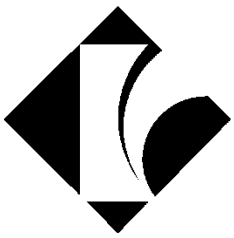
SMART WEIGHING SOLUTIONS



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Remote Display Protocol Manual

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1. Overview

1.1. Availability of Protocols

The ability of a protocol to support functionality ultimately requires the indicator and the remote display to also support the functionality. Refer individual installation manuals of the remote display's for compatibility of protocols and their supported features.

2. Serial Protocols

2.1. Protocol 1: Ranger A

Character Number	0	1	2	3	4	5	6	7	8	9	10
Description	STX	Sign	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Status	ETX

Function	Description
STX	Start of Transmission Character (0x02).
Sign	Represents the sign of the weight reading and serial traffic light control. Space 0x20 for positive, Dash (-) 0x2D for negative, 0x31 for RED light, 0x32 for GREEN light and 0x33 for RED + GREEN
Weight	These seven characters are a string containing the current weight including the decimal point. If there is no decimal point, then the first character is a Space. No Leading Zero Blanking active so if indicator is in NTEP mode and 00 or 000 is shown on indicator then the display will show the same format (R300/R400 series). Examples: (300) with a leading space would represent 300 units. (3.00) Is another acceptable string.
Status	The status character provides information on the weight reading. The characters G/N/U/O/M/E represent Gross/Net/Underload/Overload/Motion/Error, respectively. A Space (0x20) can also be sent. This character may only represent one status at any one time.
ETX	End of Transmission character (0x03).

2.2. Protocol 2: Ranger B

Character Number	0	1	2	3	4	5	6	7	8	9	10
Description	STX	Status	Sign	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Units
Character Number	11	12	13								
Description	Units	Units	ETX								

Function	Description
STX	Start of Transmission Character (0x02).
Sign	Represents the sign of the weight reading and serial traffic light control. Space 0x20 for positive, Dash (-) 0x2D for negative, 0x31 for RED light, 0x32 for GREEN light and 0x33 for RED + GREEN
Weight	These seven characters are a string containing the current weight including the decimal point. If there is no decimal point, then the first character is a Space. No Leading Zero Blanking active so if indicator is in NTEP mode and 00 or 000 if shown on indicator then the display will show the same format (R300/R400 series). Examples: (300) with a leading space would represent 300 units. (3.00) Is another acceptable string.
Status	The status character provides information on the weight reading. The characters G/N/U/O/M/E represent Gross/Net/Underload/Overload/Motion/Error, respectively. A Space (0x20) can also be sent. This character may only represent one status at any one time.
Units	_kg or _lb can be used for unit switching, _g_ and _t_ can also be displayed if set (D840 only)
ETX	End of Transmission character (0x03).

2.3. Protocol 3: Ranger C

Character Number	0	1	2	3	4	5	6	7	8	9	10
Description	STX	Sign	Weight	Weight	Weight	Weight	Weight	Weight	Weight	S1	S2
Character Number	11	12	13	14	15	16					
Description	S3	S4	Units	Units	Units	ETX					

Function	Description
STX	Start of Transmission Character (0x02).
Sign	Represents the sign of the weight reading and serial traffic light control. Space 0x20 for positive, Dash (-) 0x2D for negative, 0x31 for RED light, 0x32 for GREEN light and 0x33 for RED + GREEN
Weight	These seven characters are a string containing the current weight including the decimal point. If there is no decimal point, then the first character is a Space. No Leading Zero Blanking active so if indicator is in NTEP mode and 00 or 000 is shown on indicator then the display will show the same format (R300/R400 series). Example: (300) with a leading space would represent 300 units. (3.00) Is another acceptable string, note that when the decimal point is added the leading space is removed.
S1	Can be G/N/U/O/E representing Gross/Net/Underload/Overload/Error, respectively. A Space (0x20) can also be sent. This character may only represent one status at any one time.
S2	Can be M representing motion or a Space to represent stable.
S3	Set to Z representing centre of zero or a Space to represent non-zero.
S4	"1" for range one, "2" for range two else "-" sent. Not used by the display.
Units	_kg or _lb can be used for unit switching, _g_ and _t_ can also be displayed if set (D840 only)
ETX	End of Transmission character (0x03).

2.4. Protocol 4: Ranger D

Character Number	0	1	2	3	4	5	6	7	8	9
Description	STX	Sign	Weight	Weight	Weight	Weight	Weight	Weight	Weight	ETX

Function	Description
STX	Start of Transmission Character (0x02).
Sign	Represents the sign of the weight reading and serial traffic light control. Space 0x20 for positive, Dash (-) 0x2D for negative, 0x31 for RED light, 0x32 for GREEN light and 0x33 for RED + GREEN
Weight	These seven characters are a string containing the current weight including the decimal point. If there is no decimal point, then the first character is a space. No leading zero blanking active so if indicator is in NTEP mode and 00 or 000 is shown on indicator then the display with show the same (R300/R400 series). Example: (300) with a leading space would represent 300 units. (3.00) Is another acceptable string.
ETX	End of Transmission character (0x03).

2.5. Protocol 5: PCMODE

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	STX	Text	Text	Text	Text	Text	Text	Text	Text	SPC	Address(0)	Address (1)	ETX

Function	Description
STX	Start of Transmission Character (0x02).
Text	These eight (8) characters will be displayed. They may be ASCII characters instead of numbers in which case the display will show text. These eight characters can include a decimal point and a leading minus to indicate sign. Example: (300) would represent 300 units. (- 3.00) a decimal point and minus sign can be used. (CEMENT) text can be sent. A capital L in position 1 will disable the remote display data timeout and can be used to lock the message on the display until new data is sent. Any character in position 1 will not be displayed.
SPC	Traffic lights OFF Space(0x20), RED "1" (0x30), GREEN "2" (0x32) or RED + GREEN "3" (0x33)
Address	A two character field specifying the address of the unit to display the message. Where 00 is the broadcast address. 01 is the default address. Change address with setup configuration string.
ETX	End of Transmission character (0x03).

2.6. Protocol 6: R Series Register Write

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	Address(0)	Address(1)	Command (0)	Command (1)	Register(0)	Register(1)	Register(2)	Register(3)	Semicolon	Data(0)	Data(1)	Data(2)	Data(3)

Character Number	13	14	15	16	17	18
Description	Data(4)	Data(5)	Data(6)	Data(7)	Terminator (0)	Terminator (1)

Function	Description
Address	A two character field specifying the address of the unit to display the message. 00 is the broadcast address. 01 is the default address. Change address with setup configuration string.
Command(0-1)	Must be 12 (0x31, 0x32).
Register(0-3)	Must be 000E (0x30, 0x30, 0x30, 0x45).
Semicolon	This character must be a semicolon (0x3B).
Data(0-7)	This is the string to be displayed on the Remote Display and may consist of text and or numbers. Fixed 8 characters long
Terminator(0-1)	These two characters signify the end of the signal and are represented by a carriage return and then a line feed or CRLF (0x0D, 0x0A).

Note: When using this protocol the display timeout is disabled. This will then mean the last message will remain on the display until new data is sent. The display will not time out and show "--//--"

2.7. Protocol 7: Avery String #7

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	STX	Weight(0)	Weight(1)	Weight(2)	Weight(3)	Weight(4)	Weight(5)	Weight(6)	SPC	Units(0)	Units(1)	Units(2)	Units(3)
Character Number	13	14	15	16	17	18	19	20	21	22	23	24	25
Description	Units(4)	SPC	S1	SPC	Con(0)	Con(1)	Con(2)	Con(3)	Con(4)	Con(5)	SPC	Ignore	CR
Character Number	26	27											
Description	LF	ETX											

Function	Description
STX	Start of Transmission Character (0x02).
Weight	The numbers to be displayed on the remote display. These seven characters can include a decimal point and a leading minus to indicate sign. Example: (300) with leading spaces would represent 300 units. (3.00) Is another acceptable string, this with a decimal point as one of the characters. (-30.000) Here we have the weight with the sign attached. Note because of the sign and the decimal point only five number characters are sent. No leading zero blanking active so if the indicator sends 00 or 000 it will be shown on the display.
Units	Not used by the remote display.
SPC	Space character (0x20).
S1	Can be G or N to indicate Gross or Net respectively.
Con	Consecutive numbers are not used by the remote display.
CR	Carriage Return character (0x0D)
LF	Line Feed character (0x0A)
ETX	End of Transmission character (0x03).

2.8. Protocol 8: Gedge C2

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	STX	Weight(0)	Weight(1)	Weight(2)	Weight(3)	Weight(4)	Weight(5)	Weight(6)	Weight(7)	S1	S2	S3	Ignore

Character Number	13	14	15
Description	SPC	SPC	ETX

Function	Description
STX	Start of Transmission Character (0x02).
Weight(0-7)	The numbers to be displayed on the remote display. These eight characters can include a decimal point and a leading minus to indicate sign. Example: (00000300) with leading zeroes would represent 300 units. (00003.00) Is another acceptable string, this with a decimal point as one of the characters. (-0003.00) Here we have the weight with the sign attached. Note because of the sign and the decimal point only six number characters are sent.
S1	Can be G or N to indicate Gross or Net respectively.
S2	Can be M or S to indicate Motion or Stable respectively
S3	Can be I, O or U to indicate In scale, Over range or Under range respectively.
SPC	Space character (0x20).
ETX	End of Transmission character (0x03).

2.9. Protocol 9: Gedge C3

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	STX	Gross(0)	Gross(1)	Gross(2)	Gross(3)	Gross(4)	Gross(5)	Gross(6)	Gross(7)	Tare(0)	Tare(1)	Tare(2)	Tare(3)
Character Number	13	14	15	16	17	18	19	20	21	22	23	24	25
Description	Tare(4)	Tare(5)	Tare(6)	Tare(7)	Net(0)	Net(1)	Net(2)	Net(3)	Net(4)	Net(5)	Net(6)	Net(7)	S1
Character Number	26	27	28	29	30	31							
Description	S2	S3	Ignore	SPC	SPC	ETX							

Function	Description
STX	Start of Transmission Character (0x02).
Gross	The numbers to be displayed on the remote display When S1 equals G. These eight characters can include a decimal point and a leading minus to indicate sign. Example: (00000300) with leading zeroes would represent 300 units. (00003.00) Is another acceptable string, this with a decimal point as one of the characters. (-0003.00) Note because of the sign and the decimal point only six number characters are sent.
Tare	Not used by the remote display
Net	The numbers to be displayed on the remote display when S1 equals N. These eight characters can include a decimal point and a leading minus to indicate sign. Examples as for Gross.
S1	Can be G or N to indicate Gross or Net respectively.
S2	Can be M or S to indicate Motion or Stable respectively
S3	Can be I, O or U to indicate In scale, Over range or Under range respectively.
SPC	Space character (0x20).
ETX	End of Transmission character (0x03).

2.10. Protocol 10: AD Standard String

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	HeaderA(0)	HeaderA(1)	Comma	HeaderB(0)	HeaderB(1)	Comma	Sign	Weight(0)	Weight(1)	Weight(2)	Weight(3)	Weight(4)	Weight(5)
Character Number	13	14	15	16	17								
Description	Weight(6)	Units(0)	Units(1)	CR	LF								

Function	Description
HeaderA	This header can be ST, UN or OL representing stable, unstable and out of scale range.
Comma	Comma (0x2C).
HeaderB	This second header can be GS - Gross weight, NT - Net weight, TR - Tare and PT - Preset Tare. The NET annunciator will be on for Net weight and off for all other weights.
Sign	The sign of the weight reading (plus (+) for positive, dash (-) for negative). It is also used to show the direction of out of scale range: + for overload and – for underload.
Weight	These seven characters are a string containing the current weight including the decimal point. If there is no decimal point, then the last character is a period. Leading zero blanking applies. During overload or underload the weight reading will be spaces. Example: (000300.) Note the trailing period, this string would represent 300 units. (0003.00) Is another acceptable string, note that when the decimal point is added the period at the end is removed.
Units	kg or lb can be used for unit switching
CR	Carriage Return character (0x0D).
LF	Line Feed character (0x0A).

2.11. Protocol 11: AD4531

Character Number	0	1	2	3	4	5	6	7	8	9	10
Description	Header(0)	Header(1)	Comma	Sign	Weight(0)	Weight(1)	Weight(2)	Weight(3)	Weight(4)	CR	LF

Function	Description
Header	This header can be WT when in normal mode or OL to represent out of scale range.
Comma	Comma (0x2C).
Sign	The sign of the weight reading (plus (+) for positive, dash (-) for negative). If the unit rests at Zero the sign will be a plus. It is also used to show the direction of Out of Scale Range: "+" for Overload and "–" for Underload.
Weight	These five characters are a string containing the current weight including the decimal point. If there is no decimal point, then a preceding zero is used. Leading zero blanking applies. During Overload or Underload the weight reading will be 99.99 with the sign representing which one it is. Example: (00300) This string would represent 300 units. (03.00) Shows the string format when a decimal point is added.
CR	Carriage Return character (0x0D).
LF	Line Feed character (0x0A).

2.12. Protocol 12: Toledo Continuous

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	STX	SW(A)	SW(B)	SW(C)	Weight (0)	Weight (1)	Weight (2)	Weight (3)	Weight (4)	Weight (5)	Tare(0)	Tare(1)	Tare(2)
Character Number	13	14	15	16									
Description	Tare(3)	Tare(4)	Tare(5)	CR									

Function	Description
STX	Start of Transmission character (0x02).
SW	SW A, B and C are each a collection of status bits. The relevant bits of these three characters are shown below in tabular form. All other status bits are ignored.
Weight	These six characters are a string containing the current Gross or Net weight, not including the decimal point or a sign.
Tare	Not used by the remote display
CR	Carriage Return character (0x0D).

SW A Bits 0,1 and 2			
Bits			Decimal Point Location
0	1	2	
0	0	0	XXXX00
1	0	0	XXXXX0
0	1	0	XXXXXX
1	1	0	XXXXX.X
0	0	1	XXXX.XX
1	0	1	XXX.XXX

SW B Bits 0,1,2 and 3	
Status Bits	Function
Bit 0	Gross = 0, Net = 1
Bit 1	Sign, Positive = 0, Negative = 1
Bit 2	Out of Range = 1 (Either overload or underload
Bit 3	Motion = 1
Bit 4	Kg = 1, lb = 0
Bit 5	Always = 1

2.13. Protocol 13: GSE without COZ

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	Weight(0)	Weight(1)	Weight(2)	Weight(3)	Weight(4)	Weight(5)	Weight(6)	Weight(7)	SPC	Units(0)	Units(1)	Units(2)	Units(3)
Character Number	13	14	15	16	17	18	19	20	21	22			
Description	Units(4)	SPC	Mode(0)	Mode(1)	Mode(2)	Mode(3)	Mode(4)	S1	CR	LF			

Function	Description
Weight	The numbers to be displayed on the remote display. These eight characters can include a decimal point and a leading minus to indicate sign. Example: (300) would represent 300 units. (3.00) Is another acceptable string, this time with a decimal point instead of one of the characters. (- 3.00) Note because of the sign and the decimal point only six number characters are sent. No Leading Zero Blanking active so if the indicator sends 00 or 000 it will be shown on the display.
Units	kg__ or lb__ can be used for unit switching if set.
Mode	Gross, Net or Tare with trailing spaces. Used to actuate the Net annunciator
S1	M = Motion, S = Stable, O = Overload or Underload, E = Error
CR	Carriage Return character (0x0D).
LF	Line Feed character (0x0A).
SPC	Space character (0x20).

2.14. Protocol 14: GSE with COZ

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	Weight(0)	Weight(1)	Weight(2)	Weight(3)	Weight(4)	Weight(5)	Weight(6)	Weight(7)	SPC	Units(0)	Units(1)	Units(2)	Units(3)
Character Number	13	14	15	16	17	18	19	20	21	22	23		
Description	Units(4)	SPC	Mode(0)	Mode(1)	Mode(2)	Mode(3)	Mode(4)	S1	S2	CR	LF		

Function	Description
Weight	The numbers to be displayed on the remote display. These eight characters can include a decimal point and a leading minus to indicate sign. Example: (300) would represent 300 units. (3.00) Is another acceptable string, this time with a decimal point instead of one of the characters. (- 3.00) Note because of the sign and the decimal point only six number characters are sent. No leading Zero Blanking Active so if the indicator sends 00 or 000 it will be shown on the display.
Units	kg__ or lb__ can be used for unit switching if set.
Mode	Gross, Net or Tare with trailing spaces. Used to actuate the Net annunciator
S1	M = Motion, S = Stable, O = Overload or Underload, E = Error
S2	Z = Centre of Zero, Space for not Centre of Zero
CR	Carriage Return character (0x0D).
LF	Line Feed character (0x0A).
SPC	Space character (0x20).

2.15. Protocol 15: Schenck without DP

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	STX	Ignore	Ignore	Ignore	Sign	Net(0)	Net(1)	Net(2)	Net(3)	Net(4)	Tare(0)	Tare(1)	Tare(2)
Character Number	13	14	15	16	17	18	19	20	21	22	23		
Description	Tare(3)	Tare(4)	Tare(5)	Tare(6)	Tare(7)	Tare(8)	SPC	S1	S2	LF	CR		

Function	Description
STX	Start of Transmission character (0x02).
Sign	Represents the sign of the weight reading (space for Positive, dash (-) for Negative.
Net	The numbers to be displayed on the remote display. Example: (300) would represent 300 units.
Tare	Not used by the remote display.
SPC	Space character (0x20).
S1	ASCII character (0-F) with values as shown in the table below
S2	ASCII character (0-F) with values as shown in the table below
LF	Line Feed character (0x0A).
CR	Carriage Return character (0x0D).

S1 Bit	S1 Status
0	Tare=0, preset Tare=1 Only used in Net mode.
1	Motion = 0, Stable=1
2	Not COZ=0, COZ=1
3	Gross=0, Net=1

S2 Value	S2 Status
0	Units = kg
1	Units = g
3	Units = T
5	Weight longer than string, Display will be blanked.

2.16. Protocol 16: Schenck with DP

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	STX	Ignore	Ignore	Ignore	Sign	Net(0)	Net(1)	Net(2)	Net(3)	Net(4)	Net(5)	Tare(0)	Tare(1)
Character Number	13	14	15	16	17	18	19	20	21	22	23	24	25
Description	Tare(2)	Tare(3)	Tare(4)	Tare(5)	Tare(6)	Tare(7)	Tare(8)	Tare(9)	SPC	S1	S2	LF	CR

Function	Description
STX	Start of Transmission character (0x02).
Sign	Represents the sign of the weight reading (space for Positive, dash (-) for Negative.
Net	The numbers to be displayed on the remote display. These six characters include a decimal. Example: (300.0) with leading spaces would represent 300 units.
Tare	Not used by the remote display
SPC	Space character (0x20).
S1	ASCII character (0-F) with values as shown in the table below
S2	ASCII character (0-F) with values as shown in the table below
LF	Line Feed character (0x0A).
CR	Carriage Return character (0x0D).

S1 Bit	S1 Status
0	Tare=0, preset Tare=1 Only used in Net mode.
1	Motion = 0, Stable=1
2	Not COZ=0, COZ=1
3	Gross=0, Net=1

S2 Value	S2 Status
0	Units = kg
1	Units = g
3	Units = T
5	Weight longer than string, Display will be blanked.

2.17. Protocol 17: Auto Control String 1

Character Number	0	1	2	3	4	5	6
Description	STX	Address	Weight(0)	Weight(1)	Weight(2)	Weight(3)	ETX

Function	Description
STX	Start of Transmission character (0x02).
Address	A single character field specifying the Address of the unit to display the message. The address is fixed as 1 for this string, so the unit must be set to address 01 to display this string.
Weight	The numbers to be displayed on the remote display. These four characters can include a decimal point and a leading minus to indicate sign. Example: (300) with leading space would represent 300 units. (3.00) Is another acceptable string, this time with a decimal point instead of one of the characters. (-3.0) Here we have the weight with the sign attached. Note because of the sign and the decimal point only two number characters are sent.
ETX	End of Transmission character (0x03).

2.18. Protocol 18: Auto Control String 2

Character Number	0	1	2	3	4	5	6	7	8	9	10
Description	STX	Address	Text(0)	Text(1)	Text(2)	Text(3)	Text(4)	Text(5)	Text(6)	Text(7)	ENQ

Function	Description
STX	Start of Transmission character (0x02).
Address	A single character field specifying the Address of the unit to display the message. The address is fixed as 2 for this string, so the unit must be set to address 02 to display this string.
Text	These eight (8) characters will be displayed. They may be ASCII characters instead of numbers in which case the display will show text. These eight characters can include a decimal point and a leading minus to indicate sign. Example: (300) would represent 300 units. (- 3.00) a decimal point and minus sign can be used. (CEMENT) text can be sent.
ENQ	Used as End of Transmission character (0x05).

2.19. Protocol 19: Sartorious

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	Ignore	Ignore	Ignore	Ignore	Ignore	Ignore	Sign	SPC	Weight(0)	Weight (1)	Weight (2)	Weight (3)	Weight (4)
Character Number	13	14	15	16	17	18	19	20	21				
Description	Weight (5)	Weight (6)	Weight (6)	SPC	Units(0)	Units(1)	Units(2)	CR	LF				

Function	Description
Sign	Represents the sign of the weight reading (+ for Positive, dash (-) for Negative.
Weight	The numbers to be displayed on the remote display. Example: (300) would represent 300 units.
Units	Not used by the remote display.
SPC	Space character (0x20).
LF	Line Feed character (0x0A).
CR	Carriage Return character (0x0D).

2.20. Protocol 20: Soehnle without DP

Character Number	0	1	2	3	4	5	6	7	8	9	10
Description	S1	Weight(0)	Weight (1)	Weight (2)	Weight (3)	Weight (4)	ESC	Ignore	Units	CR	LF

Function	Description
S1	N = Net, M = Net + COZ, O = COZ
Units	Set to Zero (0) if there is motion, otherwise unused by the display
Weight	The numbers to be displayed on the remote display. Example: (300) would represent 300 units.
ESC	Escape character (0x1B).
CR	Carriage Return character (0x0D).
LF	Line Feed character (0x0A).

2.21. Protocol 21: Soehnle with DP

Character Number	0	1	2	3	4	5	6	7	8	9	10	11
Description	S1	Weight (0)	Weight (1)	Weight (2)	Weight (3)	Weight (4)	Weight (5)	ESC	Ignore	Units	CR	LF

Function	Description
S1	N = Net, M = Net + COZ, O = COZ
Units	Set to Zero (0x30) if there is Motion, otherwise unused by the display
Weight	The numbers to be displayed on the remote display. E.g. (300) would represent 300 units.
ESC	Escape character (0x1B).
CR	Carriage Return character (0x0D).
LF	Line Feed character (0x0A).

2.22. Protocol 22: Flintab

Normal Operation:

Character Number	0	1	2	3	4	5	6	7	8	9	10
Description	S1	S2	Sign	Weight	Weight	Weight	Weight	Weight	Weight	CR	LF

Function	Description
S1	B = Gross, N = Net
S2	# = Motion, Space = Stable
Sign	Represents the sign of the weight reading (space for Positive, dash (-) for Negative.
Weight	The numbers to be displayed on the remote display. The weight value is 5 digits plus an optional decimal point. If a decimal point is not used then the weight field shortens to only 5 characters. This means the overall string is 1 character shorter
CR	Carriage Return character (0x0D).
LF	Line Feed character (0x0A).

Overload / Underload:

Character Number	0	1	9	10
Description	O	L	CR	LF

2.23. Protocol 23: Philips

Character Number	0	1	2	3	4	5	6	7	8	9	10
Description	STX	Ignored	S1	Ignored	SPC	SPC	Weight(0)	Weight(1)	Weight(2)	Weight(3)	ETX

Function	Description
S1	0 = Motion, 1 = COZ, 2 = Stable
SPC	Space character (0x20).
Weight	The numbers to be displayed on the remote display. E.g. (300) would represent 300 units.
STX	Start of Transmission character (0x02).
ETX	End of Transmission character (0x03).

2.24. Protocol 24: Condec

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12	13
Description	STX	Sign	Weight(0)	Weight(1)	Weight(2)	Weight(3)	Weight(4)	Weight(5)	Weight(6)	Units	S1	S2	CR	LF

Function	Description
STX	Start of Transmission Character (0x02).
Sign	Represents the sign of the weight reading (space for Positive, dash (-) for Negative.
Weight	These seven characters are a string containing the current weight including the decimal point. If there is no decimal point, then the first character is a space. No leading zero blanking active so if the indicator sends 00 or 000 it will be shown on the display. Example: (300) will display as “300” (30.00) will display as “30.00"
Units	L = Lb, K = kg can be used for unit switching if set.
S1	G = Gross, N = Net
S2	Space = OK, M = Motion, O = Overload/Underload
CR	Carriage Return character (0x0D).
LF	Line Feed character (0x0A).

2.25. Protocol 25: Bilanciai D410

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	$	Net(0)	Net(1)	Net(2)	Net(3)	Net(4)	Net(5)	Net(6)	Net(7)	Net(8)	Net(9)	SPC	Tare(1)
Character Number	13	14	15	16	17	18	19	20	21	22	23	24	25
Description	Tare(2)	Tare(3)	Tare(4)	Tare(5)	Tare(6)	Tare(7)	Tare(8)	Tare(9)	SPC	Unit(1)	Unit(2)	SPC	S1
Character Number	26	27	28	29	30								
Description	S2	S3	S4	CR	LF								

Function	Description
$	Start of Transmission Character (0x24).
Net	Net weight of the indicator with decimal point and leading Sign character. This value will be shown on the display. No Leading Zero blanking.
Tare	Tare weight of the indicator. Not used by the Display
Units	lb, kg, _t or _g can be used for Unit Switching if set.
S1	ASCII character (0-F) with values as shown in the S1 table next page
S2	ASCII character (0-F) with values as shown in the S2 table next page
S3	ASCII character (0-F) with values as shown in the S3 table next page
S4	ASCII character (0-F) with values as shown in the S4 table next page
CR	Carriage Return character (0x0D)
LF	Line Feed character (0x0A)

S1 Status byte	
Status Bits	**Function**
Bit 0	1 = Minimum Weight
Bit 1	1 = Tare locked
Bit 2	1 = Tare present
Bit 3	1 = Centre of Zero

S2 Status byte	
Status Bits	**Function**
Bit 0	1 = LSB weighing EXT
Bit 1	1 = Weight Stable
Bit 2	1 = Overload
Bit 3	1 = MSB weight EXT

S3 Status byte	
Status Bits	**Function**
Bit 0	1 = Tare entered
Bit 1	1 = Tare lock cancelled
Bit 2	1 = weight not valid
Bit 3	1 = Printing in progress

S4 Status byte	
Status Bits	**Function**
Bit 0	1 = approved instrument
Bit 1	1 = converter fault
Bit 2	1 = scale configuration error
Bit 3	Not utilised

Note: The bits highlighted above are used by the display. All others are ignored.

2.26. Protocol 26: Systec

Character Number	0	1	2	3	4	5	6	7	8	9	10	11	12
Description	S1	S2	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Character Number	13	14	15	16	17								
Description	SPC	UNIT	UNIT	CR	LF								

Function	Description
S1	Fixed "S"
S2	"D" if motion else SPC for no motion
Weight	These eleven characters are a string containing the current weight including the decimal point. No leading zero blanking active so if the indicator sends 00 or 000 it will be shown on the display. Examples: (300) will display as “300” (30.00) will display as “30.00"
SPC	Space
Unit(1)	k for "kg" or "t" for tonnes
Unit(2)	g for "kg" else a space
CR	Carriage Return character (0x0D).
LF	Line Feed character (0x0A).

Appendix A: ASCII codes

Code	Char	Code	Ch	Code	Ch	Code	Ch	Code	Ch
000 (*)	NULL	026(0x1A)	SUB	052 (0x34)	‘4’	078 (0x4E)	‘N’	104 (0x68)	‘h’
001(0x01)	SOH	027(0x1B)	ESC	053 (0x35)	‘5’	079 (0x4F)	‘O’	105 (0x69)	‘I’
002(0x02)	STX	028(0x1C)	FS	054 (0x36)	‘6’	080 (0x50)	‘P’	106 (0x6A)	‘j’
003(0x03)	ETX	029(0x1D)	GS	055 (0x37)	‘7’	081 (0x51)	‘Q’	107 (0x6B)	‘k’
004(0x04)	EOT	030(0x1E)	RS	056 (0x38)	‘8’	082 (0x52)	‘R’	108 (0x6C)	‘l’
005(0x05)	ENQ	031(0x1F)	US	057 (0x39)	‘9’	083 (0x53)	‘S’	109 (0x6D)	‘m’
006(0x06)	ACK	032(0x20)	‘ ‘	058 (0x3A)	‘:’	084 (0x54)	‘T’	110 (0x6E)	‘n’
007(0x07)	BEL	033(0x21)	‘!’	059 (0x3B)	‘;’	085 (0x55)	‘U’	111 (0x6F)	‘o’
008(0x08)	BS	034(0x22)	‘”’	060 (0x3C)	‘<’	086 (0x56)	‘V’	112 (0x70)	‘p’
009(0x09)	HT	035(0x23)	‘#’	061 (0x3D)	‘=’	087 (0x57)	‘W’	113 (0x71)	‘q’
010(0x0A)	LF	036(0x24)	‘$’	062 (0x3E)	‘>’	088 (0x58)	‘X’	114 (0x72)	‘r’
011(0x0B)	VT	037(0x25)	‘%’	063 (0x3F)	‘?’	089 (0x59)	‘Y’	115 (0x73)	‘s’
012(0x0C)	FF	038(0x26)	‘&’	064 (0x40)	‘@’	090 (0x5A)	‘Z’	116 (0x74)	‘t’
013(0x0D)	CR	039(0x27)	‘’’	065 (0x41)	‘A’	091 (0x5B)	‘[‘	117 (0x75)	‘u’
014(0x0E)	SO	040(0x28)	‘(0x‘	066 (0x42)	‘B’	092 (0x5C)	‘\’	118 (0x76)	‘v’
015(0x0F)	SI	041(0x29)	‘)’	067 (0x43)	‘C’	093 (0x5D)	‘]’	119 (0x77)	‘w’
016(0x10)	DLE	042(0x2A)	‘*’	068 (0x44)	‘D’	094 (0x5E)	‘^’	120 (0x78)	‘x’
017(0x11)	DC1	043(0x2B)	‘+’	069 (0x45)	‘E’	095 (0x5F)	‘_’	121 (0x79)	‘y’
018(0x12)	DC2	044(0x2C)	‘,’	070 (0x46)	‘F’	096 (0x60)	‘`’	122 (0x7A)	‘z’
019(0x13)	DC3	045(0x2D)	‘-‘	071 (0x47)	‘G’	097 (0x61)	‘a’	123 (0x7B)	‘{‘
020(0x14)	DC4	046(0x2E)	‘.’	072 (0x48)	‘H’	098 (0x62)	‘b’	124 (0x7C)	‘|’
021(0x15)	NAK	047(0x2F)	‘/’	073 (0x49)	‘I’	099 (0x63)	‘c’	125 (0x7D)	‘}’
022(0x16)	SYN	048(0x30)	‘0’	074 (0x4A)	‘J’	100 (0x64)	‘d’	126 (0x7E)	‘~’
023(0x17)	ETB	049(0x31)	‘1’	075 (0x4B)	‘K’	101 (0x65)	‘e’	127 (0x7F)	DEL
024(0x18)	CAN	050(0x32)	‘2’	076 (0x4C)	‘L’	102 (0x66)	‘f’		
025(0x19)	EM	051(0x33)	‘3’	077 (0x4D)	‘M’	103 (0x67)	‘g’		

Notes

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