Manuals+ — User Manuals Simplified.

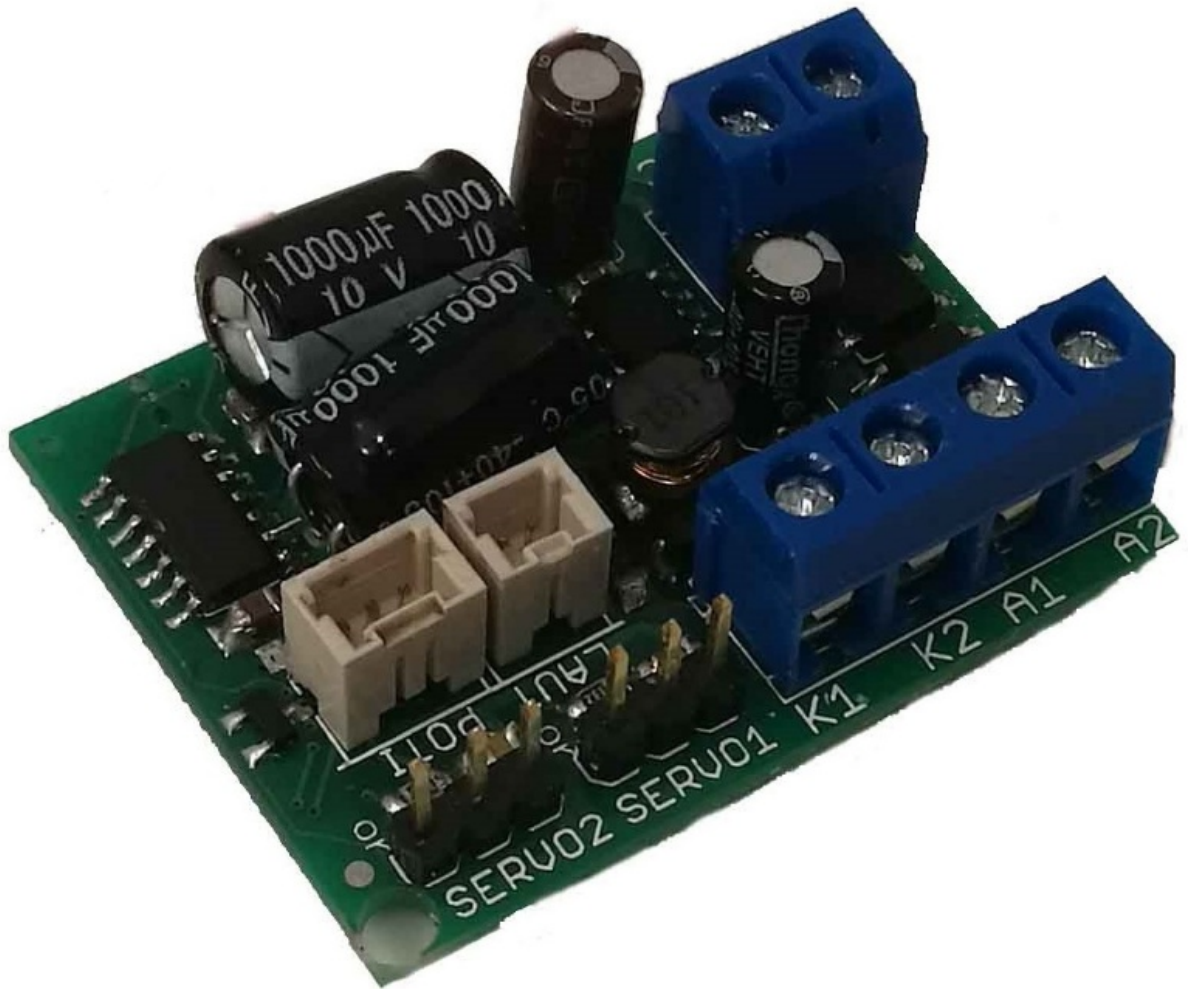# mXion KBM Railway Barrier Module User Manual

Contents

mXion KBM Railway Barrier Module

Introduction

Dear customer, we strongly recommend that you read these manuals and the warning notes thouroughly before installing and operating your device. The device is not a toy (15+).
NOTE: Make sure that the outputs are set to appropriate value before hooking up any other device. We can't be responsible For any damage if this is disregarded.

General information

We recommend studying this manual thoroughly before installing and operating your new device. Place the decoder in a protected location. The unit must not be exposed to moisture.
NOTE: Some funktions are only available with the latest firmware. Please make sure that your device is programmed with the latest firmware.

Summary of Functions

DCC NMRA digital operation Very small outlet
Compatible NMRA-DCC module 2 reinforced function outputs
2 inputs
2 independed servo outputs All times configurable
Re-Swing function
Audio output 3W for bell sounds 4 Sounds available

- DB (electrical)
- SBB/RhB (electrical)

- USA (electrical)
- DR (mechanical) also fits DB, HSB Railcrossing control unit

Defined start switching position Outputs invertable Freq. adjustable for Hall-effect for DR bell Double bell for DR-bell sound Function outputs dimmable Reset function for all CV values Easy function mapping Multiple programming options (Bitwise, CV, POM accessoire decoder, register) Needs no programming load.

Scope of supply
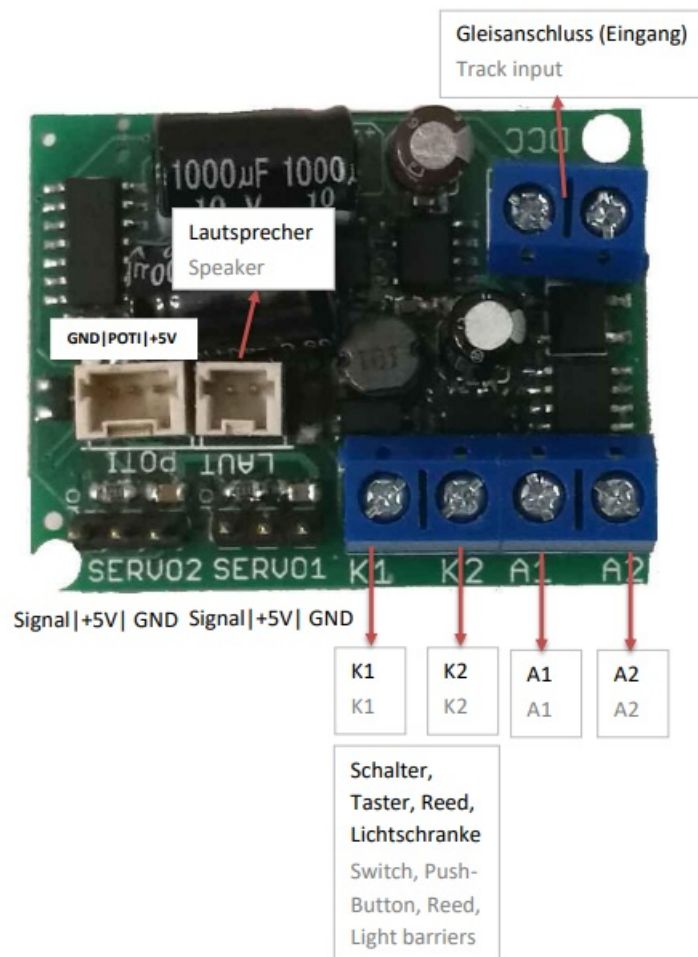
- Manual
- mXion KBM

Hook-Up

Install your device in compliance with the connecting diagrams in this manual. The device is protected against shorts and excessive loads. However, in case of a connection error e.g. a short this safety feature can't work and the device will be destroyed subsequently.
Make sure that there is no short circuit caused by the mounting screws or metal.
NOTE: Please note the CV basic settings in the delivery state.

Connectors

The opposite pole (DEC+) is on the bottom as a soldering contact. This is the opposite pole for the outputs A1 and A2. The opposite pole for the switching contacts K1 and K2 is DEC- (GND). This one is also on the bottom. Alternatively, K1 and K2 can also be used against the digital track.

Gleisanschluss (Eingang)
Track input

Lautsprecher
Speaker

GND|POTI|+5V

Signal|+5V| GND Signal|+5V| GND

K1	K2	A1	A2
K1	K2	A1	A2

Schalter,
Taster, Reed,
Lichtschranke
Switch, Push-
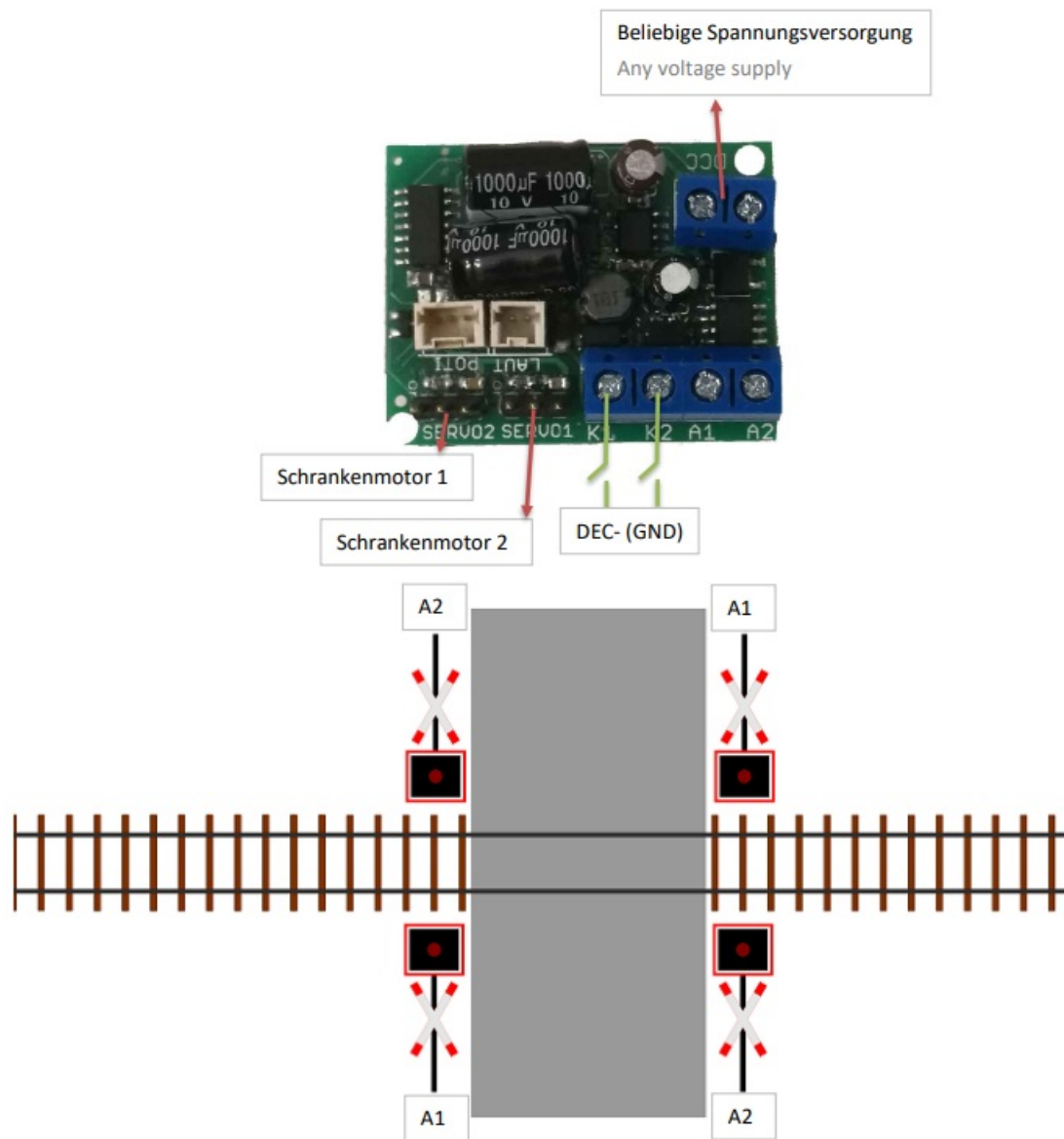Button, Reed,
Light barriers

Product description

The mXion KBM is a universal usable railroad crossings module. The module stands out especially because of its many adjustment options out. In addition to 2 servo connection operable) hast he module 2 switching outputs for St. andrew's cross lights. with up to 1 A per output as well as 2 switching inputs for manual triggering and an audio output as well as 4 stored gong sounds of the most common railroad crossings. A connection for one volume control is also available, alternatively but this can also be done by programming. The module is characterized by the fact that one all times such as the waiting time before the drop
the barriers, yes even one offset of the barriers, yes even one offset of the barriers flashing and gonglength as well as many other settings ca. As a special feature, it is even possible to adjustable rocker length and speed. Another feature is the same changing the gong-off time so that you can choose the gong and the flashing the outputs even when closed barrier (e.g. USA) can use. This feature also allows the use on unrestricted level crossings.

Connecting example analog
In analog mode, the module is bel. tension supplied and the control fo the barriers takes place through the 2 contact inputs. These can also, for example, parallel to a commercial button in the track with a reed.

Beliebige Spannungsversorgung
Any voltage supply

Schrankenmotor 1

Schrankenmotor 2

DEC- (GND)

Connecting example digital
The contact inputs are only necessary if the module should see the train and switch automatically. Optionally
Reed or light barriers.

Gleisanschluss (Eingang)
Track input

Schrankenmotor 1

Schrankenmotor 2

Optional
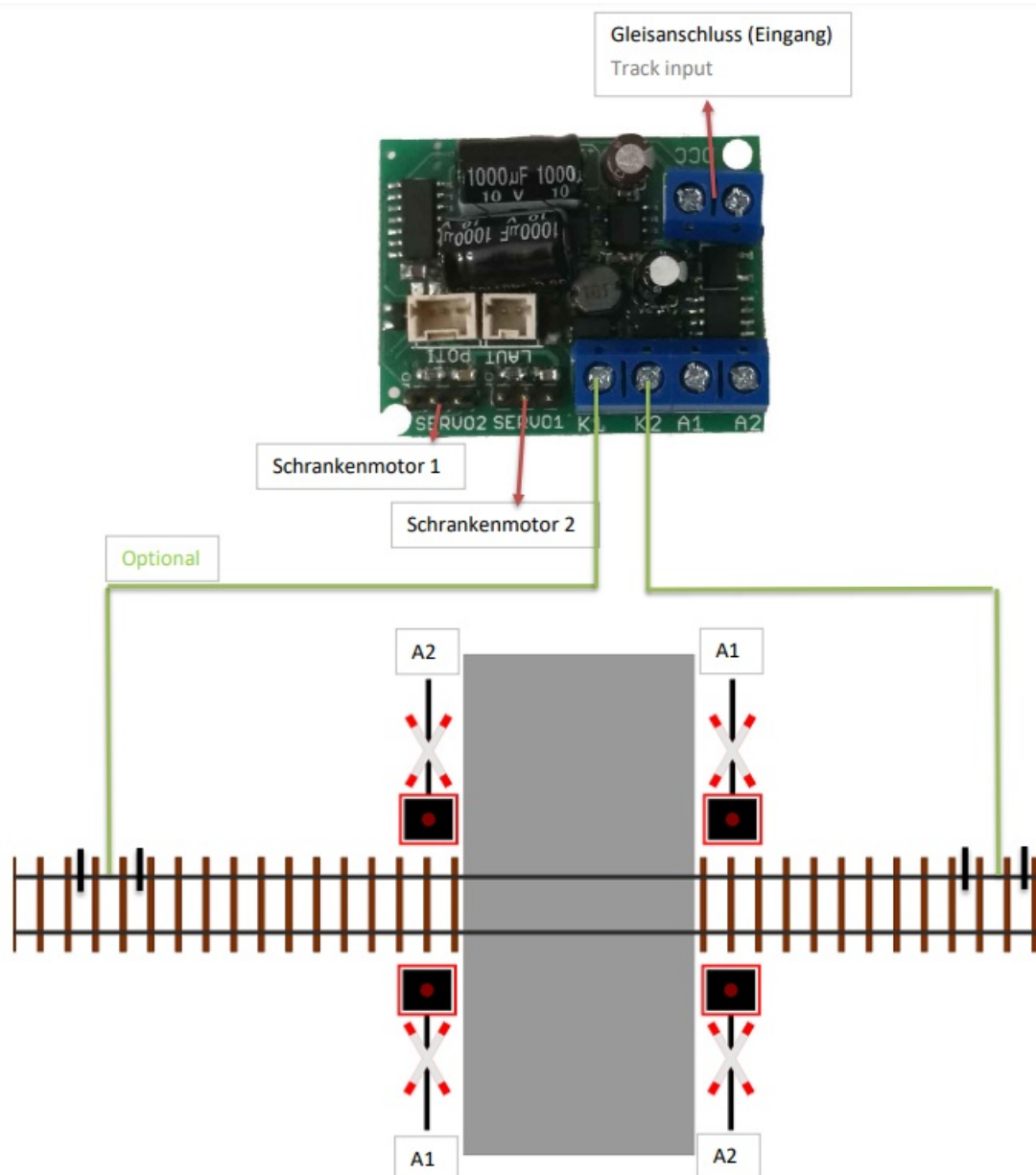
Programming lock

To prevent accidental programming to prevent CV 15/16 one programming lock. Only if CV 15 = CV 16 is a programming possible. Changing CV 16 changes automatically also CV 15. With CV 7 = 16 can the programming lock reset.
STANDARD VALUE CV 15/16 = 115

Programming options
This decoder supports the following programming types: bitwise, POM and CV read & write and register-mode. There will be no extra load for programming.
In POM (programming on maintrack) the programming lock is also supported. The decoder can also be on the main track programmed without the other decoder to be influenced. Thus, when programming the decoder can not be removed.
NOTE: To use POM without others decoder must affect your digital center POM to specific decoder adresses.

Programming binary values
Some CV's (e.g. 29) consist of so-called binary values. The means that several settings in a value. Each function has a bit position and a value. For programming such a CV must have all the significances can be added. A disabled function has always the value 0.
EXAMPLE: You want 28 drive steps and long loco address. To do this, you must set the value in CV 29 2 + 32 = 34 programmed.

Programming switch address

Switch addresses consist of 2 values.

For addresses < 256 the value can be directly in the address low. The high address is 0. If the address is > 255 this is as follows (for example address 2000):

2000 / 256 = 7,81, address high is 7

2000 – (7 x 256) = 208, address low is then 208.

Programm these values into the CVs of manual driving of turn.

Reset functions

The decoder can be reset via CV 7. Various areas can be used for this purpose. Write with the following values:

- 11 (basic functions)

- 16 (programming lock CV 15/16)

- 33 (function and switch outputs)

CV-Tabelle

S = Standard, A = Analogbetrieb nutzbar

CV	Beschreibung	S	A	Bereich	Bemerkung
7	Softwareversion	–		–	nur lesbar (10 = 1.0)
7			Decoder-Resetfunktionen		
	3 Resetbereiche wählbar			11	Grundfunktionen (CV 1-119 ohne CV15/16)
				16	Programmiersperre (CV 15/16)
				33	Funktions- & Weichenausgänge (CV 120-142)
8	Herstellerkennung	160		–	nur lesbar
7+8			Registerprogramiermodus		
	Reg8 = CV-Adresse Reg7 = CV-Wert				CV 7/8 behalten dabei ihren Wert CV 8 erst mit Zieladresse beschreiben, dann CV 7 mit Wert beschreiben oder auslesen (bspw: CV 49 soll 3 haben) ➜ CV 8 = 49, CV 7 = 3 senden
15	Programmiersperre (Schlüssel)	115		0 – 255	Zum Sperren nur diesen ändern
16	Programmiersperre (Schloss)	115		0 – 255	Änderung hier ändert CV 15
48	Weichenadressberechnung	0		0/1	0 = Weichenadresse nach Norm 1 = Weichenadresse wie Roco, Fleischmann
49	mXion Konfiguration	20	√		bitweise Programmierung

Bit	Wert	AUS (Wert 0)	AN
0	1	Schranke keine def. Position	Schranke definierte Position
1	2	Startposition normal	Startposition invers
2	4	Ausgänge parallel	Ausgänge gegenphasig
3	8	Ausgänge normal	Ausgänge blenden über
4	16	Ausgang/Sound normal	Ausgang/Sound synchron
5	32	K1 normal	K1 invers
6	64	K2 normal	K2 invers
7	128	Servo Endposition nicht halten	Servos Endposition aktiv halten

CV	Beschreibung	S	A	Bereich	Bemerkung
120	Schaltadresse hoch	0		1 – 2048	Weichenadresse für manuelles auslösen. Wenn < 256, einfach in CV121 eintragen.
121	Schaltadresse tief	1			
122	Servolage oben 1	88	√	0 – 255	Servolage in Grad
123	Servolage unten 1	45	√	0 – 255	Servolage in Grad
124	Servolage oben 2	88	√	0 – 255	Servolage in Grad
125	Servolage unten 2	45	√	0 – 255	Servolage in Grad

S = Standard, A = Analogbetrieb nutzbar

CV	Beschreibung	S	A	Bereich	Bemerkung
126	Servogeschwindigkeit	30	√	0 – 255	Zeitbasis 1ms/Wert
127	Servohaltezeit	2	√	0 – 255	Haltezeit Servoposition nach Erreichen der Endposition Zeitbasis 0,1 sek./Wert
128	Servowartezeit	2	√	0 – 30	Impulswartezeit (0-5 ➔ Digitalservo, 5-20 ➔ Analogservo)
129	Nachwippen	0	√	0/1	Nachwippfunktion aktivieren/deaktivieren
130	Nachwippweg	20	√	0 – 255	In Grad zur Endlage
131	Nachwippgeschwindigkeit	7	√	0 – 255	Zeitbasis 1ms/Wert
132	Servo 1 Verzögerung	0	√	0 – 255	Verzögerung zu CV137 Zeitbasis 0,1 sek./Wert
133	Servo 2 Verzögerung	0	√	0 – 255	Verzögerung zu CV137 Zeitbasis 0,1 sek./Wert
134	Dimmwert A1	100	√	0 – 100	In Prozent zur Gleisspannung
135	Dimmwert A2	100	√	0 – 100	In Prozent zur Gleisspannung
136	Blinkfrequenz	7	√	0 – 255	Zeitbasis 0,1 sek./Wert
137	Blinkdauer vor Absenken	50	√	0 – 255	Zeitbasis 0,1 sek./Wert
138	Soundauswahl	0	√	0 – 3	0 = DB elektronisch 1 = RhB/SBB elektronisch 2 = DR/HSB/DB mechanisch 3 = USA elektronisch Werteänderung ändert CV136,139,142 auf idealen Wert einmalig. Anpassung möglich
139	Glockenschlagabstand	40	√	0 – 255	Zeitbasis 10ms/Wert
140	Lautstärke	255	√	0 – 255	Poti wird automatisch erkannt
141	Sperrzeit Kontakte	32	√	0 – 255	Kontaktsperrzeit nach Ausfahrt durch Kontakte (Wartezeit für Neutriggerung) Zeitbasis 0,25 sek/Wert
142	Blinken wenn Baken unten	0	√	0 – 3	Wenn Schranke unten, 0 = Sound aus, Lampen dauerhaft an 1 = Sound an, Lampen dauerhaft an 2 = Sound aus, Lampen blinken 3 = Sound an, Lampen blinken
143	Abstufungen Servosteuerung	8	√	2 – 30	Abstufungen/Feinheit Servo
144	Wiederholzeit direkt für DR-Gong	5	√	0 – 255	Zeitbasis 1ms/Wert Wiederholt den DR-Gong sofort nach der Zeit für Doppel-Effekt; 0 = deaktiv
145	Frequenzanpassung für Wiederholung bei DR-Gong	255	√	0 – 255	Frequenzänderung für DR-Gong (2) für Doppel-Klang Effekt

S = Default, A = Analog operation usable

CV	Description	S	L/S	Range	Note
7	Software version	–		–	read only (10 = 1.1)
7	**Decoder reset functions**				
	3 ranges available			11	basic settings (CV 1,11-13,17-19,29-119)
				16	programming lock (CV 15/16)
				33	function- & Switch outputs (CV 120-139)
8	Manufacturer ID	160		–	read only
7+8	**Register programming mode**				
	Reg8 = CV-Address Reg7 = CV-Value				CV 7/8 don't changes his real value CV 8 write first with cv-number, then CV 7 write with value or read (e.g.: CV 49 should have 3) ➔ CV 8 = 49, CV 7 = 3 writing
15	Programming lock (key)	115		0 – 255	to lock only change this value
16	Programming lock (lock)	115		0 – 255	changes in CV 16 will change CV 15
48	Switch address calculation	0		0/1	0 = Switch adress like norm 1 = Switch adress like Roco, Fleischmann
49	**mXion configuration**	**20**	**√**		**bitwise programming**
	Bit	Value		OFF (Value 0)	ON
	0	1		Barrier no def. position	Barrier defined position
	1	2		Starting position normal	Starting position invers
	2	4		Outputs in parallel	Outputs not parallel
	3	8		Outputs normal	Outputs fading
	4	16		Output / sound normal	Output / sound synchron
	5	32		K1 normal	K1 invers
	6	64		K2 normal	K2 invers
	7	128		Servo do not hold the servo end position	Servo hold the servo end position
120	Switching address high	0		1 – 2048	Switch address for manual triggering.
121	Switch address low	1			If <256, just enter in CV121.
122	Servo position above 1	88	√	0 – 255	Servo position in degrees
123	Servo position below 1	45	√	0 – 255	Servo position in degrees
124	Servo position above 2	88	√	0 – 255	Servo position in degrees
125	Servolage bottom 2	45	√	0 – 255	Servo position in degrees

S = Default, A = Analog operation usable

CV	Description	S	L/S	Range	Note
126	servo speed	30	√	0 – 255	Time base 1ms / value
127	Servo hold time	2	√	0 – 255	Holding time Servo position after reaching the end position Time base 0.1 sec./value
128	Servo wait	2	√	0 – 30	Pulse Waiting Time (0-5 ➔ digital servo, 5-20 ➔ analog servo)
129	Nachwippen	0	√	0/1	Activate / deactivate follow-up function
130	Nachwippweg	20	√	0 – 255	In degrees to the end position
131	Nachwippgeschwindigkeit	7	√	0 – 255	Time base 1ms / value
132	Servo 1 delay	0	√	0 – 255	Delay to CV137 Time base 0.1 sec./value
133	Servo 2 delay	0	√	0 – 255	Delay to CV137 Time base 0.1 sec./value
134	Dimming value A1	100	√	0 – 100	In percent to the track voltage
135	Dimming value A2	100	√	0 – 100	In percent to the track voltage
136	flashing frequency	7	√	0 – 255	Time base 0.1 sec./value
137	Flashing before lowering	50	√	0 – 255	Time base 0.1 sec./value
138	sound selection	0	√	0 – 3	0 = DB electronically 1 = RhB / SBB electronically 2 = DR / HSB / DB mechanical 3 = USA electronically Value change changes CV136,139,142 to ideal value once. Adaptation possible
139	Stroke distance	40	√	0 – 255	Time base 10ms / value
140	volume	255	√	0 – 255	Poti is detected automatically
141	Blocking time contacts	32	√	0 – 255	Contact blocking time after exit through contacts (wait time for neutral triggering) Time base 0.25 sec / value
142	Blink when beacons down	0	√	0 – 3	If barrier below is down, 0 = sound off, lamps on permanently 1 = sound on, lamps on permanently 2 = sound off, lamps flash 3 = sound on, lamps flash
143	Gradations of servo control	8	√	2 – 30	Gradations / fineness servo
144	Repeat time directly for DR gong	5	√	0 – 255	Time base 1ms / value Repeats the DR gong immediately after the time for double effect; 0 = deactive
145	Frequency adjustment for repetition with DR gong	255	√	0 – 255	Frequency change for DR gong (2) for double sound effect

Technical data

- **Power supply:** 7-27V DC/DCC 5-18V AC
- **Current:** 10mA (with out functions)
- **Maximum function current:**
  - A1 0.5 Amps.
  - A2 0.5 Amps.
- **Maximum sound power:** 3 Watts
- **Maximum current:** 3A Amps.
- **Temperature range:** -20 up to 85°C
- **Dimensions L*B*H (cm):** 3.2*4.2*3.0

NOTE: In case you intend to utilize this device below freezing temperatures, make sure it was stored in a heated environment before operation to prevent the generation of condensed water. During operation is sufficient to prevent condensed water.

Warranty, Service, Support

micron-dynamics warrants this product against defects in materials and workmanship for one year from the original date of purchase. Other countries might have different legal warranty situations. Normal wear and tear, consumer modifications as well as improper use or installation are not covered. Peripheral component damage is not covered by this warranty. Valid warrants claims will be serviced without charge within the warranty period. For warranty service please return the product to the manufacturer. Return shipping charges are not covered by micron-dynamics. Please include your proof of purchase with the returned good. Please check our website for up to date brochures, product information, documentation and software updates. Software updates you can do with our updater or you can send us the product, we update for you free. Errors and changes excepted.

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www.micron-dynamics.de
https://www.youtube.com/@micron-dynamics

Documents / Resources

mXion KBM Bedienungsanleitung KBM User manual	**mXion KBM Railway Barrier Module** [pdf] User Manual KBM Railway Barrier Module, KBM, Railway Barrier Module, Barrier Module, Module

References

- ⟁ **Top Fahrradbekleidung für Damen & Herren - Ride your Style**
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