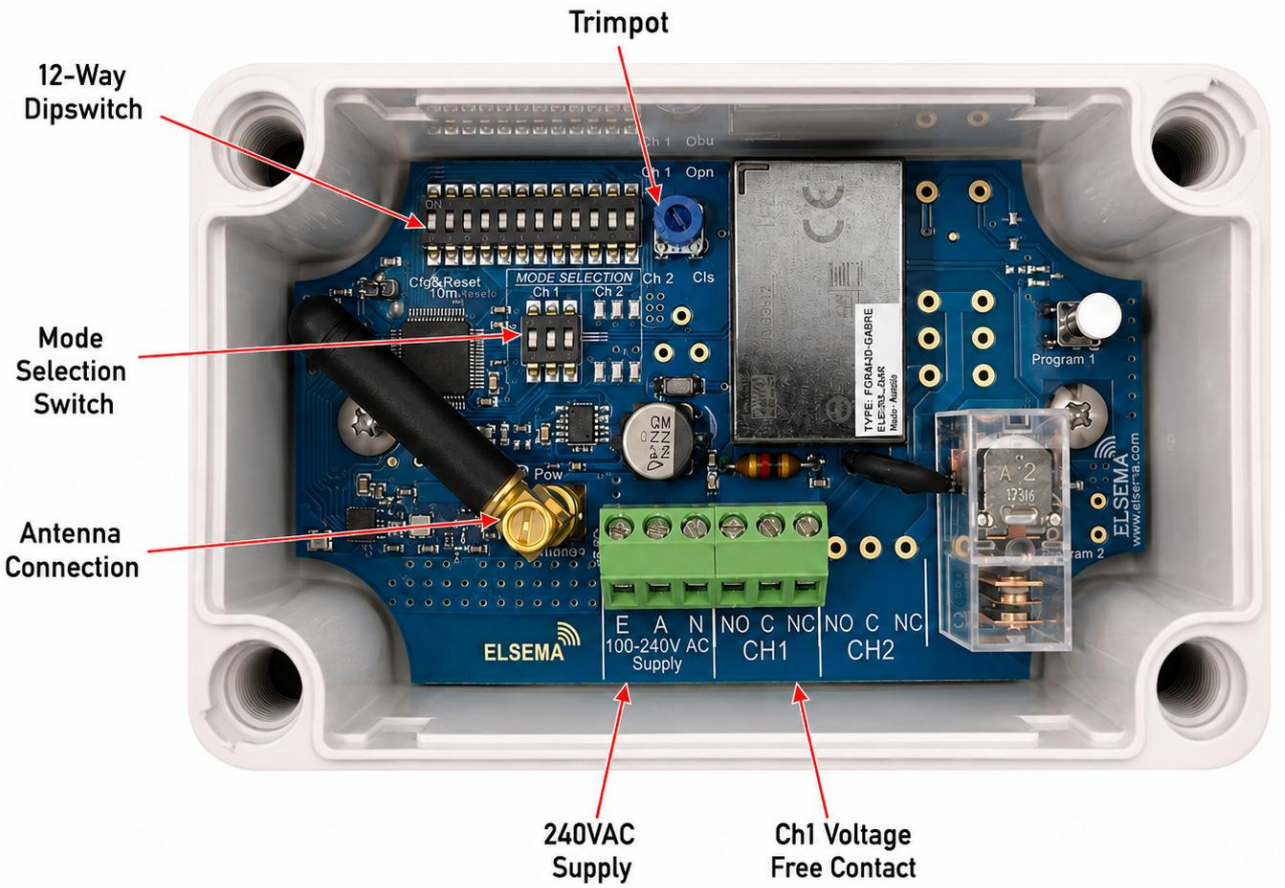
1.6 Connections

PCK43304W



1.6 Connections (Continued)

PCR43301RE



2.0 Transmitter and Receiver Programming

1. Open the cover of the PentaCODE transmitter. Set dipswitch No.1 and No.2 on the Mode Selection switch to the downward position. Turn the transmitter trimpot anti-clockwise to the minimum position. This sets the transmitter to the “Off Delay 2 - 62 seconds” operating mode.

2. Set the transmitter code. Select a unique code on the 12-way transmitter dipswitch by setting each dipswitch to either “on” or “off”. Do not use the factory default setting, as this is a common code and may result in performance issues.

3. Set the receiver code. For each receiver that will be paired with the transmitter, set the 12-way receiver dipswitch to match the code that was set on the transmitter. The transmitter and receiver must have the same 12-way dipswitch code to communicate correctly.

4. Set the receiver operating mode. On each receiver, set dipswitch No.1 to the downward position and set dipswitch No.2 and No.3 to the upward position on the Mode Selection switch. This sets the receiver to “Instant Off” mode.

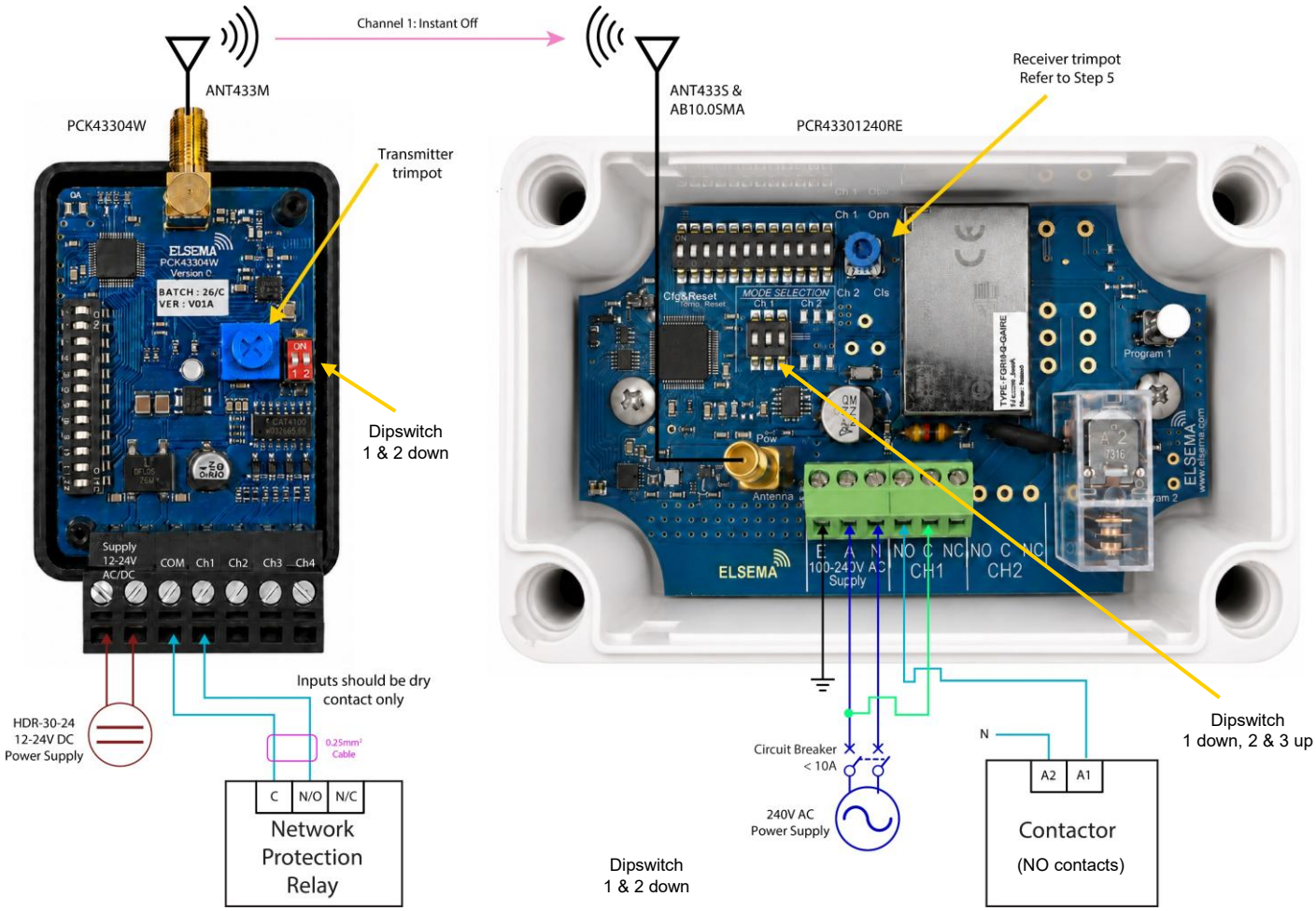
5. Adjust the receiver trimpot. The receiver trimpot must be adjusted so that, if the signal is lost, the relay switches off within 5 seconds as a fail-safe. It is recommended to set this between 1 and 5 seconds to help avoid nuisance tripping. **For reference, the minimum trimpot setting is 1 second and the maximum clockwise setting is 300 seconds. If the receiver is switching off even though the transmitter has not been activated, the receiver trimpot is likely still in the default minimum position.**

6. Verify transmitter and receiver pairing by applying power to both units. Where possible, connect the antennas to the transmitter and receiver before testing. If antennas are not connected, position the transmitter and receiver in proximity, as the RF signal range is significantly reduced without antennas. Momentarily short the COM and CH1 terminals on the transmitter. When pairing and signal transmission are functioning correctly, the transmitter status LED will flash green intermittently, the receiver relay will energize and the receiver status LED will illuminate solid red.

7. Complete the installation. If the transmitter and receiver operate correctly during testing, the products can now be mounted in their final locations and wired into their respective devices. Once installed, complete a final functional test to confirm the transmitter input activates the receiver(s) output as intended.

3.0 Wiring – Network Protection Integration

1. Connect the control cabling from the Network Protection Relay to the transmitter dry contact input.
2. For each receiver, connect the receiver relay output to the required contactor control circuit.
3. Fit the antennas to the transmitter and to each receiver SMA connector. Ensure all antennas are secure and positioned for good signal strength.
4. Connect the transmitter to the included 12-24V DC power supply. Check polarity before powering up.
5. Connect each receiver to its required power supply. Where applicable, connect the receiver to a 100-240V AC supply through a suitably rated circuit breaker.
6. Confirm all wiring is secure before applying power.
7. Apply power to the transmitter and all paired receivers.
8. Test the system operation by activating the Network Protection Relay and confirming that each receiver switches its connected contactor or load as expected. Inputs to the transmitter must be dry contact only. Do not apply voltage to the input terminals.

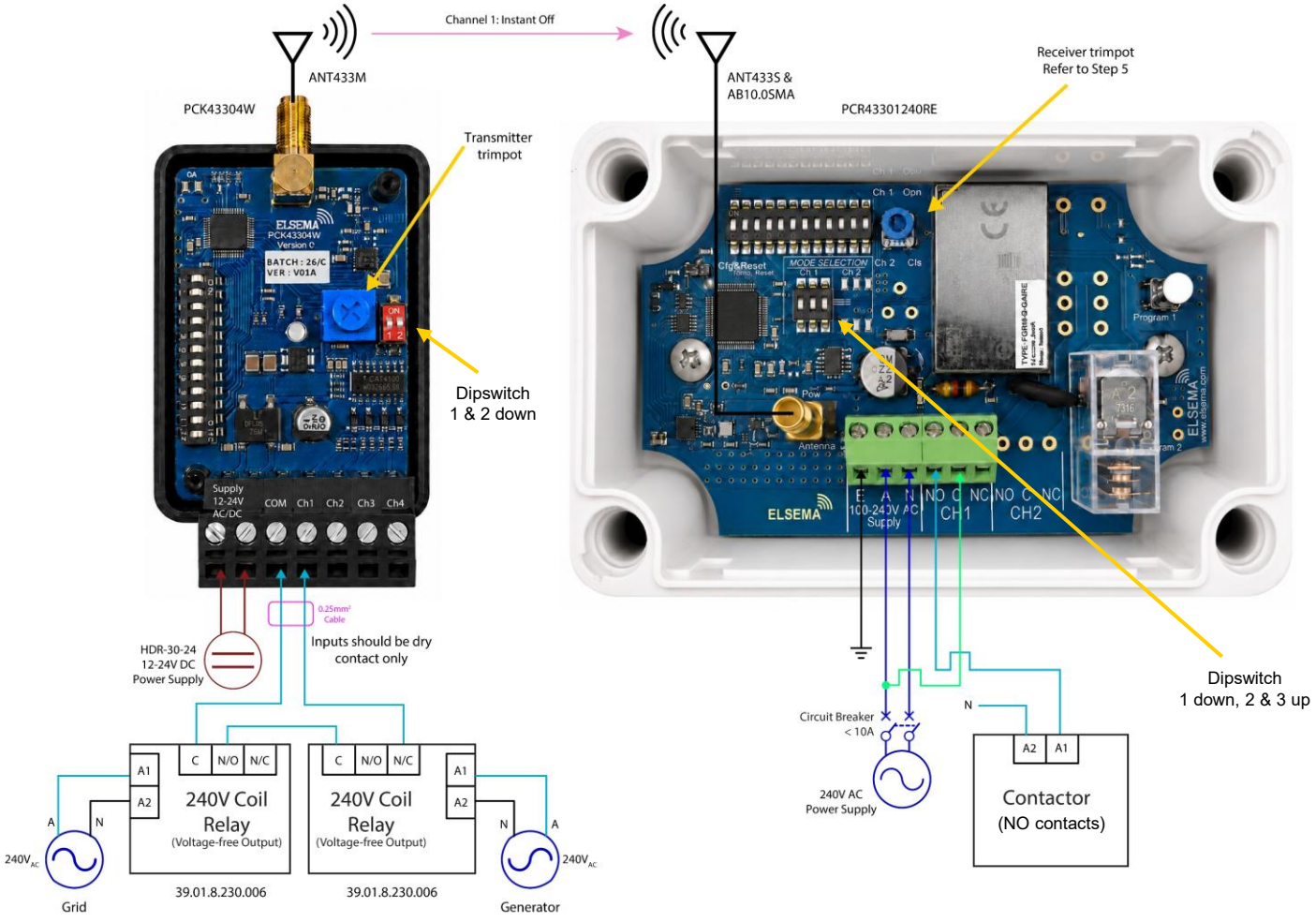


3.1 Wiring – Generator Integration

1. Connect the voltage-free output from the grid monitoring relay to one transmitter dry contact input.
2. Connect the voltage-free output from the generator monitoring relay to the required transmitter dry contact input.
3. Ensure the relay outputs connected to the transmitter are dry contact only. Do not apply voltage to the transmitter input terminals.
4. Fit the antennas to the transmitter and to each paired receiver. Ensure all antennas are secure and positioned for good signal strength.
5. Connect the transmitter to the provided 12-24V DC power supply. Check polarity before powering up.
6. For each receiver, connect the receiver relay output to the required contactor control circuit.
7. Connect each receiver to its required power supply. Where applicable, connect the receiver to a 100-240V AC supply through a circuit breaker rated less than 10A.
8. Connect the receiver relay output so the contactor coil is controlled by the receiver output. Confirm the correct terminal arrangement for the contactor coil, typically A1 and A2.
9. Confirm all grid, generator and control wiring is secure before applying power.
10. Apply power to the transmitter, receiver or receivers, grid relay and generator relay.
11. Test the system by simulating the required grid and generator relay states. Confirm that the transmitter input changes state and that each paired receiver switches its connected contactor or load as expected.

The transmitter inputs must be connected to voltage-free relay contacts only. The grid and generator relay coil supplies must not be connected directly to the transmitter inputs.

Some generator controllers or ATS units may already have suitable voltage-free relay outputs available. These outputs may be used instead of the supplied general-purpose relays, provided they are confirmed to be voltage-free dry contacts and are rated appropriately for the application.



4.1 Common Faults and Troubleshooting Steps

Receiver(s) switch off even though the transmitter has not been activated

Possible causes:

- The receiver trimpot is not set correctly.
- The receiver trimpot may still be in the default minimum position, fully counter-clockwise.
- If the trimpot is set to the minimum position, the receiver may switch off after approximately 1 second.
- The receiver may not be correctly paired with the transmitter.
- The receiver mode selection switch may not be set correctly.

Resolutions:

- Adjust the receiver trimpot clockwise until the receiver remains active long enough to receive the next pulse from the transmitter.
- Set the trimpot long enough to avoid nuisance tripping.
- Ensure the trimpot setting still meets any local requirements for disconnection time following loss of communications.
- For example, some applications may require disconnection within 5 seconds.
- Confirm that the 12-way receiver dipswitch code matches the 12-way transmitter dipswitch code.
- Confirm that the receiver mode selection switch is set correctly for the required operating mode.
- Power cycle the transmitter and receiver(s) after making changes.
- Retest the system after power cycling.

Receiver(s) do not respond to the transmitter

Possible causes:

- The receiver(s) may not be paired with the transmitter.
- The transmitter and receiver dipswitch codes may not match.
- The receiver mode selection switch may not be set correctly.
- The transmitter antenna may not be connected securely.
- The receiver antenna may not be connected securely.
- There may be too much distance between the transmitter and receiver antenna.
- There may be too many obstructions between the transmitter and receiver antenna.
- Antenna placement may be causing poor signal strength.
- The programming may have been accidentally changed after initial testing.

Resolutions:

- Check that the transmitter and receiver have matching 12-way dipswitch codes.
- Check that the receiver mode selection switch is set correctly.
- Power cycle the transmitter and receiver(s) after making any programming or switch changes.
- Confirm that the transmitter and receiver operate correctly when tested side by side before installing them in their final locations.
- Check that the transmitter antenna connection is secure.
- Check that each receiver antenna connection is secure.
- If the products worked correctly during side-by-side testing but not after installation, confirm that the programming has not been accidentally changed.
- Review the final antenna locations.
- Position antennas higher where possible.
- Improve line-of-sight between the transmitter and receiver antenna where possible.
- Consider upgrading the receiver antenna to a long-range antenna if signal strength is insufficient.
- Consider relocating the receiver antenna to improve signal strength.

4.1 Common Faults and Troubleshooting Steps

System does not operate correctly when connected to the external control system

Possible causes:

- The issue may be outside the 433MHz wireless link.
- The external control device may not be providing a suitable dry contact input.
- Voltage may be present on the transmitter input terminals.
- The control wiring may be incorrect.
- The transmitter programming may not be correct.
- The receiver programming may not be correct.
- The antenna position may not be suitable for reliable operation.
- The transmitter and receiver dipswitch codes may not match.
- The receiver mode selection switch may not be set correctly.

Resolutions:

- Disconnect the external control cables from the transmitter input.
- Short the COM and CH1 terminals on the transmitter.
- If the receiver operates correctly when COM and CH1 are shorted, the 433MHz link is working.
- If the receiver operates correctly when COM and CH1 are shorted, review the external control device, wiring and contact arrangement
- Confirm that the external control device is providing a voltage-free dry contact only.
- Do not apply voltage to the transmitter input terminals.
- If shorting COM and CH1 does not operate the receiver correctly, review the transmitter programming.
- If shorting COM and CH1 does not operate the receiver correctly, review the receiver programming.
- Check that the transmitter and receiver dipswitch codes match.
- Check that the receiver mode selection switch is set correctly.
- Check antenna connections.
- Check antenna placement.
- Retest the system after making corrections.

Additional Support

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