

Manual describes the snapshots taken in the previous version of the module and using older HBST program. In HBST2, the graphic appearance is slightly different but the functions remain the same. The settings describe in this manual are the same for 16Amps series Relays (MR0416.431, MR0816.432, MR1216.433, MR1616.434)

User Manual

10 A Relay Series







MR1610.433 MR1210.433 MR0810.432 MR0410.431



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INDEX

1. Overview	1
1.1 General Information	1
1.1.1 Description	1
1.1.2 Mounting	1
1.1.3 Serial Numbers	1
1.2 Functions	2
1.2.1 Common Functions	2
1.2.2 Individual Functionalities	3
1.3 Device Description	3
1.4 Recommend Load Types	4
2. Safety Precautions	4
3. Technical Data	5
4. Installation	6
4.1 Wiring	6
4.2 HDL BUS Pro Description	6
4.3 Commissioning	7
5. Software Configuration	
5.1 Basic Settings	8
5.1.1 Changing the Device ID	8
5.1.2 Remarks	8
5.2 Area Setup	8
5.3 Channel Parameters	10
5.3.1 Default Settings	10
5.3.2 Load Type	10
5.3.3 Load Testing	11
5.4 Scene Setup	11
5.4.1 Scene Settings	11
5.4.2 Scene Restore	12
5.5 Sequence Setup	13
6. New Functions	15
7. FAQ	
8. NOTES	19



1. Overview

1.1 General Information

1.1.1 Description

This intelligent 10A relay module uses a 16A launching relay, to provide high reliability and ultra-low power consumption. With a HDL Bus Pro interface based on the RS485 protocol, and integrated scene controller. With manual bypass control, the module is the perfect relay solution.

1.1.2 Mounting



- Standard 35mm Din Rail Installation
- Inside Distribution Box(DB)

1.1.3 Serial Numbers







MR0410.431

- 4 Channels
- Max. 10A per channel
- Max. 40A total

MR0810.432

- 8 Channels
- Max. 10A per channel
- Max. 80A total



MR1210.433

- 12 Channels
- Max. 10A per channel
- Max. 120A total



MR1610.433

- 16 Channels
- Max. 10A per channel
- Max. 160A total

1.2 Functions

The universal relay series have a number of programmable features, these features are listed below.

1.2.1 Common Functions

- Ability to control scenes
- Each area has 2 sequences, with each sequence having 12 steps
- Each channel has a light protection delay (0-60 minutes)
- Each channel has a batch turn-on delay (0-25 seconds)



- Each channel has manual control
- Remote programming and management is available
- The possibility of automatically activating a scene when the system is turned on
- LED status indication for each channel
- The management of staircase lamps and Mutual exclusion groups
- Support easy programming
- Support online upgrade

1.2.2 Individual Functionalities

• Areas- When channels are grouped together they can be modified with a single command.

MR0410.431	MR0810.432	MR1210.433	MR1610.433
Up to 4separated	Up to 8 separated	Up to 12	Up to 16
areas	areas	separated areas	separated areas

• Scenes –Each relay has a different number of scenes

MR0410.431	MR0810.432	MR1210.433	MR1610.433
Up to 8 scenes	Up to 16 scenes	Up to 24 scenes	Up to 32 scenes

1.3 Device Description



- a. Outputs for 4 channels
- b. Manual control buttons
- c. Name plate
- d. Programming button
- e. HDL-Buspro



1.4 Recommend Load Types

Туре	power
Motors:	1HP (1HP=746W)
Incandescent lamp load	1600 W
Inductive transformer	1000 W
Electronic transformer	800 W
Halogen lamp 230 V	1600 W
Mercury-vapor lamp	
* Uncompensated luminaire	1000 W
* Parallel compensated	800 W
Fluorescent lamp T5 / T8	
* Uncompensated luminaire	1000 W
* Parallel compensated	800 W
* DUO lamp	800 W
Dulux lamp	
* Uncompensated luminaire	1000 W
*Parallel compensated	800 W

2. Safety Precautions



Danger

Serious injuries, fire or property damage possible. Please read and follow safety all precautions fully.



Risk of fatal injury from electrical current

All work on the device should only be carried out by trained, and qualified electricians. Before working on the device, or before exchanging light bulbs, disconnect mains voltage and switch off circuit breakers.





Device can be damaged

To protect the relay, connect a breaker or fuse to each channel.



Product tampering

Only operate the device according to the specifications stated in the Technical data. The opening of the products outer housing immediately voids the warranty.

3. Technical Data

	MR0410.431	MR0810.432	MR1210.433	MR1610.433	
Electric Parameter :					
Working power	DC24~30\	/			
Static power consumption	15mA/DC2	24V			
Dynamic power consumption	40mA/DC2	24V		1	
Output channel	4CH/10A	8CH/10A	12CH/10A	16CH/10A	
Relay	16A Magr	netic latching re	lay		
Max current in each channel	10A				
Electronic life time of relay	>60000 (Resi	stance Load)			
Protection	Connect a breaker in each channel				
Environmental Conditions :					
Working temperature	0℃~45℃				
Working relative humidity	Up to 90%				
Storage temperature	-20° C ~+60	°C			
Storage relative humidity	Up to 93%				
Approved					
CE					
RoHS					
Production information :					
Dimensions	72×90×66	144×90×66	216×90×66	216×90×66	



Weight	252(g) 361(g) 645.5(g) 605(g)				
Housing material	Nylon, PC				
Installation	35mm Din R	ail installation			
Protection degree	IP20				

4. Installation

4.1 Wiring

Please strictly follow the wiring diagram shown below.



4.2 HDL Buspro Description

Connector Information

Buspro		
DC24V	Red	
СОМ	Black	
DATA-	White	
DATA+	Yellow	

HDL®

4.3 Commissioning

Method One:

a) Open the HDL-BUS Pro Setup tool software.

b) Press the programming button for 3 seconds, the LED status indicator will then turn red.

c) Using the software, click the "Address management" tab, and select the "Modify address (when device button is pressed)", the window shown below will then appear:

Subnet ID	1	Indicate initial address
Device ID		Modify initial address

d) Click on "Indicate initial address", the device ID will then be shown. If you wish to change the address, enter your modification and click "Modify initial address". Clicking on the "+Add" tab will include the device in the online devices list.

Method Two:

a) Open the HDL-BUS Pro Setup tool software.

b) Click the search button, and a new window will appear. From this window click "Search the online devices", then click the "Add all" tab. The device will then be included in the online devices list.



5. Software Configuration

5.1 Basic Settings

📕 4 channels I	0A relay IV			
Device QArea Select device Device	Channel Cocene Sequence New Functions			
Device configuration Model	HDL-MR0410.431		Model picture	
Device remark Remark		Save		
MAC	DO 00 DH 412 63 81° 17:324			
-Modify subnet ID and o Subnet ID	levice ID according to MAC Device ID	Save	Picture upload	Ext

5.1.1 Changing theDevice ID

Every HDL BUSpro device has one Subnet ID, and one Device ID. The device ID should be unique in its subnet, and be kept consistent with the Gateway (typically the SB-DN-1IP or HDL-MBUS01IP.431).

5.1.2 Remarks

To aid trouble shooting, and to assist in future modifications it is recommended that a general description is included. As an example if it is to be used in a living room set the remark as "For Living Room", if it is for distribution box 3 set the remark as "For DB3".

5.2 Area Setup

The below screen shot shows all 4 channels from the relay, these channels have not been assigned to any area.



Dasta acquisition mode Device Subnet ID 1 Remark		Model Device ID Max channels	HDL-MR0410.431 42 4	Turn On when Selected
Channels waiting allocation	Current area no. 1 Max area no. 1 Select all <- Deselect all <-	-Channels in curre	nt area	Select area

If the wiring required Channels 1 and 2 to be used to control 2 lights in a living room, and channels 3 and 4 to control 2 lights in the kitchen, the configuration process would be as follows:

- a) Click "Create area", area 1 has now been created, we can find and select it in "Select area".
- b) Select channel 1 and 2 then move them from the left column to the right column, and then click save.
- c) Click "Create area", area 2 has now been created, we can find and select it in "Select area".
- d) Select channel 3 and 4 then move them from the left column to the right column, and then click save.

Data acquisition mode Device Subnet ID 1 Remark		Model HDL-MR(Device ID 42 Max channels 4	0410.431
Channels waiting allocation	Current area no. 2 Max area no. 2 Select all <-	Channels in current area Channels in curren	Select area 2- Cleat All Select all <- Deselect all <- Create area Save

10A Relay Series- User Manual



e) As all channels have been assigned areas, there should be no channels present in the left hand column. Exit the "Area setup" window, and the two areas, (living room and kitchen) will be created.

5.3 Channel Parameters

👼 4 channe	is 10A relay IV								
Select device	Kana (Chuvrel) (GSi	ume (Ssequence)	New Functions		-				Area information
Device	1-42-HDL-MR0410.431	0		Broadcast ch	annel state	Good to know it selec	ted.it will broadcast all ch	annels states every 5a	Total area 2
Current area	1-living room		Current channel	(I-					
Area information	Remark.	Load totally	Load no.	Chrino,	Remark	Load type	Switching on delay(s)	Protection delay (min)	Ensanet modification
1	living toom	2	1	1		Undefined	0.0	D	
2	kitchen	2	2	2		Undefined	0.0	0	Loso (ypa
									Switchington delay Protection delay Load test Load test
<		3							Лы

5.3.1 Default Settings

Delays- Both a power on and a switching delay are included

The switching delay is triggered when the channel is activated, the delay time has a range of 0~25s.

The protection delay is also triggered when the channel is activated, but has a delay time of 0~60minutes.

(See the RelayFAQ006_HDL-BUSpro)

5.3.2 Load Type

The "Load type" has nothing to do with either the control method, or output behavior of the relay. If the "Load type" is left unselected it has no overall effect, by default it is left as undefined.



ic informatio	m			Current area information
) ata acquisi	tion mode	Device	Model HDL-MR0410.431	Current area 1-living room
Subnet ID Remark	1		Device ID 42	Load totality 2
dify load typ	e in current area			Modify synchronously
Load no.	Channel no.	Remark.	Load type	
1	1		Undefined	Save
2	2		Undefined.	
			Magnetic Low-Votage Lamp Electronic Lamp Nean/Cold Cahole Lamp High-Thendy Discharge(non-dim only) Lamp Relay	Ext

5.3.3 Load Testing

Before configuring the end user panel, the below window can be used to trigger the Dimmer/Relay and to check the wiring. If the "Start test" tab is clicked, Channel 1 with the device ID of 42, will begin to flash every 2 seconds. After the channel test has been confirmed click "Stop test" and then "Turn off load".

Interval of load test			
Interval (2-60s)	2 Save		
Please input device addr	ess and channel no.		
Subnet ID	1 Device ID 42 Channel no.	1 🗘 Read channel rem	ark Save address
	(If Channel no.is 255,the meaning is broadcast channels)		
Channel remark		Modify channel rem	ark
Current status	The load test has been stopped.(Subnet ID:1,Device ID:42,Ch	annel no.1)	
		Start test ([])	Stop test (S)
			C

5.4 Scene Setup

5.4.1 Scene Settings

Different relays have different numbers of scenes. Scene 0 is always reserved by the relay, to provide an "all off" function, as such it cannot be edited. The remaining scenes are editable however, to modify them follow the steps below:



a) Select the "Area", in the screen shot area "1- living room" has been selected.

b) Click "Scene setup", you can edit the "Remark", "Running time"and "Intensity". See the RelayFAQ002_HDL BUSpro.

			Select area		Scene restore
vice	1-42-HDL-MR0410-431 ()		Asea 1-fiving room		Scene restore
cene no.	from 0 To 3	Cov/im	Current channel		
nlomation			Channels information of current scene		Area information
ene no.	Remark	Running time(mm st)	Cho no Remark	Intensity	Totalama
	al di	0.0		00	
	1-100; 2-00	0.0	2	0#	Scene information
	1- on; 2 - on	0.0			Lutren/ scene no.
	1- off: 2 - on	0:0			Charl and and
					atan active no.
					End scene on
					3
					Science investigation
					Report
					Thereard.
					Spene setap
					1 Defend
					1 million

5.4.2 Scene Restore

When the scene restore tab is clicked, two options are available, "Scene before power off" and "Specified scene". If you wish to recall a scene when the relay is powered on, please refer to RelayFAQ003_HDL BUSpro.

asic information				
Subnet ID	1	Device ID	42	
Model	HDL-MR0410.431	Remark		
May area No.	2			
Synchronous mod	lification to restore mode	e after power on or each area		
Synchronous mod	lification to restore mode estore mode after power on fr Restore mode after pow	e after power on or each area wer on	Scene No.	
Synchronous mod	lification to restore mode estore mode after power on fr Restore mode after por Scene before power of	e after power on or each area wer on	Scene No. Scene before power off	
Synchronous mod cene information of re Area number 1	ification to restore mode estore mode after power on fr Restore mode after poor Scene before power of Specified scene	e after power on or each area wer on f	Scene No. Scene before power off	



5.5 Sequence Setup

ct device						Select area			Dutput sequence
Device 1-42-HDL-MR0	10.431 ()					Area	1-living room	8	Durent sequence: 1
Sequence 1-flow-nonstop		Mode	Forward mo	de		Current step	1		Dutput
RTICO						Step information			Area information
Sequence Remark	Mode	Times	Step totality	Status	lo NO	Step no.	Scerve no.	Step time (mm m)	Total area
flow-manulop	Forward mode	2	4	usekte	Invalid	1	1-1-m, 2-wil	025	Sequence
	Invalid	Unlimited	4	useable	Valid	2	3-1- off; 2 - on	0.2.5	Sequence totally
						3	2-1- on) 2 - on	0.2.5	Step totality
						4	0-all off	055	
									Sequence modification Remain Sequence Modly step
						e			Step.

Each area supports 2 sequences, with each sequence having 12 steps.

If we wish to create an area that that has an endless sequence, we would follow the below steps.

step1 (channel 1 on) -> step2 (channel 2 on) -> step 3 (channel 1 on; channel 2 on) -> step4 (channel 1 off; channel 2 off)-> step1 -> step2 -> step3.....

a) Select the "Area", in the screen shot below the selected area is "1- living room".

b) Click "Remark", we can name the sequence "flow-nonstop".

c) Click "Sequence", as 4 scenes are required, one for each step, and we want to create an endless sequence, the below settings should be followed. There are four modes available, they are Forwards, Backwards, Forwards and Backwards, and Random. (The sequence described above is the forwards mode.)

Data acquisition mode Drivice Subnet ID 1 Remark		Model Device ID Current area	HDL-MR041 42 1-living toon	0.431		
ladiy sequence					_	Modify mode
Sequence r Remark	Mode	Times	Step totaky	Did of Se	squer	unchronously
1 Non-honstep	Forward mode	2 💽	4	Invalid	1	Modify running times
	Backwood mode Frankweit nader					Modify stop number

HDL

d) Double clickon the "Step" tab, and the below window will appear. According to the effects, the 4 scenes we need for each step are scene1, scene3, scene2, and scene0.
The "Step time" is the delay time taken between the activation of different steps or scenes.
Typically the step time is higher than the running time of the scene, below the time is set at 0.5s longer than the running time of each scene.

ata acquisition	mode Device		Model	HDL-MR0410.431
ubnet ID	1		Device ID	42
emark				
urrent area	1-living room		Current sequence	1-flow-nonstop
lify step informa	ation			Modify step time
Step no.	Scene no.	Step time (mm ss)		synchronously
1	1.	0.2.5		
2	3	0:2.5		Save
3	2	0:2.5		
4	0	0:5.5		
				-
				Exit

6. New Functions

064106.	1-42-HDL-MR0410.4	131 ()	
hn no.	Remark	Stairs	Close by itself
			3
			3
		E C	3
		F	3
			1
ompt: If Io annels ma	ad Type is on the stairs, you can set ike a group. In every group, you can	a time, after the time(1-3600s), it cou select whether you want to open th	ld ba clsoed by itself. Every two e two channels at the same time
ompt: If Io annels ma t. Jhns 1-2 (ad Type is on the stairs, you can set ike a group. In every group, you can san not be opened at the same time.	a time, after the time(1-3600s), it cou select whether you want to open th	Id ba clsoed by itself. Every two e two channels at the same time
mpt: If Io annels ma hns 1-2 d hns 3-4 d	ad Type is on the stairs, you can set ike a group. In every group, you can can not be opened at the same time, can not be opened at the same time.	a time, after the time(1-3600s), it cou select whether you want to open th	ld ba clsoed by itself. E very two e two channels at the same time



Two functions are available:

a) Stair lighting: The channel can deactivate automatically when the set time has elapsed.

b) Mutual exclusion groups: Channels 1-2, or 3-4 can not be opened or closed at the same time.

7. FAQ

7.1 RelayFAQ001_HDL BUSpro

Q:

What does the "load type" tab in the HDL-BUS Pro Setup Tool refer to? Can it affect the behavior of the relay?

A:

The "load type" tab in no way affects the operation of the relay, it is simply a remark.

7.2 RelayFAQ002_HDL BUSpro

Q:

If the running time is modified in the scene setting menu to 3 seconds, and then a panel is activated by a user what will be the outcome?

A:

The load will be turned on 3 seconds after the user requests it, this feature is known as the "ON-delay time".



7.3 RelayFAQ003_HDL BUSpro

Q:

What conditions need to be met to trigger the scene restore function?

A:

Triggering the scene restore function can be achieved by selecting "Scene before power off" or "Specific scene". If "Specific scene" is selected the scene will be activated automatically when powered on. If "Scene before power off" is selected then the channel must have been active for at least 20 seconds before the power was turned off, if the scene used by the relay is to be restored.

Additionally, if the Relay was playing a sequence, the relay will play the sequence when it is powered on again.

7.4 RelayFAQ004_HDL BUSpro

Q:

If a button is pressed on the user panel, but the indicator LEDs on the Relay module and user panel do not change, or the load stays on, what could the problem be?

A:

If the unit fails to respond to commands, and the status indicators do not change, it is likely that a component has malfunctioned. To remedy this if the module is under warranty contact our sales team for an exchange, or if you wish to fix the module yourself we will ship the relevant components.

7.5 RelayFAQ005_HDL BUSpro

Q:

If a relay channel is broken, and cannot be turned on or off, can the module be temporarily used?

A:

Yes if you have pre-wired two manual switches to the relay channel as the below diagram shows.





Turn on Lamp 1: Turn on S1, it does not matter if S2 is on or off. Turn off Lamp 1: Turn off S1 and S2

7.6 RelayFAQ006_HDL BUSpro

Q:

What is the practical application of the protection delay feature?

A:

The protection delay is very simple to use, below a simple example is given:

If a protection delay of 1 minute is set, and the relay channel is turned off, it cannot be turned back on for 1 minute. This is useful for loads which are not suitable to be rapidly turned on and off.

7.7 RelayFAQ007_HDL BUSpro

Q:

In a sequence a bright scene was assigned as the last step, instead of staying 'bright' when the sequence is over it turned 'full dark'. What is the possible reason for this?

A:

When the sequence was triggered, the dimmer module saves the current status and then plays the sequence. When the sequence is over the dimmer reverts to its previous status, thus it is likely that the status was 'full dark' before the sequence was triggered.



8. NOTES

B
Since 1985