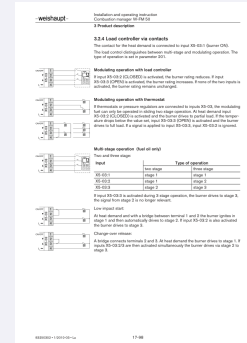


FIELD INSTALLATION QUICK GUIDE

Installation Instructions

LMV27.210A2WH

Electronic combustion manager



PRODUCT	LMV27.210A2WH
FAMILY	W-FM 50 / LMV27 OEM
FUNCTION	Electronic combustion manager
SOURCE	Weishaupt W-FM 50 installation and operating instruction 83250302, March 2010; cover identifies LMV27.210A2WH

01 OFFICIAL MOUNTING AND WIRING

- Disconnect the burner supply before electrical work and follow the original OEM electrical-installation instructions.
- Match the burner, flame detector and actuator configuration to the complete controller identity and approved wiring diagram.
- Connect the safety circuit, supply and configured field connections using the documented terminal allocation.
- Have qualified personnel commission and verify the complete burner sequence and safety functions using the OEM procedure.

AMIKON PRODUCT SUPPORT

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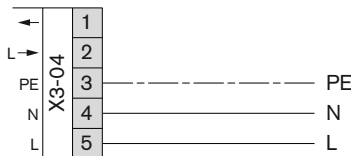
3 Product description

3.2 Inputs

3.2.1 Voltage supply

The voltage supply is connected to inputs X3-04:3-5 of the W-FM50.

The mains frequency is set in parameter 125.



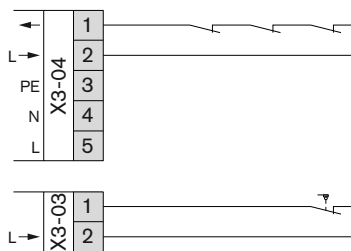
3.2.2 Safety circuit

In the diagnostic code, the inputs X3-03:1/2 and X3-04:1/2 are combined as safety circuit. If one of the inputs is open, at least one safety shutdown is triggered. If the repetition value is exceeded an open input leads to lockout. The repetition value can be set in parameter 215.

At input X3-04:1/2 all external components of the safety circuit are switched in sequence, these include:

- Emergency-Off switch
- Safety temperature limiter (STL)
- Low water safety interlock, etc.

The burner flange limit switch is connected to input X3-03:1/2.



3.2.3 Reset

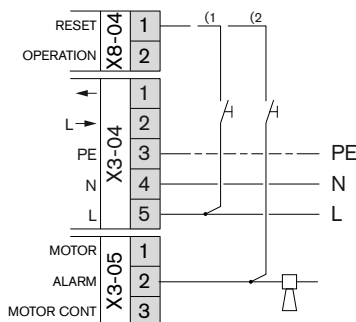
A reset button can be connected to input X8-04:1. If lockout occurs, the combustion manager can be reset by pressing the push button for 1 to 6 seconds. Longer or shorter operation of the push button is ignored by the combustion manager and does not lead to a reaction.

With lockout function ⁽¹⁾

If the push button is also required for manual lockout, it must be connected to mains input X3-04:5 (L). If the combustion manager is in an operating phase, pressing the push button for 1 to 6 seconds will initiate a manual lockout.

Without lockout function ⁽²⁾

If the push button is not required to carry out manual lockout it must be connected to alarm output X3-05:2.

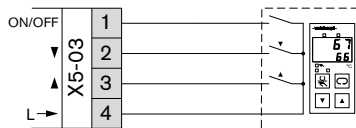


3 Product description

3.2.4 Load controller via contacts

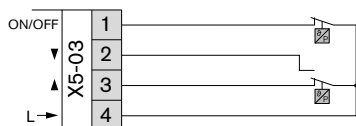
The contact for the heat demand is connected to input X5-03:1 (burner ON).

The load control distinguishes between multi-stage and modulating operation. The type of operation is set in parameter 201.



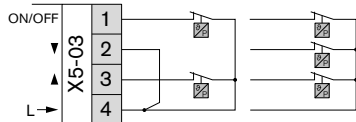
Modulating operation with load controller

If input X5-03:2 (CLOSED) is activated, the burner rating reduces. If input X5-03:3 (OPEN) is activated, the burner rating increases. If none of the two inputs is activated, the burner rating remains unchanged.



Modulating operation with thermostat

If thermostats or pressure regulators are connected to inputs X5-03, the modulating fuel can only be operated in sliding two stage operation. At heat demand input X5-03:2 (CLOSED) is activated and the burner drives to partial load. If the temperature drops below the value set, input X5-03:3 (OPEN) is activated and the burner drives to full load. If a signal is applied to input X5-03:3, input X5-03:2 is ignored.

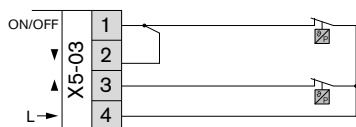


Multi-stage operation (fuel oil only)

Two and three stage:

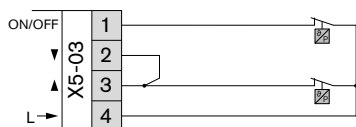
Input	Type of operation	
	two stage	three stage
X5-03:1	stage 1	stage 1
X5-03:2	stage 1	stage 2
X5-03:3	stage 2	stage 3

If input X5-03:3 is activated during 3 stage operation, the burner drives to stage 3, the signal from stage 2 is no longer relevant.



Low impact start:

At heat demand and with a bridge between terminal 1 and 2 the burner ignites in stage 1 and then automatically drives to stage 2. If input X5-03:2 is also activated the burner drives to stage 3.

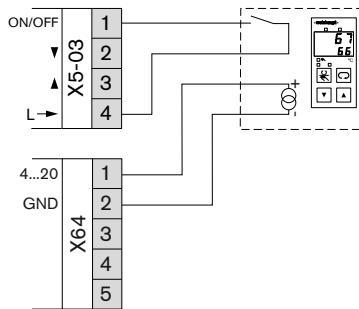


Change-over release:

A bridge connects terminals 2 and 3. At heat demand the burner drives to stage 1. If inputs X5-03:2/3 are then activated simultaneously the burner drives via stage 2 to stage 3.

3 Product description

3.2.5 Load controller analogue input



The contact for the heat demand is connected to input X5-03:1 (burner ON).

The analogue load signal is connected to terminals X64:1 (4 ... 20 mA) and X64:2 (GND). A signal of less than 3 mA deactivates the analogue input and the load presetting at input X5-03:2/3 has priority (parameter 942). If no load controller is connected to input X5-03:2/3, the combustion manager remains at the current rating until heat demand is interrupted.

Modulating operation

In modulating operation, parameter 123 (see Ch. 5.3.1) determines the minimum setting point.

Signal on X64:1/2	Load W-FM
3 ... 4 mA	20 %
20 mA	100 %

Multi-stage operation

In multi-stage operation a hysteresis of 1 mA exists between the operating points, which eliminates unnecessary load changes.

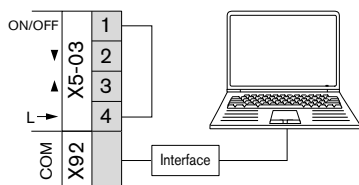
Two stage:

Signal on X64:1/2	Load W-FM
3 ... 5 ... 12 mA	Stage 1
13 ... 15 ... 20 mA	Stage 2

Three stage:

Signal on X64:1/2	Load W-FM
3 ... 5 ... 7 mA	Stage 1
8 ... 10 ... 12 mA	Stage 2
13 ... 15 ... 20 mA	Stage 3

3.2.6 Load controller building management



A Bus interface for building management can be connected to input COM X92.

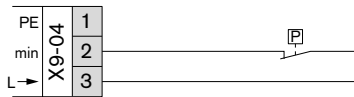
- Modbus: Bus-Interface Modbus OCI412.10 (Order No.: 660 285)
- eBus: Adapter MPA eBUS (Order No.: 743 090)

For burner start, input X5-03:1 (burner ON) must be connected to voltage output X5-03:4. Load presetting is then carried out by the building management system.

The settings required for Bus communication are set in parameters 141 to 148.

3 Product description

3.2.10 Valve proving gas pressure switch



The opening contact of the valve proving gas pressure switch must be connected to input X9-04. Input X9-04 is only active during valve proving (see Ch. 3.1.1). The time of the valve proving can be set in parameter 241.

If the pressure set is not achieved in phase 81 (test without pressure), the contact closes.

If the pressure set is exceeded in phase 83 (test with system pressure), the contact opens.

3.2.11 Flame sensor

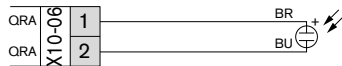
If the flame signal in phase 44 does not equate to the value required, the combustion manager initiates a lockout.

If the flame signal during operation does not maintain the required value, the combustion manager initiates a controlled shutdown with restart. Two controlled shutdowns in sequence lead to lockout.

A flame signal at heat demand (phase 12) leads to start prevention.

A flame signal during pre-purge (phase 30 to 36) or post-purge (phase 78) leads to lockout after one repetition and repeated occurrence.

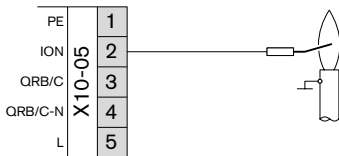
Parameter 954 shows the current flame signal as a percentage value.



QRA...

The flame sensor QRA... (UV cell) is connected to input X10-06.

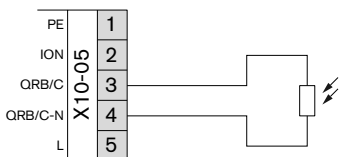
	Flame signal Parameter 954
Response limit extraneous light	greater than 18 %
Operation	min 24 %



Ionisation electrode

The ionisation electrode is connected to input X10-05:2.

	Flame signal Parameter 954
Sensor current min.: 4 µA	approx. 30 %
Sensor current max.: 16 ... 40 µA	100 %



QRB...

The flame sensor QRB... (photo resistor) is connected to input X10-05:3/4.

	Flame signal Parameter 954
Response limit extraneous light (resistance less than 400 kΩ)	approx. 10 %
Operation (resistance less than 230 kΩ)	approx. 16 %
Short circuit identification (resistance less than 0.5 kΩ)	-

4 Electrical installation

4 Electrical installation



Electric shock when working with voltage applied

The consequence is serious injury or death.

- Isolate unit prior to carrying out work and protect against accidental reconnection to the mains.



Electric shock despite disconnection from mains

It is possible that electrical components on burners with frequency converters continue to carry voltage and cause electric shock even after the mains have been disconnected.

- A waiting time of approx. 5 minutes should therefore be observed until all electric voltage has dissipated.

The electrical installation must only be carried out by qualified electricians, local regulations must be observed.

Carry out electrical installation in such a way that the burner can still be hinged open.

Connect combustion manager W-FM

- Use cable entry grommets on the housing.
- Connect wiring in accordance with the enclosed wiring diagram.

Control circuits, which are taken directly via a 16 AT pre-fuse from a 3 phase or single phase alternating current supply, must only be connected between a phase conductor and earth potential neutral conductor.

On mains supply, which does not have a neutral, the control voltage must be supplied via an isolating transformer.

The pole of the transformer, which is to be used as the neutral conductor, must be earthed.

Phase L must not be mixed up with the neutral conductor N. Contact protection will otherwise no longer be given. Malfunctions, which endanger operational safety could occur.

The cable cross section of the voltage supply must be suitable for the nominal current of the pre-fusing (maximum 16 AT).

All other cable connections must be suitable for the relevant internal unit fuse (6.3 AT).

Earthing and neutral conductor must conform to local regulations.

The following applies for cable length:

- Display and operating unit, load controller, safety interlock circuit, burner flange, reset key - maximum 20 m (100 pF/m).
- BCI interface - maximum 20 m (100 pF/m).

Connecting the burner motor

The motor must be protected against thermal overload and short circuit. The use of a motor protection switch is recommended.

- Open terminal box on motor.
- Carry out voltage supply in accordance to the wiring diagram enclosed, observing motor rotation.

4 Electrical installation

Connect gas valve train

The connection should be made to the wiring diagram supplied with the burner.

- ▶ Connect double gas valve (plug Y2):
 - Solenoid coil on W-FM or DMV
 - Actuator on VGD
- ▶ Connect low gas pressure switch (plug F11)
- ▶ Install valve proving gas pressure switch (plug F12).
- ▶ If required, fit high gas pressure switch (plug F33)

Speed control

The supply line to the frequency converter is not screened, if the frequency converter is fitted to the motor.

If the frequency converter is separate, the control cable and the mains connection cable between motor and frequency converter are screened.

- ▶ Connect screen to the designated screen clamp on frequency converter.
- ▶ Use screen cable glands (metal) on the burner.