Local/Remote-Interface
Type REG-LR 'V8' with REG-D(A)

The Remote/Local Interface REG-LR connects the step UP/Down signal from severe sources to the transformer tap changer switch.
The 3-position switch at front side of REG-LR selects either the stepUP/stepDOWN signal from remote inputs, from the REG-D (AUTO) or from the local switch below.
In position 'remote' the signal stepUP from remote input is or wired with stepUP output of REG-D and DOWN from remote is or wired with DOWN from REG-D so both UP and both DOWN inputs will have influence on tap changer switch.
In position 'AUTO' only the outputs from REG-D will show a reaction on tap changer switch.
In position 'local'the signal ↑↓ from the switch below were converted to electrcal pulses with adjustable ON-time.

UP/DOWN signals from remote inputs were converted in the same manner. A green LED at front side will darken during ON-time and shows o.k. status in normal operation.
UP/DOWN signals directly coming from REG-D will not displayed.
Relay dry contacts (NO) show the signals stepUP, stepDOWN, the mode (like HAND/AUTO, Local/Remote) and o.k. status of REG-LR for return message to REG-D remote unit.
Input and outputs and switches were blocked agaist each other for noise cancelling.

- ⊕ local Trafo stepping UP/Down with removed REG-D
- ⊕ 3-position switch with turn knob or key locked
- ⊕ large auxiliary voltage range of the power supply

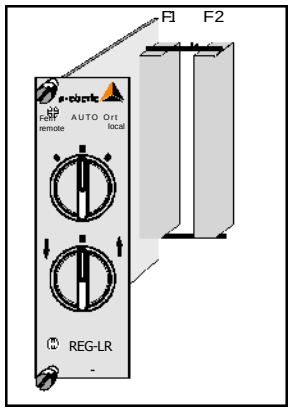
Technical Specifications

Regulatios and Standards
IEC1010, IEC801-1 bis 6 VDE0110, VDE0160
Interference immunity EN50082-2
Emitted interference EN50081-2, EN55011

Mechanilca Data
Design 19" plug-in modules (8T, 3H)
Circuit board 100 x 160mm
Front panel Aluminium, RAL 7035 grey
Configuration according to DIN 41494 Part 5
Plug-in connector 2 units, 'F1': DIN 41612 MH 24+7pole
'F2': high current 4-pole
19" mounting 'F1' at Positions 'n' and 'F2' plus 3T
Degree of protect./Weight IP00 / Plug-in modules ~0.6kg

Input
remote inputs UP,DOWN$_{Rem}$, HAND/AUTO$_{Remote}$, HAND$_{Remote}$
input voltage Ue DC/AC 50..400Hz sin., square wave 1:1
H-Level (1) 50 ..250 V, inp.resist. 70 ..100kOhm (E3)
12 ..60 V, inp.resist.15kOhm(Feat.E2)
L-Level (0) < 5 V
Isolation voltage. AC 250 V between inputs (E3)
input signal stepUP,DOWN from REG-D
Contact load AC 230V 2A, DC 220V 50W

Output
voltage U+ to Binary Inputs BE of REG-D
BE 50V ON(1) > 10V DC; load >10kOhm
BE 250V ON(1) > 38V DC; load >47kOhm
OFF(0) < 5V DC
Relays 4 pcs NO and 2pcs NO / NC (Feature U1/U2)
Contact load AC 250V 2A DC 220V 150W
Number of switching operations < 10^5



Transfer behavorial

Remote inputs
UP, DOWN one control wire each; pulse
with positive edge and ON-time ≥ 0.5 sec
Feature **'V8**: U/D$_{remote}$ ' or wired' with U/D $_{REG-D}$
pulse output from REG-LR
time adjustable 1 ..5 sec; default 2sec
idle time between pulses: >1,5sec
ready for operation: a NC current switch in 19" connector F2 wires each the UP and the DOWN input with its output while REG-LR is unplugged
(in case of REG-LR defect remove the plug in modul)
Feature 'U2': Relais AUTO with NC contacts
in case of no power supply UP/DOWN from REG-D will be switched thru REG-LR to tap changer switch .
An separate output signals the 'o.k.status of REG-LR.

Safety
Safety class / Overvoltage category I / II
Degree of pollution / Test voltage 2 / 2.3kV AC
Test voltage 2.3kV AC
Output voltage U+ to supply voltage,
to relay contacts, to auxiliary voltage
Supply voltage to auxiliary voltage, to relay contacts
Auxiliary voltage to relay contacts

Power supply
Galv. separated; Feature H1 AC 85..240V /DC100..264V
Feature H2 AC 20.. 60 V / DC 18..72 V Power consumption < 6VA/6W H1; 1A/T H2; 2A/T

Temperature Operation 0 ... +65°C
Storage, transport -25 ... +85°C

Code Table Feature **'V8**

Mode			**Remote inputs**			**REG-D**		**Relay outputs**				
switch	U	D	Hand/Auto	U	D$_{Rem}$	$_{step}$U	D	L/R	H/A	$_{step}$U	D	
remote	x	x	**Auto** (1)	0	0	0	0	0	1	0	0	
(left)	x	x	Feat.'V8:	0	1	0	0	0	1	0	1	
	x	x	Remote or	1	0	0	0	0	1	1	0	
	x	x	AUTO->Outp	1	1	0	0	0	1	0	0	
	x	x		0	0	0	0	0	1	0	0	
	x	x		0	0	0	1	0	1	0	1	
	x	x		0	0	1	0	0	1	1	0	
	x	x		0	0	1	1	0	1	1	1	
	x	x	V8:attention!	0	1	1	0	0	1	**1**	**1**	
AUTO	x	x		x	x	0	0	1	1	0	0	
(center)	x	x		x	x	0	1	1	1	0	1	
	x	x		x	x	1	0	1	1	1	0	
	x	x		x	x	**1**	**1**	1	1	**1**	**1**	
			'U2:no power	x	x	**a**	**b**	0	0	**a**	**b**	
local	0	0	(x)	x	x	x	x	1	0	0	0	
(right)	0	1		x	x	x	x	1	0	0	1	
	1	0		x	x	x	x	1	0	1	0	

x =both(1)or(0); outputs: loc(1)/remote(0); Auto(1)/Hand(0)
(mode Remote,AUTO:$_{step}$U/D inp. from REG-D feed thru to outputs)

Technical Data REG-LR V8

contact assignment

connector 'F1' "MH" 24+7-p.	z	b	d
2	relais1 L/R	relais1 comm.	relais1 H/A
4	relais2 $_{step}$UP		relais2 common
6	relais2$_{step}$DOWN		
8	input UP$_{Rem}$		
10	inp.DOWN$_{Rem}$		
12			inputs comm.
14	output L/R	output H/A	output Status
16		GND	
20	GND		
24			
26			
28	Supply voltage AC/DC L / +		
30	Supply voltage AC/DC N / -		
32	Protection Earth PE		

connector 'F2' 4 poles			
1	rel.2 $_{step}$UP	output relais 2 'stepUP' .	
2	$_{step}$UP	input -from REG-D	
3	rel.2 $_{step}$D	output relais 2 'stepDOWN' .	
4	$_{step}$DOWN	input -from REG-D	

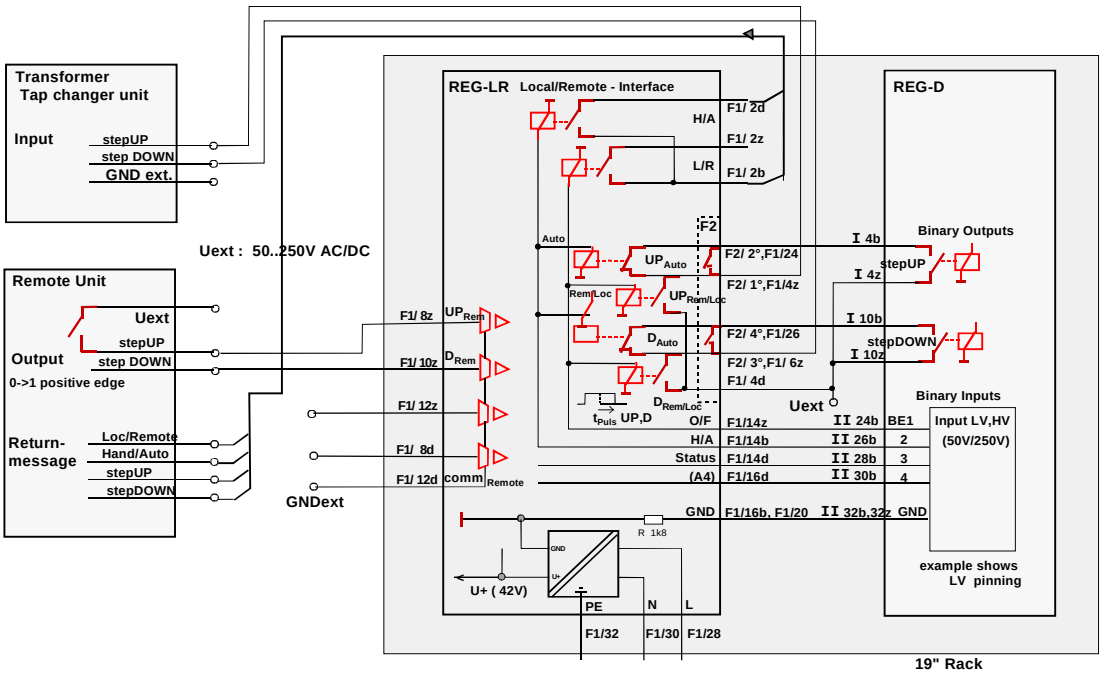
H/A Hand/ Automatic, same mode as in REG-D
L/R Local/Remote (**O/F** Ort/Fern)
↑, ↓ step**Up,** step**Down** (**H, T** Höher, Tiefer)

U+, GND (LV,HV) Voltage output 15V DC; 50mA max Load
Low Voltage DC/AC 10..50V, High Voltage ~50..250V
Outputs conn. F1/ 14 ..22 are connectable to the REG-D Binary inputs (LV) or (HV)

FEATURE	**ID**		
Local/Remote - Interface REG-LR 8T 3H plug-in modules	**REG-LR B1**		
Supply Galvanically isolated AC 85..240 V / DC 100 ..264 V	**H1**		
/. AC 20... 60 V / DC 18 .. 72 V.	**H2**		
Remote input volt. (H/A, Hand, UP,DOWN) AC/DC 12 .... 50V	**E2**		
AC/DC 50... 250V	**E3**		
Relais U/D$_{AUTO}$ from REG-D to F2 outp. switched by 2 NO / NC Relais	**U1 / U2**		
Remote inputs active: H/A$_{Remote}$; Hand$_{Remote}$; UP$_{Rem}$; DOWN$_{Rem}$	**V1**		
/. UP,D remote 'or wired' with $_{step}$UP,D from REG-D	**V8**		
Mode switch 3-positions: remote/AUTO/local	**M1**		
switchable only by key	**M2**		

Application REG-LR

Merkmal
- H1 supply voltage AC 230 V
- E3 Remote input voltage AC/DC 50..250V
- U2 Relais AUTO with 2 NC switches: REG-LR without supply voltage the U/D inputs from REG-D are switched thru to connector F2
- V8 Remote each UP/DOWN input is 'or wired' with UP/DOWN input from REG-D



A. Eberle GmbH & Co. KG
Frankenstr. 160 D-90461 Nürnberg Germany phone 0049 911/62 81 08-0 FAX 0049 911/62 81 08-96