INDICATOR 3100N
PC PROTOCOL

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With parameter 25 or 35 the data protocol for comport 1 or comport 2 may be set. If parameter 25 or 35 is set to “0” the PC bi-directional command structure is active.

The indicator 3100 offers the possibility to communicate bi-directional with a PC or other hardware devices which can handle simple ASCII commands.

Protocol:
Baudrate- 600 to 19200 (default = 9600)
Databits- 7 or 8 (default = 8)
Stopbits- 1 or 2 (default = 1)
Parity- odd/even/none (default = none)
Handshake-none

ASCII commands*2

ASCII command	Response string	Operation
SZ<CR>	OK<CR>/ERR<CR>	Set zero value
RZ<CR>	OK<CR>/ERR<CR>	Reset zero value
S1<value><CR>	OK<CR>/ERR<CR>	Set setpoint 1 value
S2<value><CR>	OK<CR>/ERR<CR>	Set setpoint 2 value
SP<value><CR>*1	OK<CR>/ERR<CR>	Set preset tare value
ST<CR>	OK<CR>/ERR<CR>	Set tare (toggle)
SG<CR>	G+0001.0<CR>	Send gross mode (continuously)
SN<CR>	N+0001.0<CR>	Send net mode (continuously)
SW<CR>	W+00010+000103805<CR>	Send weights mode (continuously)
SR<CR>*3	OK<CR>/ERR<CR>	Set tare (also with a previous tare)
RT<CR>	OK<CR>/ERR<CR>	Reset tare
RP<CR>	OK<CR>/ERR<CR>	Reset preset tare
G1<CR>	1+0001.0<CR>	Get setpoint 1 level
G2<CR>	2+0001.0<CR>	Get setpoint 2 level
GP<CR>	P+0001.0<CR>	Get preset tare
GT<CR>	T+0001.0<CR>	Get tare
GG<CR>	G+0001.0<CR>	Get gross
GN<CR>	N+0001.0<CR>	Get net
GW<CR>	W+00010+000103805<CR>	Get net, gross, status and checksum
MN<CR>	N+0001.0<CR>	Get net, wait for no motion
MG<CR>	G+0001.0<CR>	Get gross, wait for no motion
AN<CR>	N+0001.0;0001<CR>	Get net and alibi nr., wait for no motion
AG<CR>	G+0001.0;0001<CR>	Get gross and alibi nr., wait for no motion

*1: If the scale is working in ranges with a number after the decimal point, the preset tare value should be given in accordingly. If the scale is working in ranges equal to or higher than 1 kg/lb, then the value should be entered with the decimal point at the end of the value.
E.g. ranges 0.1/0.2/0.5 >> SP0001.5<CR>, ranges 1/2/5/10/20/50 >> SP00150.<CR>

*2: If the scale is busy with a handling, like zeroing or taring, and a command is generated at the same time it will reply with the remark "BUSY" to the host.

*3: If there is a previous tare active the scale will reset this and set the new tare in one action as soon as the indicator weight has stabilized. If it takes more than 5 seconds to stabilize, the indicator will send out "ERR".

Special commands 'GW' and 'SW'

The 'GW' and 'SW' are commands with checksums. With these commands it is possible to get net, gross and status data. The respons string doesn't have the decimal point information. The 'SW' update rate is slower than the other commands.

Structure of the response string:

W	+00010	+00010	38	05	<CR>
Data ID	Net value	Gross value	Status(hex)	Checksum	End of string

Status bits:

Bit number	**Bit definition**	**Status '0'**	**Status '1'**
7 (MSB)	Indicator error	No errors	Indicator error
6	Tare active	No tare active	Tare active
5	Zero corrected	No zero correction	Zero corrected
4	Weight stable	Weight unstable	Weight stable
3	Within zero range	Out of zero range	Within zero range
2	Above max load	Under max load	Above max load
1	Setpoint 2 active	Setpoint 1 not active	Setpoint 1 active
0 (LSB)	Setpoint 1 active	Setpoint 2 not active	Setpoint 2 active

Example:
38 (hex) = 0011 1000(binair)
bit 5, zero corrected
bit 4, weight stable
bit 3, within zero range

Calculating the checksum:

The checksum is the inverted sum of all ASCII characters in the response string previous to the checksum.
Example:

Response string = W+00010+000103805<CR>

Add all hex values of the characters in the string.
[W]+[+]+[0]+[0]+[0]+[1]+[0]+[+]+[0]+[0]+[0]+[1]+[0]+[3]+[8]
Total is 2FA(hex)
Remove the most significant digit, result is FA(hex)
Invert the hexadecimal value, result is 05(hex)
Convert the hexadecimal value to characters, result is [0][5]

Special commands 'AN' and 'AG'

With these special commands an extra value is send along together with the weight; the alibi number. It consists of 4 digits and is also saved in the indicators alibi memory. The number increases with every stored weighing.

The command works as follows:

- PC or terminal sends out the command AN or AG for demanding the net or gross weight respectively.
- Indicator waits for the weight to become stable after which it returns the demanded weight accompanied by the alibi number under which this weighing was stored in the alibi memory of the indicator.
- Format of the return string is: N+0001.0;0001<CR> or G+0001.0;0001<CR>

N = Net indicator
+ = sign indicator
0001.0 = weight value with decimal point
; = semi-colon separator sign
0001 = alibi number
<CR> = ending sign

ⓘ NOTE: in case of an error in the display the PC will receive the following strings instead of a weight:

3 Error display*1	3 Error Response string	Meaning
Err02	=======<CR>	Above full scale
Err03	=======<CR>	Attempt to tare out gross negative
Err07	uuuuuuu<CR>	Underload on AD converter
Err06	ooooooo<CR>	Overload on AD converter
L--__	=======<CR>	out of level

*1: All error messages can only be resolved at the weighing system,.