

Cable connections:

no	name	Description	no	name	description
1	NINV	RS485	29	REL1	Relay 1
2	INV	RS485	30	REL1	Relay 1
3	GND	RS485	31	REL2	Relay 2
4	+24V	Power supply	32	REL2	Relay 2
5	-24V	Power supply	33	REL3	Relay 3
6	-20mA	Analog output	34	REL3	Relay 3
7	+20mA	Analog output	35	DIN	Digital input
8	EX+	Input 4	36	DIN	Digital input
9	IN+	Input 4	37	+24V	Power
10	IN-	Input 4	38	-24V	Power
11	EX-	Input 4	39	EX-	Input 8
12	FR	Input 4	40	IN+	Input 8
13	EX+	Input 3	41	IN-	Input 8
14	IN+	Input 3	42	EX+	Input 7
15	IN-	Input 3	43	IN+	Input 7
16	EX-	Input 3	44	IN-	Input 7
17	FR	Input 3	45	EX-	Input 7
18	EX+	Input 2	46	FR	Input 7
19	IN+	Input 2	47	EX+	Input 6
20	IN-	Input 2	48	IN+	Input 6
21	EX-	Input 2	49	IN-	Input 6
22	FR	Input 2	50	EX-	Input 6
23	SNS	Input 1	51	FR	Input 6
24	EX+	Input 1	52	EX+	Input 5
25	IN+	Input 1	53	IN+	Input 5
26	IN-	Input 1	54	IN-	Input 5
27	EX-	Input 1	55	EX-	Input 5
28	FR	Input 1	56	FR	Input 5

Load cell signals:

SNS	sense signal for compensation of load cell cable resistance.
EX+	supply (excitation) +
IN+	signal +
IN-	signal -
EX-	supply (excitation) -
FR	cable shield

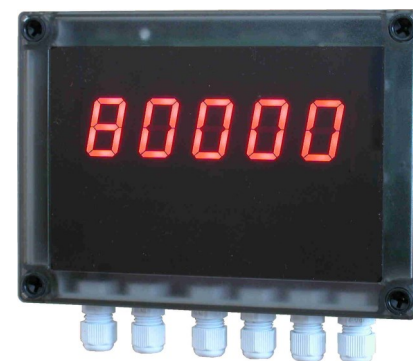
Rel. 09.09.09-02 sw. 2.xx

IPC TEKNIK

LOAD TRANSMITTER

TL729

USER'S MANUAL



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General operation.

The unit is operated by the 5 digit LED-display and 3 keys, placed right to the display. The keys are marked ▲ (UP), ▼ (DN) and ← (ENT).

The display can be used for setup data, measuring value and max value.

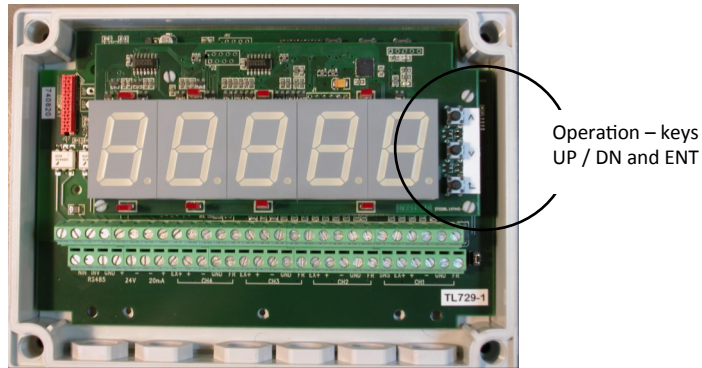
Keys UP and DN: Changing parameters (UP: increasing, DN: decreasing)

Key ENT: (Enter) accepting data / ending the activated function.

Display: Measuring value etc.

Short term activation of the keys UP and DN either increases or decreases the parametric value by 1 unit. Continuous activation of the keys changes the value with increasing speed.

Table T1 is an overview of **functions** with the corresponding parameter range and default values.



Activation and termination of setup functions:

The setup functions are activated by activating the ENT key shortly. The function's number is then entered by means of the keys UP and DN and is accepted by short term activation of the key ENT. The parameter of the function can now be changed by means of the keys UP and DN.

Terminating a function (excl. 30 and 31) and thus accepting the parametric value, can be done in one of the following ways:

- Timeout – after approx. 15 sec. without activating any key, the function is terminated automatically – the value is registered (stored).
- Short term activation of the key ENT – the value is registered (stored).

The functions 30 and 31 are terminated in one of the following ways:

- Timeout – after approx. 15 sec. without activating any key the function is terminated automatically – load (input) is **not** registered.
- Short term activation of the key ENT – load (input) is registered (stored).

80: **RS485 address.**

88: **RS485 data format.**

Data: 0 8bit 8 bit data.
Data: 1 9bit 9 bit data (bit 9 = 0: data, bit 9 = 1: address).

Typical setup procedure.

Task: TL729 with default setup (factory setup) should be configured for:

Input: 6 load cells, each with a max. capacity of 15 ton.
Load cell data: 2,0 mV / V_{exc} span, 0,0 mV / V_{exc} offset.
Display: 0,0...90,0 ton
Output: 4..20mA

A. Configuration / calibration by entering load cell data:

1. Activate function 1 and select decimal point pos. = 1 for 1 decimal
2. Activate function 23 and enter number of load cells = 6
3. Activate function 26 and enter load cell capacity for each cell = 15,0
4. Activate function 38 and enter 90,0 to get 20,00 mA output when display = 90,0
5. With empty scale, read display value.
6. Activate function 22 and enter the empty-weight (permanent tare value)

B. Alternatively the scale can be calibrated according to the following:

1. Activate function 1 and select decimal point pos. = 1 for 1 decimal
2. Activate function 20 with empty scale.
Enter the correct weight for the empty scale (0,0).
3. Activate function 21 with a well known load on the scale (as much load as possible).
Enter correct weight of the load on the scale (for instance 60,0 ton).
4. Activate function 38 and enter 90,0 to get 20,00 mA output when display = 90,0

The system is now calibrated / configured and ready for use.

43: Key DN additional function.

Data: 0 off no function.
 Data: 1 tara activating the key activates auto tare (according to func. 47).
 Data: 2 reset activating the key will reset max-register (func. 6).

44: Key UP additional function.

Data: 0 off no function.
 Data: 1 tara activating the key activates auto tare (according to func. 47).
 Data: 2 reset activating the key will reset max-register (func. 6).

45: Display data.

Data: 0 inP measuring value is displayed.
 Data: 1 hi max-register is displayed.

46: Analog output data.

Data: 0 inP measuring value is displayed.
 Data: 1 hi max-register is displayed.

47: Auto tare value.

48: Sense input (cable compensation).

Data: 0 off cable compensation not active.
 Data: 1 on cable compensation active..

Sense input can be activated to compensate for the load cell cable resistance. Each wire of the cable must have equal resistance.

When sense input is activated, the measuring value will 'freeze' in a period corresponding to 3 A/D conversions for each 30 conversions.

49: A/D Conversion rate.

Data: 0 14 conversion rate (frequency) is 14 Hz.
 Data: 1 7 conversion rate (frequency) is 7 Hz.
 Data: 2 3 conversion rate (frequency) is 3 Hz.

59: Version number.

67: Data input mode.

Data: 0 continuously activated UP key: data value is increasing with increasing speed.
 continuously activated DN key: data value is decreasing with increasing speed.
 Data: 1 continuously activated UP key: data value is multiplied by 10.
 continuously activated DN key: data value is divided by 10.
 simultaneously activated UP, DN keys: data value is cleared (0).

70: Default setup.

All parameters are assigned default values according to the overview of functions table (T1).
 Calibration data (function 50-58) are not assigned default values.

76: Sensor test.

Data: 0 off sensor test not active.
 Data: 1 on sensor test active (one segment in each display-digit flashes).

T1 Function overview.

no	FUNCTION	Data-range/ 0..20mA	code	Default data	RS485	User value
0	Display one input (load cell) separately	1..8		1		
1	Display decimal point pos.: x/x.x /x.xx /x.xxx/x.xxxx	0..4		0	*	
2	Display light level: 5=min / 20=max	5..20		15	*	
3	Number of conversions for averaging	1..20		5	*	
4	Max. change in conversions for averaging in display units	0..30000		10	*	
5	Leading zero blanking : off / on	0..1		1 (on)	*	
6	Display / reset max. register	-9999..+99999		-9999	*	
7	Display / reset min. register	-9999..+99999		+99999	*	
8	Data protection off / on	0..1	7	0 (off)	*	
9	Display resolution	1..100		1	*	
10	Alarm setpoint, common	-9999..+99999		0	*	
11	Alarm limit 1	-9999..+99999		0	*	
12	Alarm limit 2	-9999..+99999		0	*	
13	Alarm hysteresis 1	0..1000		0	*	
14	Alarm hysteresis 2	0..1000		0	*	
15	Alarm delay 1 in sec.	0..100		0	*	
16	Alarm delay 2 in sec.	0..100		0	*	
17	Relay function 1	0..3		0	*	
18	Relay function 2	0..3		0	*	
20	Zero calibration routine	output		-	*	
21	Span calibration routine	output		-	*	
22	Tare	-9999..+99999		0	*	
23	Number of load cells	1..8		1	*	
24	Load cell output in mV/Vexc	0.5000..8.0000		2,000 mV/V	*	
25	Load cell offset in mV/Vexc	-0.999..+5.0000		0,000 mV/V	*	
26	Load cell capacity in display units	0..99999		8000	*	
27	Load cell/cable error signalling: off / upscale / downscale	0..2		0 (off)	*	
29	Active load cells	0..255		255 (all)	*	
32	Min. analog output value in mA	0..21,00		4,00 mA	*	
33	Max. analog output value in mA	0..21,00		20,00 mA	*	
34	Analog output type: I (0..20mA) / U (0..10V)	0..1		0 (I)	*	
35	Output limit at min. output in mA	0..min. outp.		-0,20 mA	*	
36	Output limit at max. output in mA	max outp. 22		+20,50 mA	*	
37	Display value at min. analog output	-9999..+99999		0	*	
38	Display value at max. analog output	-9999..+99999		8000	*	
42	Digital input function: off /tare /-tare/rst /-rst/ser/-ser	0..6		0 (off)	*	
43	Key DN additional function: off / tare / reset	0..2		0 (off)	*	
44	Key UP additional function: off / tare / reset	0..2		0 (off)	*	
45	Display data: input / max	0..1		0 (input)	*	
46	Analog output data: input / max	0..1		0 (input)	*	
47	Tare value in display units	-9999..+99999		0	*	
48	Sense input: off / on	0..1		0 (off)	*	
49	A/D conversion rate: 14 / 7 / 3 Hz	0..2		2 (3 Hz)	*	
59	Version number	00,00..99,99		x.xx	*	
60	Automatic zero tracking: off/on1..on5	0..5		0 (off)	*	
61	Max. measurement value for zero tracking	0..2000		25	*	
62	Max. change in measurement value for 'no motion'	0..100		10	*	
63	Time period for 'no motion'	0..100 sek		10	*	
64	Max. (total) zero tracking value	0..5000		200	*	
67	Data input mode	0..1		1	*	
70	Default setup		71			
76	Load cell test : off/on	0..1		0 (off)	*	
80	RS485 address	1..255		1	*	
81	RS485 data: off/net/aina/maxa	0..3		0 (off)	*	
82	RS485 data delay in sec.	-1..9999		2 sec	*	
83	RS485 measuring unit: no unit/g/kg/ton/pcs	0..4		2 kg	*	
88	Ser. Data format: 8 / 9 / 8+9 bit	0..2		8+9 bit	*	

Setup functions and description of parameters:

0: **Displaying one input channel separately.**

Displaying the signal of one input / load cell (1..8) separately (one digit in the display is flashing).
Activate key UP or DN to select next input channel. Accept the choice by the key ENT.
Activate key ENT (without activating key UP or DN first) to terminate the function.

1: **Display decimal point position.**

2: **Display light level.**

3: **Number of measurements for averaging.**

Display value and output signal is the average value of the selected number of measurements (A/D conversion).

4: **Maximum change in measurement for averaging.**

If the difference between the average value and the latest measurement (A/D conversion) is larger than this parameter, the average value is replaced by the latest measurement.

5: **Leading zero blanking.**

6: **Display maximum registered display value.**

7: **Display minimum registered display value.**

8: **Data protection on/off.**

9: **Display resolution (count-by).**

20: **Zero calibration routine.**

Correction of display value (and output signal) for input signals (load) close to minimum load – for instance correction for weight plate, container or the like.

The display value is corrected by means of the UP and DN keys, until display (or output signal) is correct for the current input signal (load).

21: **Span calibration routine.**

Correction of display value (and output signal) for input signals (load) close to maximum load.

The display value is corrected by means of the UP and DN keys, until display (or output signal) is correct for the current input signal (load).

22: **Tare**

Preset tare value. The value is stored in non volatile memory – unlike the automatically generated tare (activated by for instance the digital input).

23: **Load cell parameter: number of load cells connected.**

24: **Load cell parameter: load cell output signal (mV/Vexc.)**

25: **Load cell parameter: load cell offset (mV/Vexc.)**

26: **Load cell parameter: load cell max capacity.**

Maximum capacity of each load cell – in display units.

27: **Load cell / cable error signalling.**

Data: 0	off	no error signalling.
Data: 1	upscale	error signalled by output > 20mA (typ.21mA).
Data: 2	dnscale	error signalled by output < 4 mA (typ.3,5mA).

Some kind of disconnection or short circuit is not detected.

29: **Active load cells / inputs.**

Data: 1	load cell / input 1 active.
Data: 2	load cell / input 2 active.
Data: 4	load cell / input 3 active.
Data: 8	load cell / input 4 active.
Data: 16	load cell / input 5 active.
Data: 32	load cell / input 6 active.
Data: 64	load cell / input 7 active.
Data: 128	load cell / input 8 active.

32. **Min. output signal.**

Output signal (typical 4 mA) corresponding to minimum display value (typical 0).
(Display value corresponding to min. output signal is entered via function 37).

33. **Max. output signal.**

Output signal (typical 20 mA) corresponding to maximum display value (default 8000).
(Display value corresponding to max. output signal is entered via function 38).

34. **Analog output type (I / U).**

Data: 0	I	output signal type: I (0/4..20 mA).
Data: 1	U	output signal type: U (0/2..10 V).

35. **Output limit for minimum output signal.**

36. **Output limit for maximum output signal.**

37. **Display value for min. analog output.**

Display value (typical 0) corresponding to min. output signal (typical 4 mA).
(Output signal corresponding to min. display is entered via function 32).

38. **Display value for max. analog output.**

Display value (default 8000) corresponding to max. output signal (typical 20 mA).
(Output signal corresponding to max. display is entered via function 33).

42: **Digital input action.**

Data: 0	off	no action.
Data: 1	tare	activated input (24 V) activates auto tare (according to func. 47).
Data: 2	tare -	not activated input (0 V) activates auto tare (according to func. 47).
Data: 3	reset	activated input (24 V) will reset max-register (func. 6).
Data: 4	reset -	not activated input (0 V) will reset max-register (func. 6).