



POWER FACTOR CONTROLLER COMMISSIONING PROCEDURES

Safety Precautions

These test procedures must only be used when the Automatic Voltage Regulator and Power Factor Controller have been fitted in the generator terminal box and tested at Stamford Works. This can be verified by the existence of sealed AVR TRIM and DROOP potentiometers.

These test procedures are designed for experienced Service Engineers who are familiar with the safety precautions required for parallel operation of synchronous generators. The latest edition of the Power Factor Controller manual (Newage Publication NP7-035) must be read before using this abbreviated booklet.

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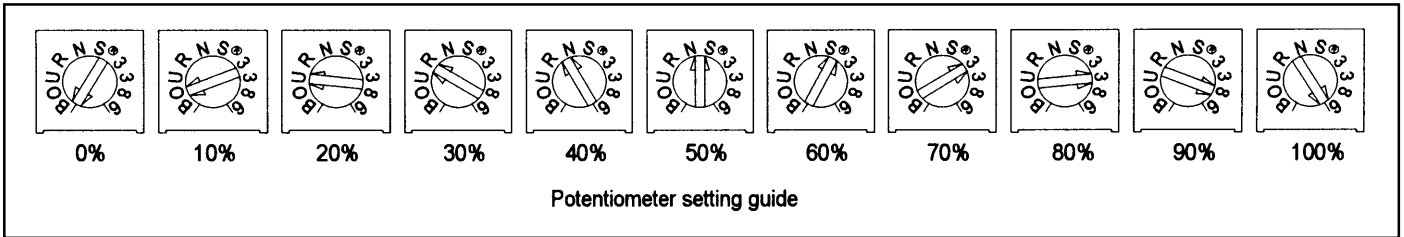
Power Factor Controller E000-12090 and E000-22090 (Clear version)

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Quick set-up procedure for E000-11030 and 21030 Power Factor Controller (PFC3) with no options.

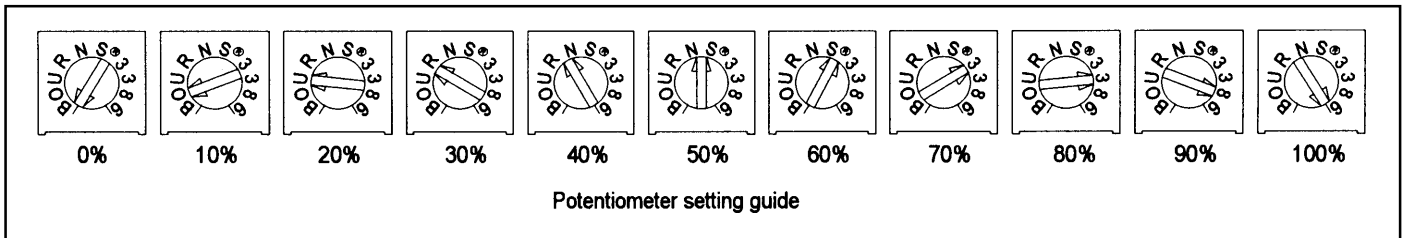
Important: During commissioning any connections to terminals RX RY and RZ must be removed.



Line No.	Description
1	Ensure the Generator to be commissioned is stationary and electrically isolated.
2	Check that the PFC3 VOLTAGE MATCHING SELECTOR is linked C- NORM.
3	Remove the seal from the AVR TRIM potentiometer and set to 0%.
4	Start the generating set and run at nominal speed. Do not parallel. Note: The Generator circuit breaker closure signal may need overriding to prevent synchronising.
5	Adjust the AVR VOLTS potentiometer to give a generator terminal voltage equal to that of the installation mains (+/- 1%).
6	Stop the generator. Restore the generator circuit breaker closing signal if this was overridden.
7	Set the AVR TRIM potentiometer to 100%.
8	Parallel the generator to the mains supply and run at rated kW. Adjust the desired operating Power Factor using the PF / VAR potentiometer on the PFC3. Set-up is now complete.

Quick set-up procedure for E000-11030 and 21030 Power Factor Controller (PFC3) with Voltage matching.

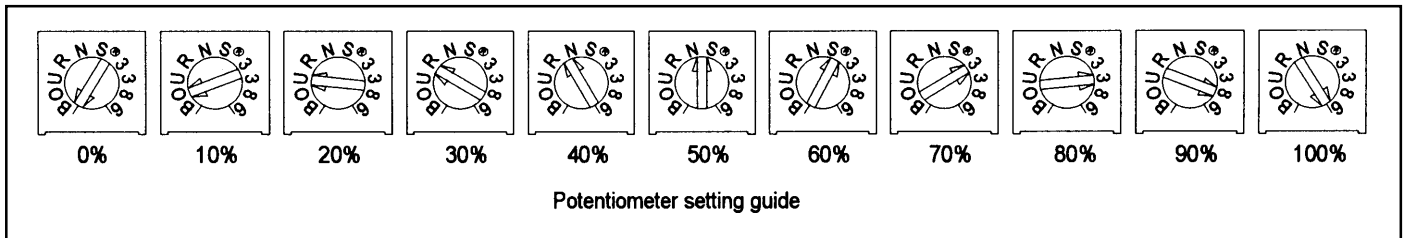
Important: During commissioning any connections to terminals RX RY and RZ must be removed.



Line No.	Description
1	Ensure the Generator to be commissioned is stationary and electrically isolated.
2	Remove the seal from the AVR TRIM potentiometer and set to 0%.
3	Set the PFC3 VOLTAGE MATCHING SELECTOR LINK to C - VMAT.
4	Start the generating set and run at nominal speed. Enable voltage matching mode but do not parallel. Note: The Generator circuit breaker closure signal may need overriding to prevent synchronising.
5	Set the AVR VOLTS potentiometer to give a generator terminal voltage that is in the centre of the expected Mains Utility Supply Voltage variation. If this is not known then adjust the AVR VOLTS potentiometer to give a generator terminal voltage equal to that of the installation mains (+/- 1%).
6	Check that the CB LED is not illuminated. If it is illuminated, then stop the generator and investigate. Re-test from line 4.
7	Measure the ac voltage on L1 and L2 of the PFC3 and verify that it is between 99 and 121 volts. If it is not then stop the generator and investigate. Re-test from line 4.
8	Slowly turn the AVR TRIM potentiometer to 30%. The generator terminal voltage will now adjust to a new level which could be higher or lower than the original level. Adjust the BUSV potentiometer on the PFC3 until the generator terminal voltage is equal to the Mains Utility Supply Voltage within 2%.
9	Slowly turn the AVR TRIM potentiometer to 100%. Re-adjust BUSV potentiometer on the PFC3 until the generator terminal voltage is equal to the Mains Utility Voltage within 1%.
10	Stop the generator. Restore the generator circuit breaker closing signal if this was overridden.
11	Parallel the generator to the mains supply and run at rated kW. Adjust the desired operating Power Factor using the PF / VAR potentiometer on the PFC3. Set-up is now complete.

Quick set-up procedure for E000-12090 and 22090 Power Factor Controller (PFC3) with no options.

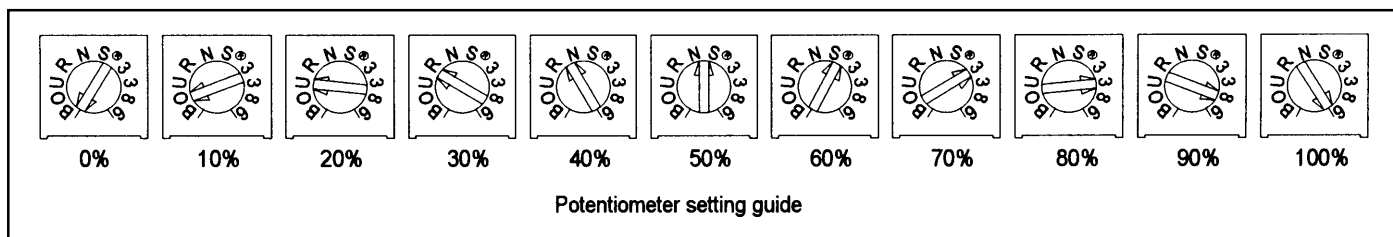
Important: During commissioning any connections to terminals RX RY and RZ must be removed.



Line No.	Description
1	Ensure the Generator to be commissioned is stationary and electrically isolated.
2	Remove the seal from the AVR TRIM potentiometer and set to 0%.
3	Start the generating set and run at nominal speed. Do not parallel. Note: The Generator circuit breaker closure signal may need overriding to prevent synchronising.
4	Adjust the AVR VOLTS potentiometer to give a generator terminal voltage equal to that of the installation mains (+/- 1%).
5	Stop the generator. Restore the generator circuit breaker closing signal if this was overridden.
6	Set the AVR TRIM potentiometer to 100%.
7	Parallel the generator to the mains supply and run at rated kW. Adjust the desired operating Power Factor using the PF / VAR potentiometer on the PFC3. Set-up is now complete.

Quick set-up procedure for E000-12090 and 22090 Power Factor Controller (PFC3) with voltage matching.

Important: During commissioning any connections to terminals RX RY and RZ must be removed.



Line No.	Description
1	Ensure the Generator to be commissioned is stationary and electrically isolated.
2	Remove the seal from the AVR TRIM potentiometer and set to 0%.
3	Start the generating set and run at nominal speed. Enable voltage matching mode but do not parallel. Note: The Generator circuit breaker closure signal may need overriding to prevent synchronising.
4	Set the AVR VOLTS potentiometer to give a generator terminal voltage that is in the centre of the expected Mains Utility Supply Voltage variation. If this is not known then adjust the AVR VOLTS potentiometer to give a generator terminal voltage equal to that of the installation mains (+/- 1%).
5	Check that the CB LED is not illuminated. If it is illuminated, then stop the generator and investigate. Re-test from line 3.
6	Measure the ac voltage on L1 and L2 of the PFC3 and verify that it is between 99 and 121 volts. If it is not then stop the generator and investigate. Re-test from line 3.
7	Check that the VMAT LED is illuminated. If it is not then stop the generator and investigate. Re-test from line 3.
8	Slowly turn the AVR TRIM potentiometer to 30%. The generator terminal voltage will now adjust to a new level which could be higher or lower than the original level. Adjust the BUSV potentiometer on the PFC3 until the generator terminal voltage is equal to the Mains Utility Supply Voltage within 2%.
9	Slowly turn the AVR TRIM potentiometer to 100%. Re-adjust BUSV potentiometer on the PFC3 until the generator terminal voltage is equal to the Mains Utility Voltage within 1%.
10	Stop the generator. Restore the generator circuit breaker closing signal if this was overridden.
11	Parallel the generator to the mains supply and run at rated kW. Adjust the desired operating Power Factor using the PF / VAR potentiometer on the PFC3. Set-up is now complete.

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