RM 814 / RM 25 / RM 40 / RM 55 / MMX Series

Gas Mixer

Manual

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Version : 3.0
Date of Issue : 27.05.2019

Manufacturer / distributor:
HUEGLI TECH Switzerland
Murgenthalstrasse 30
4900 Langenthal

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1 EC declaration of conformity (for machinery)

EC declaration of conformity

(Directive 2006/42/EC, Annex II A)

The manufacturer: Huegli Tech AG, Murgenthalstrasse 30 4900 Langenthal

hereby declares that the machinery:

general description / function / model / type
Gasmixer RM-814, RM-25, RM-40, RM-55 and MMX series

complies with the basic health and safety requirements of Machinery Directive (MD) 2006/42/EC, Annex I.

The machinery also complies with the following EC directives:

Low Voltage Directive 2006/95/EC

The following harmonised standards were applied:

EN ISO 12100-1; EN ISO 12100-2; EN ISO 14121-1;

Authorised representative for the compilation of Technical File:

A. Ewangelos Murgenthalstrasse 30 4900 Langenthal

The Technical File is provided in electronic format, as required by national bodies.

Langenthal 09.11.2011 Huegli Tech AG

Antoniadis Ewangelos
Product Manager

Huegli Daniel
President

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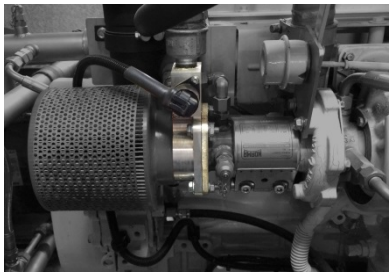
2 Mounting and Connections

2.1 Mounting

Gas mixer MMX

Installation shown as in the picture below. The installation position can be horizontal or vertical. Important: If possible, decouple and prevent vibrations. Gas connection G3/4". Temperature range -40 - + 85 °C.

Air Filter →  → **Engine**

Gas mixer RM

The gas mixer is to be mounted between the air filter and the turbo charger. Most engines have a flange for mounting the gas mixer.

Mounting Direction

Air Filter → → **Engine**

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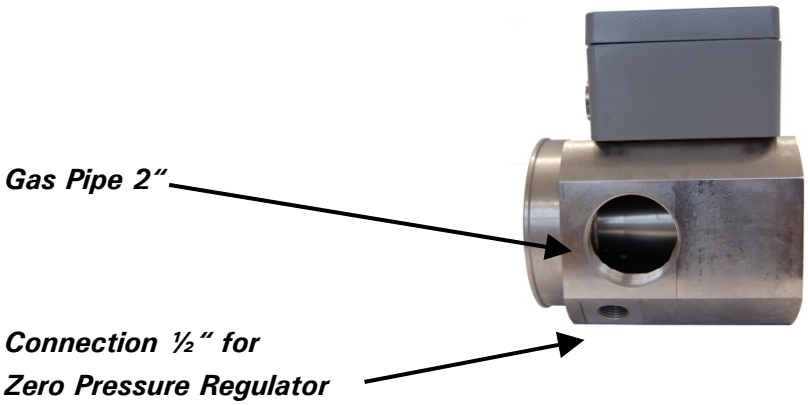
2.2 Connections

2.2.1 Connections for Gas Pipe and Zero Pressure Regulator



Warning

Flammable gas!

Ignition of leaking gas could cause severe burning.

- Unused ports must be securely sealed.
- Joints must be tightened to recommended torque.

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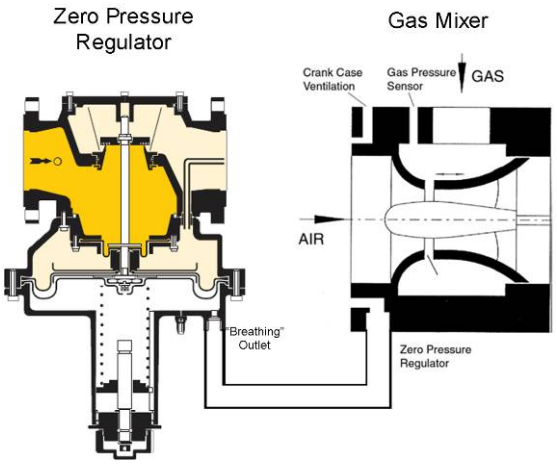
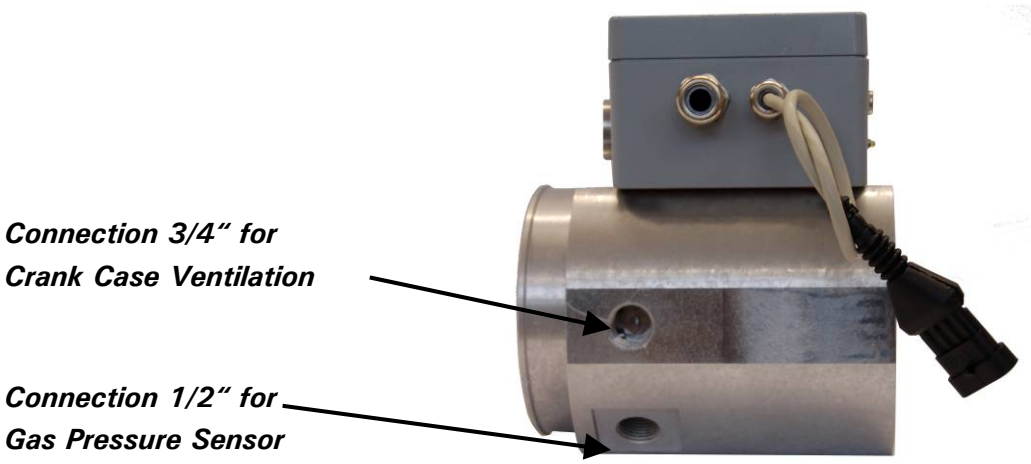
2.2.2 Connection of the Zero Pressure Regulator to the Mixer

Under special circumstances it is necessary to connect the zero pressure regulator to the mixer. This can be done as shown in the picture to the right.



2.2.3 Connections for Gas Pressure and Crank Case Ventilation



Crank Case Ventilation

The crank case ventilation of the engine can be connected to the mixer. This avoids that the oil mist gets into the air filter and clogs them up.

Gas Pressure Sensor

This is foreseen to measure the gas inlet pressure. This sensor is very helpful for adjustment and surveillance of the zero pressure regulator.

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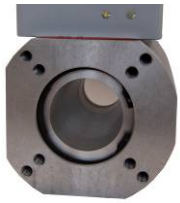
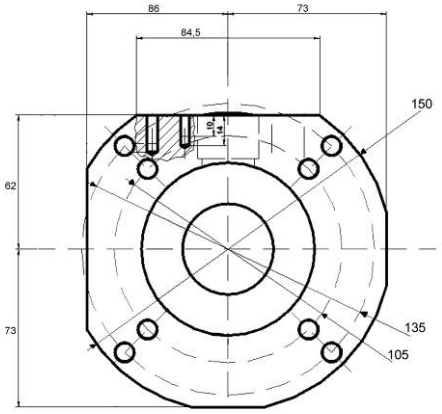
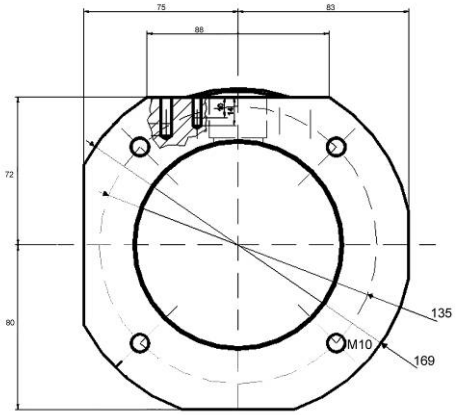
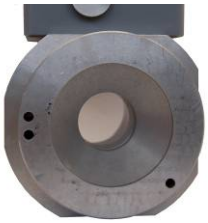
Connection Engine Side



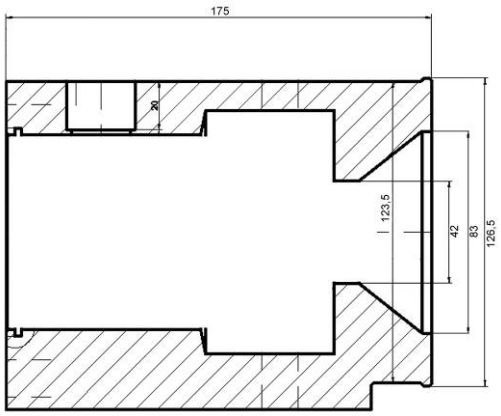




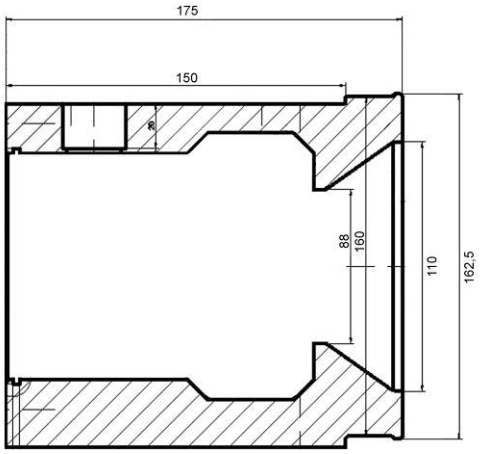
Connection Air Filter



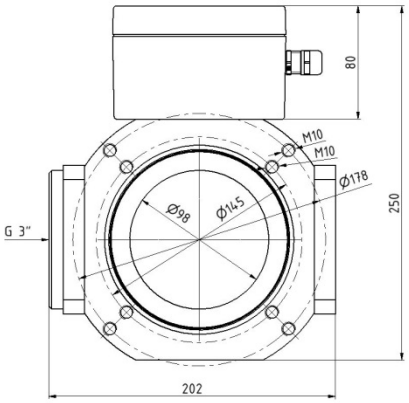
RM 814



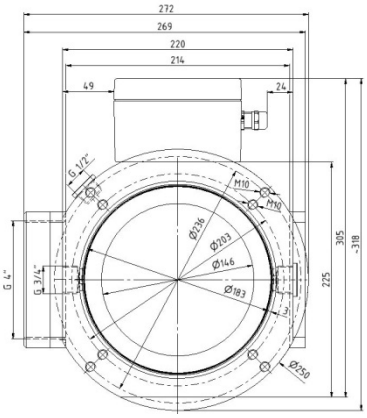
RM25



RM 40



RM 55



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Warning

Flammable gas!

Ignition of leaking gas could cause severe burning.

- Unused ports must be securely sealed.
- Joints must be tightened to recommended torque.

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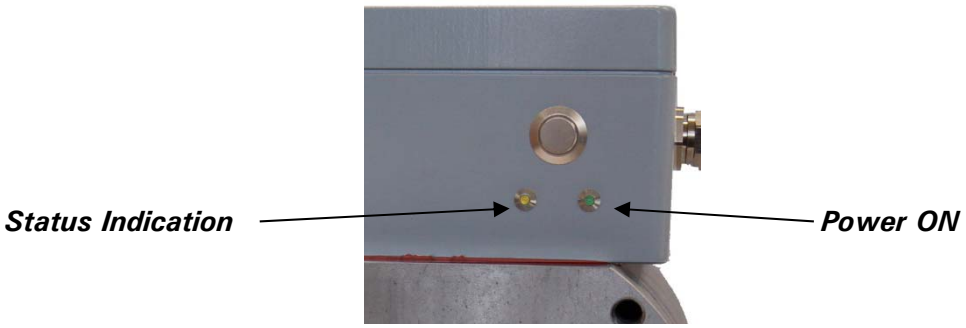
3 Operation and Indication for Mixers Version V1X

3.1 Pilot Lamps

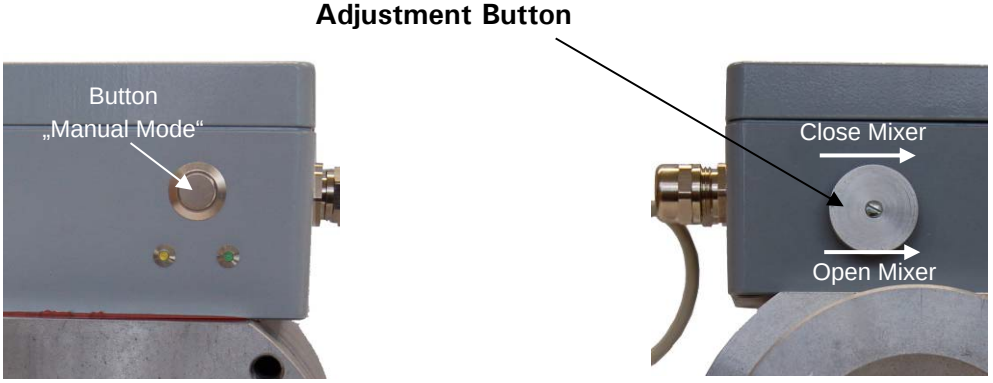


Power ON (green)
Illuminates when the power supply is turned on.

Status Indication (yellow)
Illuminates when the mixer is moving and is in control mode or the mixer is in Manual Mode (see 3.2).

3.2 Manual Mode

With the adjustment button the mixer can be adjusted manually. In the normal working mode this is not possible because the stepper motor blocks the manual adjustment.
Pressing the Button "Manual Mode" (> 2 Sec.) sets the mixer into the manual mode. This mode remains for 30 seconds. During this time the mixer can be adjusted with the *Adjustment Button*. Turning the button clockwise opens the mixer, turning counter clockwise closes the mixer. As long as the mixer is in the manual mode the status indication is flashing. Pressing the Button "Manual Mode" (> 2 Sec.) during that time sets the mixer back to the normal mode.



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4 Wiring for Mixers Version V1X

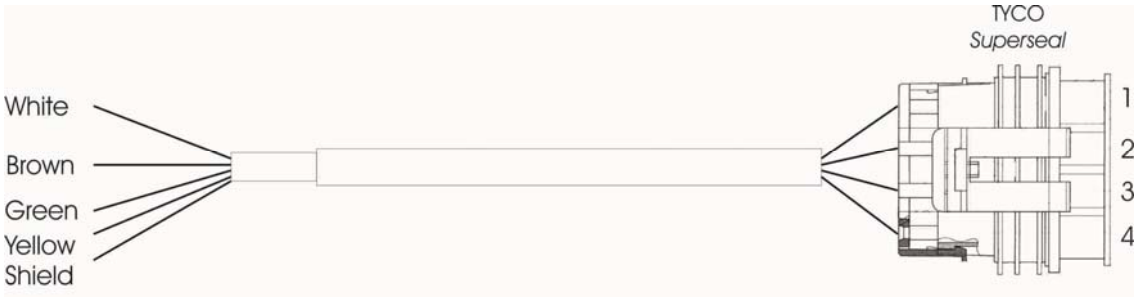
The gas mixer RM 814, 25, 40 and 55 can be controlled by an analogue signal (0..10 V , 2..10 V, 0..20 mAmp or 4..20 mAmp) or in connection with the AF 2000 via Can Bus. **In case the Can Bus control mode is used, the unit offers 6 additional analogue inputs, one analogue output 0..10 V and one binary input.** The binary output can be used in **both working** modes.

Important

The mixer is normally supplied in CAN mode. If Analog Mode is required, please state this clearly on the Order.

4.1 Analogue Mode

Using the analogue mode the 4-pol Tyco connector must be wired as follows:



White	Ground (-) Power Supply
Brown	Power Supply +24 V DC
Green	Signal Ground (-)
Yellow	+ Signal Input 0..10V / 2..10V / 0..20mA / 4..20mA
Shield	Connected to PE

On the Mixer PCB the DIP switches and the jumper must be set as follows:

		Dip Switch										Jumper 1:2
		1	2	3	4	5	6	7	8	9	10	
Mixer Control	0..10 V	OFF					ON	ON	OFF	OFF	OFF	ON
	2..10 V	OFF					ON	ON	OFF	OFF	OFF	OFF
	0..20 mA	ON					ON	ON	OFF	OFF	OFF	ON
	4..20 mA	ON					ON	ON	OFF	OFF	OFF	OFF

DIP SWITCH 2-5 are for the Analogue Input configuration, refer to page 13.

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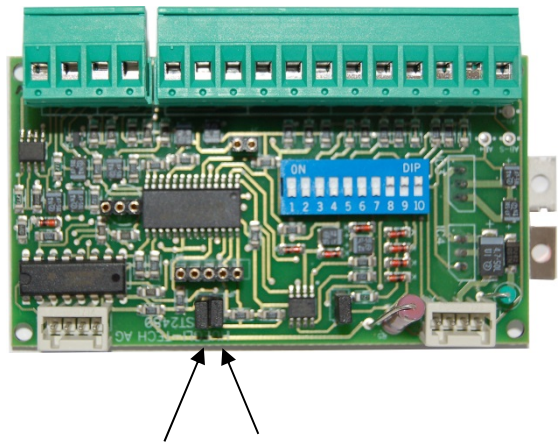


Setting Mixer Type (JP1:1)*

RM 814	Closed
RM 25	Open
RM 40	Open
RM 55	Open

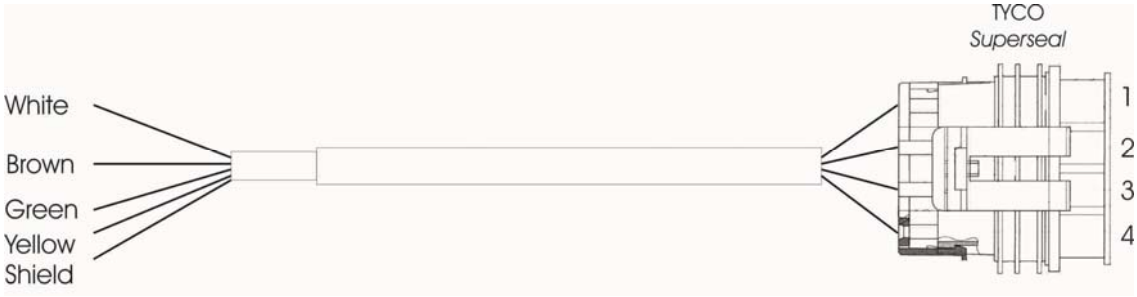
only Software Version 13 or higher

HINT:
Changes on DIP Switches 6 to 10 and Jumpers 1 are only valid after Power Down Reset!

4.2 Can Bus Mode

4.2.1 Supply and Communication

If the mixer is controlled by Can Bus the Tyco connector must be wired as follows:



White	Ground (-)Power Supply
Brown	Power Supply +24 V DC
Green	CAN-H
Yellow	CAN-L
Shield	Connected to PE

Important

The mixer is normally supplied in CAN mode. If Analog Mode is required, please state this clearly on the Order.

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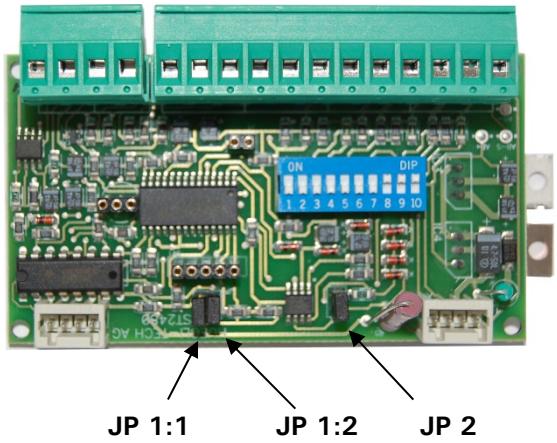
On the Mixer PCB the DIP switches and the jumper must be set as follows:

		Dip Switch									
		1	2	3	4	5	6	7	8	9	10
Mixer Control	CAN BUS	*					OFF	OFF	*ON*	*ON*	*ON*

*** Depending on the use of Input 1**

With the jumper 1:2 the Can Bus Address of the Mixers set.
This address must be the same as configured in the AF 2000!



Setting Mixer Type (JP1:1)*

RM 814	Closed
RM 25	Open
RM 40	Open
RM 55	Open

only Software Version 13 or higher

Setting Can Bus Address (JP1:2)

Address 1	Closed
Address 2	Open

HINT:
Changes on DIP Switches 6 to 10 and Jumpers 1 are only valid after Power Down Reset!

4.2.2 Termination of the Can Bus

The first and the last unit of the Can Bus must be terminated by a 120 Ohm resistor. This resistor is already built in on the Mixer PCB and can be activated with the jumper JP2.

		Jumper 2
Termination Resistor	off	OFF
	on	ON

4.2.3 Analogue Inputs

Totally 6 analogue Inputs are on the PCB :

Input 1 + 2	*0..10V or 0..20mA*
Input 3	*0..10V or 0..20mA or resistance max. 250 Ohm*
Input 4 + 5 + 6	*resistance max. 250 Ohm or RTD/ Pt100*

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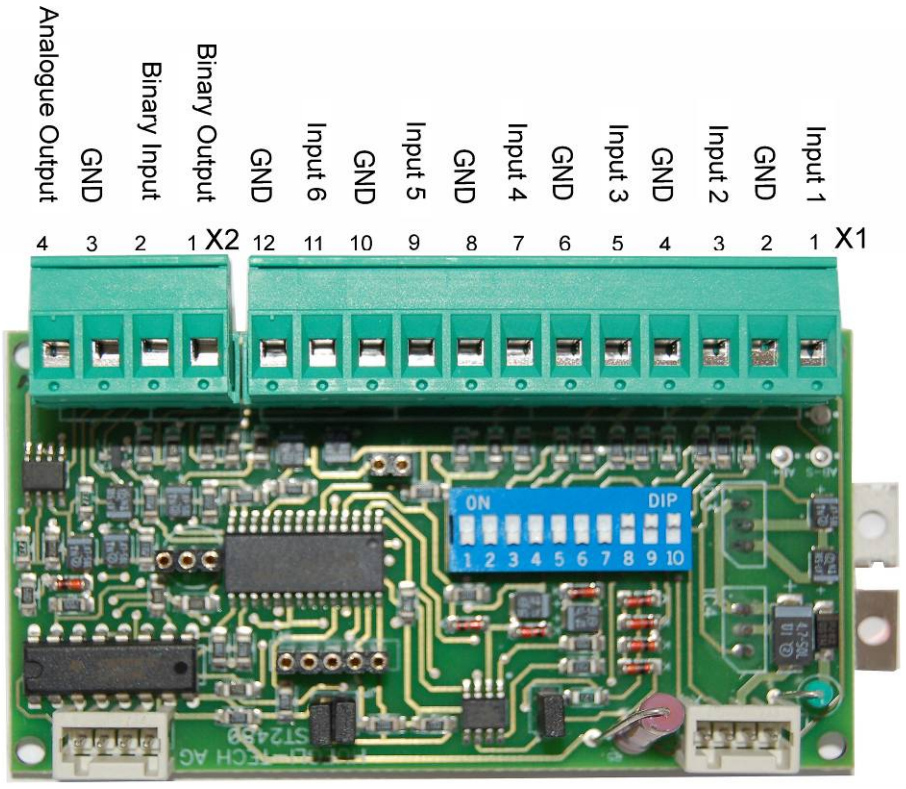
The input range must be set with the DIP switches:

The signal selection (resistance or RTD/Pt100) for the inputs 4 – 6 must be done in the AF-2000.

4.2.4 Connection Terminal

		Dip Switch									
		1	2	3	4	5	6	7	8	9	10
Input 1	0..10 V	**OFF**									
	0..20 mA	***ON***									
Input 2	0..10 V		**OFF**								
	0..20 mA		***ON***								
Input 3	0..10 V			**OFF**	**OFF**	***ON***					
	0..20 mA			**OFF**	***ON***	***ON***					
	Widerstand			***ON***	**OFF**	**OFF**					



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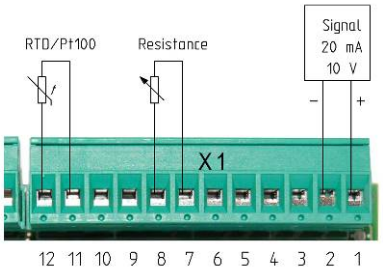
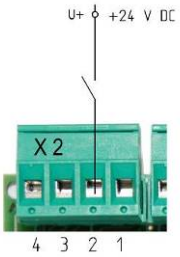
4.2.5 Connection of the Analogue Inputs

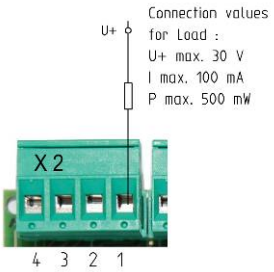


4.2.6 Connection of the Binary Input



The binary input is controlled by an active 24 V DC signal. The ground of this signal must have the same potential as the mixer supply. If not, an additional connection to X2 terminal 3 has to be made.

4.2.7 Connection of the Binary Output

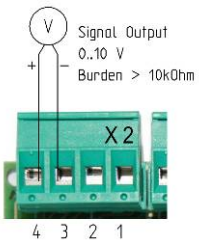


The binary output is used for surveillance or alarm of the mixer. As long as the mixer is powered on and in normal working mode the output is set. A relay connected to this output will be energized.

Following conditions will switch off the alarm output:

No power supply on the mixer
Mixer in Manual Mode
Stepper motor defective or not connected

4.2.8 Analogue Output 0...10 Volt



The analogue output can only be used if an AF 2000 is connected together with an InteliSys. In the InteliSys this output can be configured.

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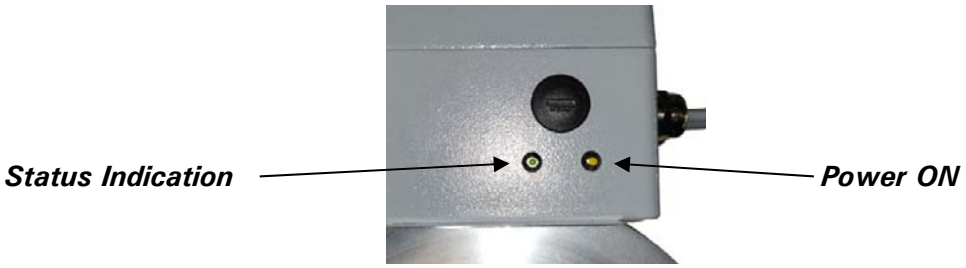
5 Operation and Indication for Mixers Version V2X

5.1 Pilot Lamps



Power ON (green)
Illuminates when the power supply is turned on.

Status Indication (yellow)
Illuminates when the mixer is moving.

6 Wiring for Mixers Version V2X

The gas mixer RM 814, 25, 40 and 55 can be controlled by an analogue signal (0..5 V, 0..10 V , 2..10 V, 0..20 mAmp or 4..20 mAmp) or in connection with the AF 2000 via Can Bus.

Important

The mixer is normally supplied in CAN mode. If Analog Mode is required, please state this clearly on the Order.

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6.1 Feedback sensor output with signal converter (optional feature)

The signal converter can accept to follow input signal:

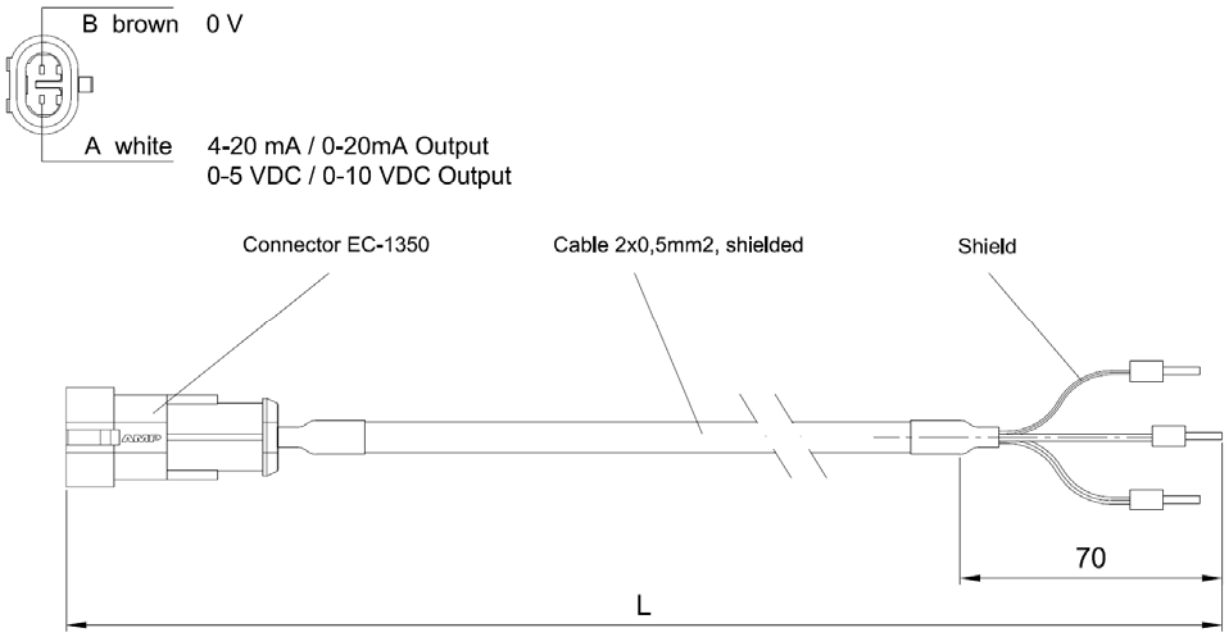
- 0.5 – 4.5VDC (FDBK input using for the internal feedback sensor)
- 0 – 5VDC (Input FDBK X4.5)
- 0 – 10VDC (Input FDBK X4.5)

DIP Switch settings see at position 6.3.3 Feedback Converter Input Configuration

The signal converter output can set with the follow output signal:

- 0 – 5VDC (Output 1 X3. 2)
- 0 – 10VDC (Output 1 X3. 2)
- 0 – 20mA (Output 2 X3. 4)
- 4 – 20mA (Output 2 X3. 4)

DIP Switch settings see at position 6.3.4 Feedback Converter Output Configuration



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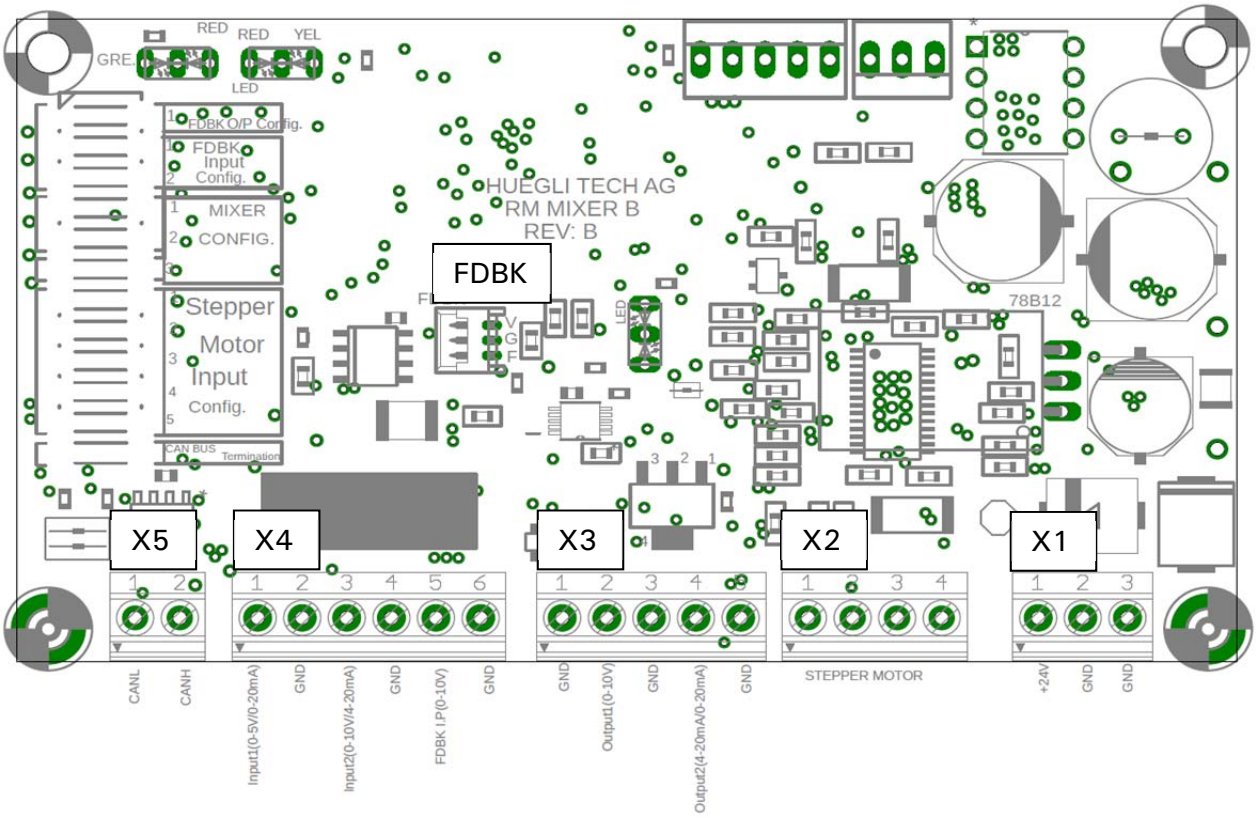
6.2 Connector Details



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6.3 DIP Switch Configuration RM-REV2 Controller

6.3.1 Mixer Configuration

Switch(S1) Position	Active Mixer Type
S1: OFF ON 4 ■ 5 ■ 6 ■	**RM25/RM40/RM55** **(Low Speed)**
S1: OFF ON 4 ■ 5 ■ 6 ■	**RM814** **(Low Speed)**
S1: OFF ON 4 ■ 5 ■ 6 ■	**MMX** **(Low Speed)**
S1: OFF ON 4 ■ 5 ■ 6 ■	**RM25/RM40/RM55** **(Mid Speed)**
S1: OFF ON 4 ■ 5 ■ 6 ■	**RM814** **(Mid Speed)**

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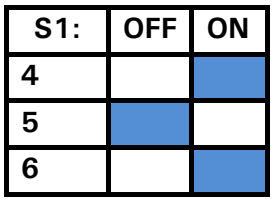
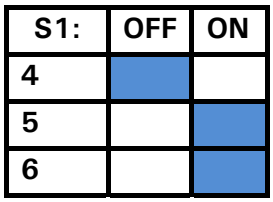
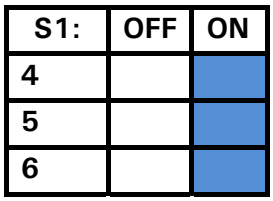
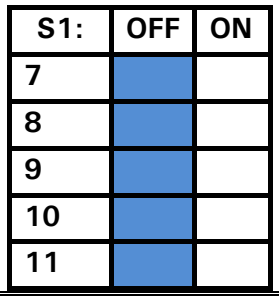
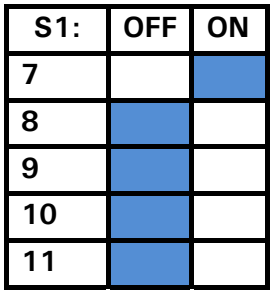
	**RM25/RM40/RM55** **(High Speed)**
	**RM814** **(High Speed)**
	**FREE** (For future use)

6.3.2 Stepper Motor Control Input Configuration

Switch(S1) Position	Active Input for Stepper Motor
	Input **0-5V** used to control the stepper motor (Yellow LED 'ON') Input 1: X4.1
	Input **0-10V** used to control the stepper motor (Green LED ON) Input 2: X4.3

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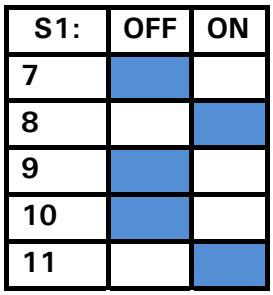
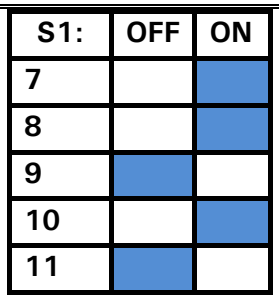
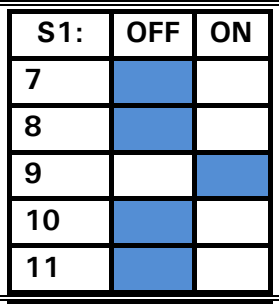
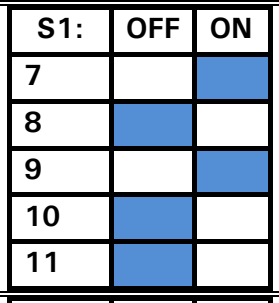
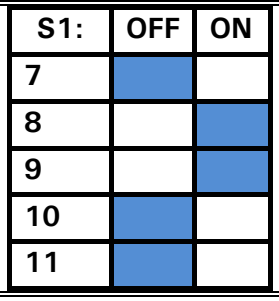
	Input **0-20mA** used to control the stepper motor (Red LED ON) Input 1: X4.1
	Input **4-20mA** used to control the stepper motor (Red & Red LED ON) Input 2: X4.3
	CAN bus command used to control the stepper motor Address:1552(610h) (Red & Green LED ON) X5
	CAN bus command used to control the stepper motor Address:1553(611h) (Green & Yellow LED ON) X5
	Free1 (Red & Yellow LED on)

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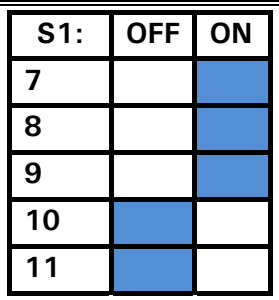
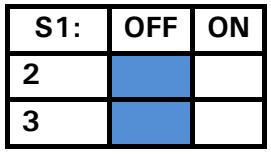
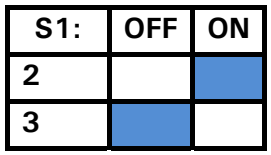
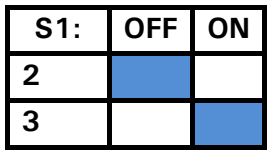
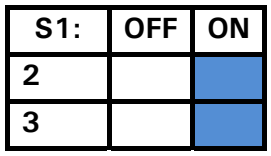
	**Auto Running UP/DOWN** (For testing purpose All LED on = Yellow & Orange)

6.3.3 Feedback Converter Input Configuration

Switch(S1) Position	Active Input for Feedback Converter
	Feedback Input **0.5 - 4.5V** used for conversion and output (0-20mA/4-20mA/0-5V/0-10V) FDBK
	Auxiliary Feedback Input **0 - 5V** used for conversion and output(0-20mA/4-20mA/0-5V/0-10V) Input X4.5
	Auxiliary Feedback Input **0 - 10V** used for conversion and output(0-20mA/4-20mA/0-5V/0-10V) Input X4.5
	CAN bus command used for conversion and output(0-20mA/4-20mA/0-5V/0-10V) (* Set CAN bus address on input config) X5

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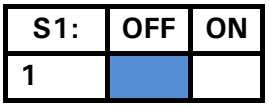
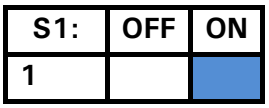
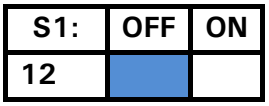
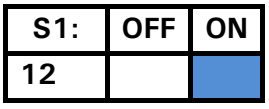
6.3.4 Feedback Converter Output Configuration

Switch(S1) Position	Active output
	Output1: **0-5V** X3.2 Output2: **0-20mA** X3.4
	Output1: **0-10V** X3.2 Output2: **4-20mA** X3.4

6.3.5 CAN Bus Termination Resistor

Switch Position(SW5)	Termination Resistor
	Termination Resistor 120 Ohms disconnected
	Termination Resistor 120 Ohms connected

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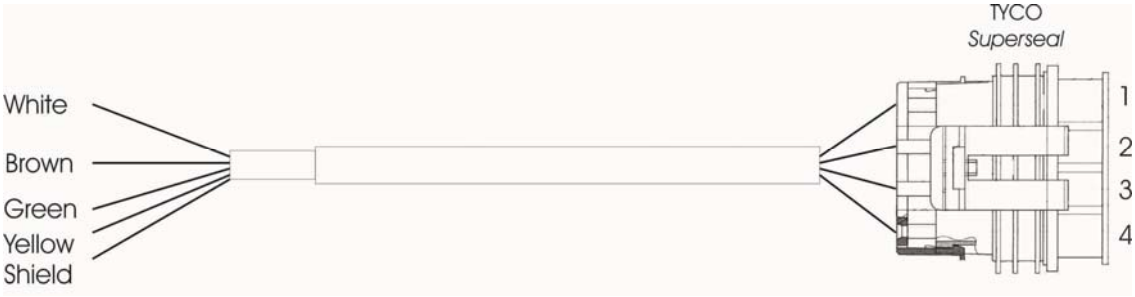
6.4 Can Bus Mode

6.4.1 Supply and Communication

If the mixer is controlled by Can Bus the Tyco connector must be wired as follows:



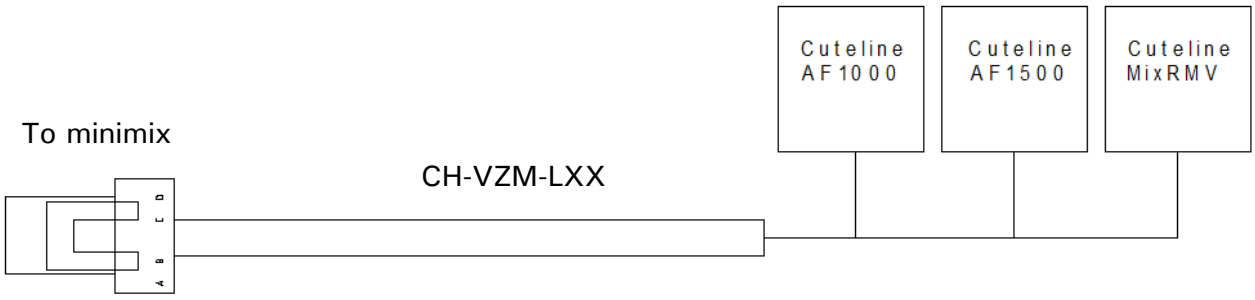
White	Ground (-)Power Supply
Brown	Power Supply +24 V DC
Green	CAN-H
Yellow	CAN-L
Shield	Connected to PE

Important

The mixer is normally supplied in CAN mode. If Analog Mode is required, please state this clearly on the Order.

7 Cable selection for all RM XXX and Minimix

7.1 Minimix series with CuteLine driver modules stepper motor cable



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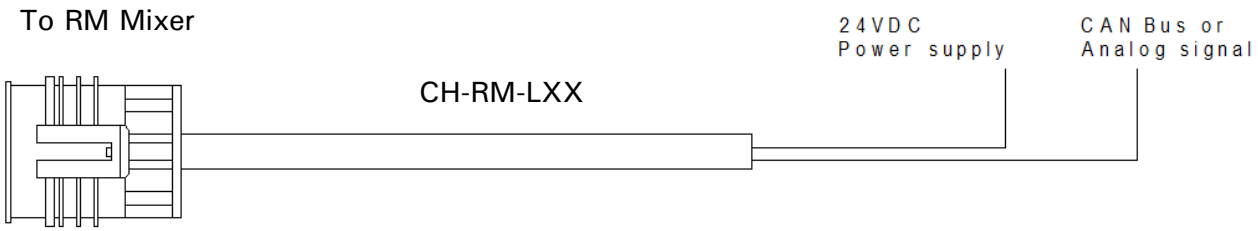
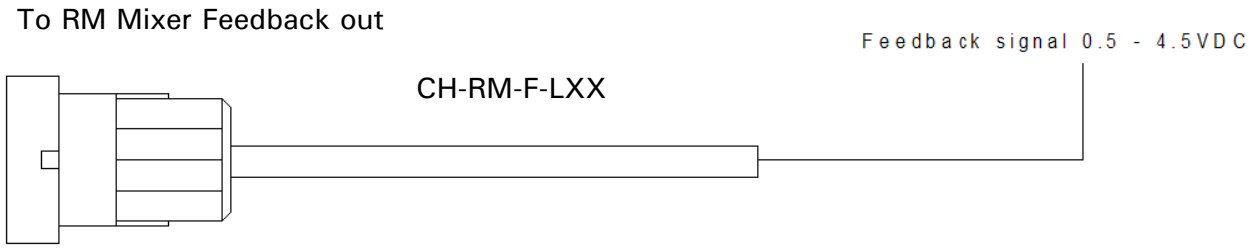
7.2 V1X RM 814 / RM25 / RM40 / RM 55 Power and signal cable

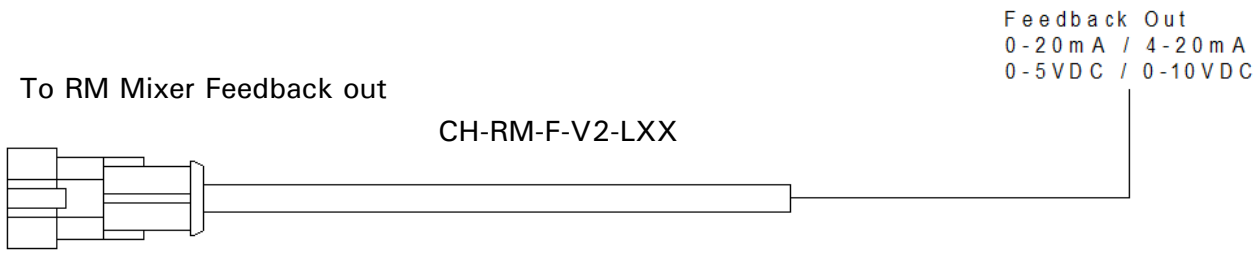


7.3 V1X RM 814 / RM25 / RM40 / RM 55 Feedback signal cable



7.4 V2X RM 814 / RM25 / RM40 / RM 55 Power and signal cable

7.5 V2X RM 814 / RM25 / RM40 / RM 55 Feedback signal cable



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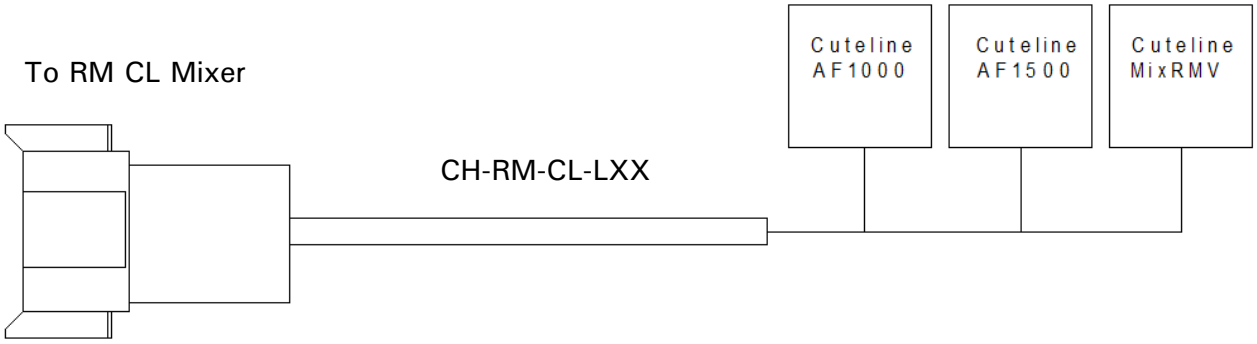
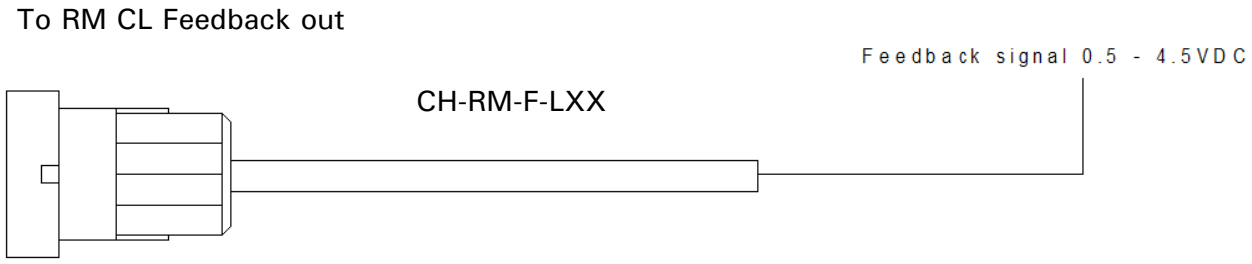
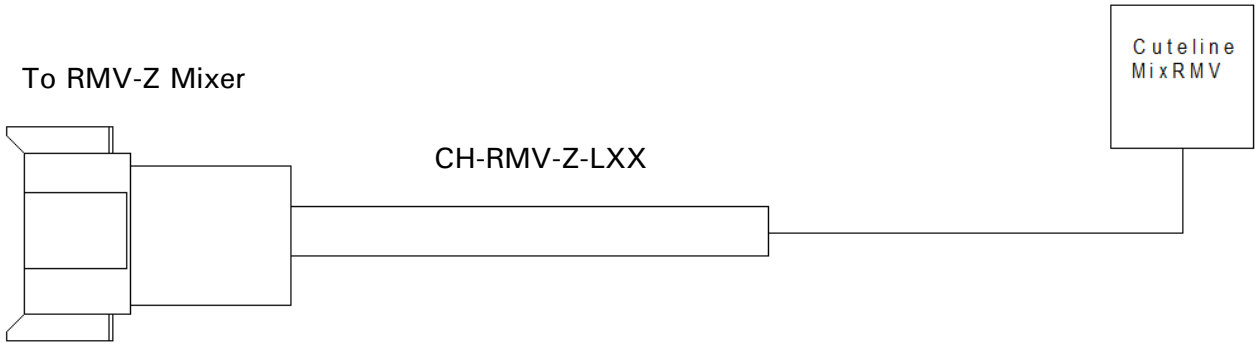
7.6 RM CL series with CuteLine driver modules stepper motor cable



7.7 RM CL series with CuteLine Feedback signal cable



7.8 RMV-Z series with CuteLine driver modules stepper motor cable



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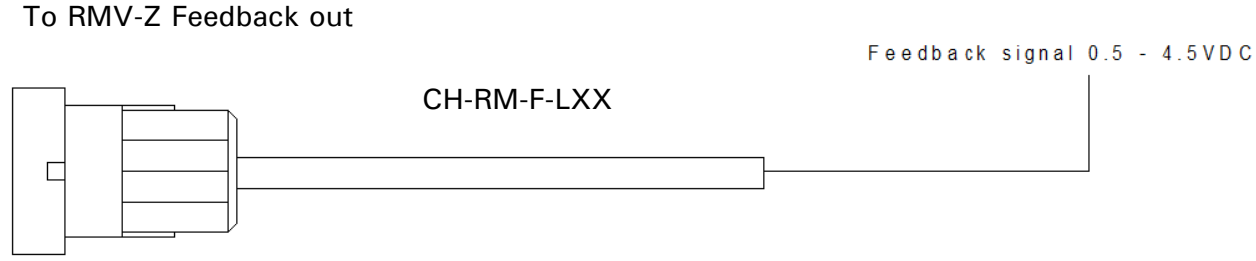
7.9 RMM-Z series with CuteLine Feedback signal cable



8 Maintenance

Once a year visual and mechanical inspection should be done.

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