XK3190-A9

WEIGHING INDICATOR

MANUAL

PLEASE READ THIS MANUAL VERY CAREFULLY
BEFORE USE

Dec 2006

Specifications subject to change without prior notice

CONTENTS

1. GETTING STARTED

CAUTION

- ***This is not a toy. Keep out of reach of children;***
- ***This indicator is not an explosion proof device;***
- ***This indicator is not a water proof device;***
- ***Do not open this indicator, no user serviceable parts inside. Always contact supplier for service.***

1.1 Introduction

Weighing indicator XK3190-A9 adopts high precision double integral A/D conversion technology, widely applied in electronic platform scale、electronic floor scale、electronic truck scale、static railroad track scale and so on alike static weighing system equipped with 1~8 load cell.

1.2 Features

- High precision A/D conversion with readability 30000
- Call and display inner code to replace weight observing and analysis tolerance
- Able to setup zero-tracking range, zero(auto/manual) range and zero speed
- Able to setup print function for fast filled weighing bill
- Able to save 255 vehicle ID and corresponding tare weight、100 cargo ID、205 weighing records

- Weighing data save protection in case of power off
- Indicating for battery volume or status
- Protection for low battery
- AC/DC power supply, with outside rechargeable 12V/7AH battery
- Standard RS232 communication interface with selectable baud rate and communication method
- Standard scoreboard interface with 20mA current loopp
- Standard parallel print interface, able to connect with 9-pin or 24-pin wide-line printer

2.TECHNICAL PARAMETERS AND SPECIFICATIONS

- Model:XK3190-A9
- Accuracy: Class III,N=3000
- A/D Conversion Method: Double integral
- Input Signal Range: 0mV ~ 18mV
- Max.net input signal range: 18mV
- A/D conversion speed: 10~15 times/sec.
- Nonlinearity: ＜0.01%FS
- Load Cell Excitation: DC8V; I≥250mA
- Max. connection number of load cell: 8 at 350 ohm or 16 at 700 ohm
- Load cell connection mode: 6 wire, auto compensation for long distance≤50 meters
- Display: 7 bits LED, 7 status indications,3 battery indications
- Division: 1/2/5/10/20/50/100 optional
- Clock: real clock without effect on power off
- Scoreboard interface (Standard)

Serial sending signal by current loop with baud rate 600. Transmission distance: Current loop≤100 meters;

- Communication interface(RS232 C standard; RS422 optional)

Serial communication interface, with selectable baud rate by continuous sending method or on command method
Transmission distance: RS232C≤30 meters; RS422≤1200 meters

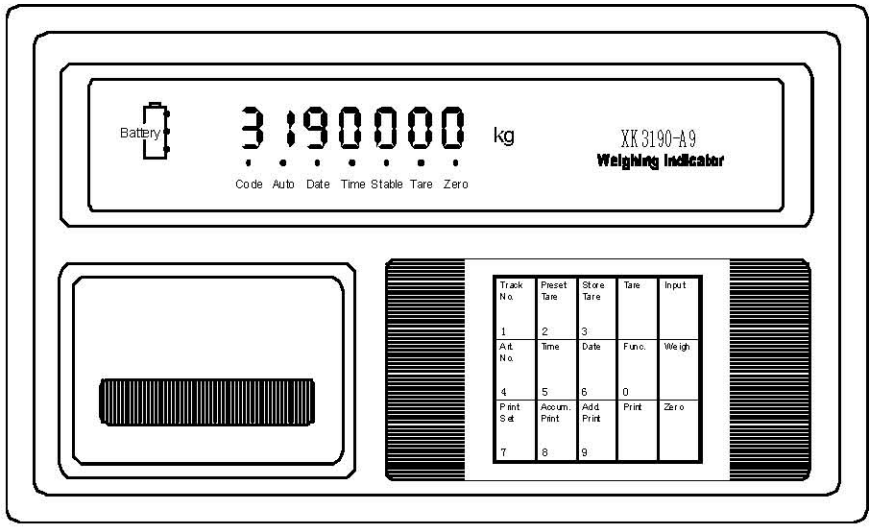
- Print interface (Standard)

Parallel sending, able to connect with wide-line printer model TM800、KX-P1121、KX-P1131、LQ300K、LQ1600K;

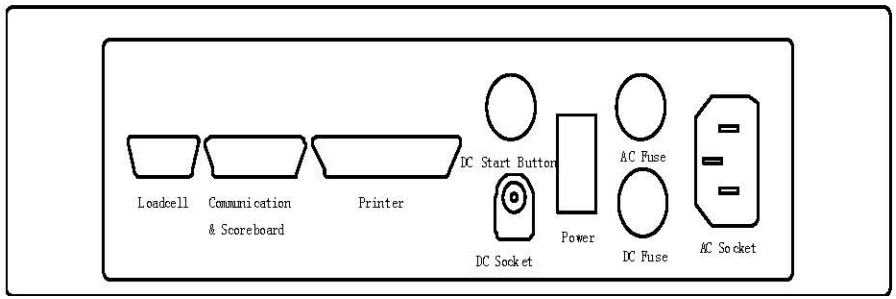
- Power supply: AC 187~242V,49~51HZ; DC outside rechargeable 12V/7AH battery; battery charge time about 30 hours and 16 hours usage time after charge then charge again
- Fuse for AC:500mA; fuse for DC:1.5A

3. LAYOUT AT FRONT AND BACK

3.1 Front view of the indicator



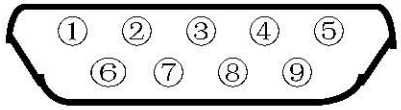
3.2 Back view of the indicator



4. Connecting to Other Devices[1] through various interfaces

4.1 Connection to load cell

Connect this indicator to load cell through the 9-pin load cell connector located at the back. Refer to the below table for load cell pin assignment.



PIN #	ASSIGNMENT
1	E-
2	S-
5	SHIELD
6	E+
7	S+
8	IN-
9	IN+

Short connect PIN 1 AND PIN 2, PIN 6 and PIN 7 when connected to load cell with a 4-wire cable;

CAUTION

- ***Connection between load cell and indicator must be reliable; shield-wire must be connected to ground reliably;***
- ***Load cell and indicator are all***

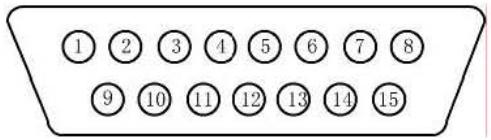
[1] Turn scale off and cut off power before making any connections or disconnections.

static-electricity-sensitive devices, measures must be taken to ensure safety.

4.2 Connection to PC or SCOREBOARD

From the 15-pin interface located at the back, you could

- Connect indicator to computer via RS232 output or RS422 output (optional);
- Connect indictor to scoreboard via 20mA current loop output;



15-pin connector

PIN #	ASSIGNMENT	PIN #	ASSIGNMENT
1	RS422 OUTPUT+	9	SCOREBOARD OUT+
2	RS422 OUTPUT-	10	SCOREBOARD OUT-
3	RS422 IN+		
4	RS422 IN-		
6	RS232 RXD		
7	RS232 TXD		
8	GND		
Note1: RS422 output is optional;			

4.2.1 Connect to PC

Data format for RS232 or RS422 is the same. Data is transmitted in ASCII code. Data format is as listed below(one group):

1	2	3	4	5	6	7	8	9	10
START	DATA								STOP

There are two modes to communicate with PC:

- Continuously send, and
- Command mode.

A. Continuously send

Data transmitted is tare weight or net weight from the display of the indicator. Each time it sends one frame data to pc, one frame consists of 12 groups while the data format of one group is as listed above. Below is the content for one frame:

GROUP NO.	CONTENT	NOTES
1	02(XON)	START
2	+ OR −	SIGN SINAL
3	WEIGHING DATA	High digit
4		…
5		…
6		…
7		…
8		Low digit
9	Decimal point	From right to left, decimal point is from 0~4 ; 0 for no decimal point, 1 for 1 decimal point;
10	Verify	XOR HIGHT 4 BITS
11	Verify	XOR LOW 4 BITS
12	03(XOFF)	STOP
XOR=2 ⊕ 3 ⊕ ……8 ⊕ 9		

For example,

Now the indicator displays 50.00KG, then the frame indicator sends to PC is : +0050002;
If the indicator displays -0.040KG, then the frame indicator sends to PC is : -0000403;

B. Command mode

Indicator will act according to instruction from PC, one instruction from PC will trigger one act from indicator.

◆Format of instruction from PC is as followed:

GROUP NO.	CONTENT	NOTE
1	02(XON)	START
2	ADDRESS	From A~Z
3	COMMAND (FROM A~D)	A:For SHARKE
		B:For GROSS W
		C:For TARE W
		D:For NET W
4	Verify	XOR HIGHT 4 BITS
5		XOR LOW 4 BITS
6	03(XOFF)	STOP
NOTE: XOR=2 ⊕ 3		

◆Format of data from indicator is as followed:

GROUP NO.	NOTES	
1	START XON (02)	
2	ADDRESS: A~Z	
3	A~D	A:TO SHARKE
		B:To send GROSS W
		C:To send TARE W
		D:To send NET W
4	COORESPONDING DATA ACCORDING TO COMMAND	
…		
N-1		
N		
N+1	Verify HIGH 4 BITS OF XOR	
N+2	Verify LOW 4 BITS OF XOR	
N+3	03(XOFF) STOP	
XOR=＝2⊕3⊕……(n-1) ⊕n		

Content of 4~N is as followed table according to different command:

COMMAND A	NO DATA	ONE FRAME (6 GROUPS)
COMMAND B :TO SEND GROSS WEIGHT	A: Sign bit(+/-)	ONE FRAME (14 GROUPS)
	B: Highest bit (6 BITS)	
	…(from high to low)	
	G:	
	H:DECIMAL POINT(0~4)	
COMMAND C :TO SEND TARE WEIGHT	A: Sign bit(+/-)	ONE FRAME (14 GROUPS)
	B: Highest bit (6 BITS)	
	…(from high to low)	
	G:	
	H:DECIMAL POINT(0~4)	
COMMAND D :TO SEND NET WEIGHT	A: Sign bit(+/-)	ONE FRAME (14 GROUPS)
	B: Highest bit for g.w	
	…(from high to low)	
	G:	
	H:DECIMAL POINT(0~4)	

Note: For verify of XOR

High 4 bits and low 4 bits of XOR is defined: if high 4 bits or low 4 bits of XOR is ≦9, then add 30h and transmit in ASCII code; if high 4 bits or low 4 bits of XOR is >9, hen add 37h and transmit in ASCII code

C. Parameter setting at indicator for communication with PC

There are mainly three parameters to be set for communication with PC, they are address, baud rate and communication method. To set these parameter, first connect indicator to load cell properly so that indicator will work properly. Open the calibration board at the back of indicator, you will see the

calibration switch, turn the switch to right, then you could set these parameter as followed table:

Step	Operation	Display	Explanation
1	Press [function]		
2	Press[input]	[E **]	Non-communication parameter setting, not change it. Press [input] to next step.
3	Press[input]	[dc *]	Non-communication parameter setting, not change it. Press [input] to next step.
4	Press[input]	[Pn *****]	Non-communication parameter setting, not change it. Press [input] to next step.
5	Press[input]	[F *****]	Non-communication parameter setting, not change it. Press [input] to next step.
6	Press[1] Press[input]	[Adr **] [Adr 01]	Communication address(01-26) Example:1
7	Press[1] Press[input]	[bt *] [bt *]	Baud rate(0-4), indicate the baud rate respectively. 600,1200,2400,4800,9600 Example:1
8	Press[0] Press[input]	[tF *] [tF *]	Communication method(0~1) 0-Continously sending 1-On command Example: 0
9		Weigh status	Finish

4.2.2 Connect to Scoreboard

Data is transmitted serially in binary code with baud rate 600. Data format is as listed below (one group):

0	1	2	3	4	5	6	7	8	9	10
START	DATA(Low is prior to high)								SIGN	STOP

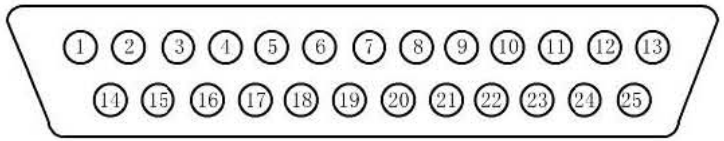
Indicator sends one frame data to scoreboard per 100ms, one frame consists of 3 groups while the data format of one group is as listed above. Below is the content for one frame:

Group 1	0	1	2	3	4	5	6	7	8	9	10
	Start	D0	D1	D2	D3	D4	D5	D6	D7	SIGN	STOP
		X			Y		G18	G16	G17	0	1
Group 2	0	1	2	3	4	5	6	7	8	9	10
	Start	D0	D1	D2	D3	D4	D5	D6	D7	SIGN	STOP
		G8	G9	G10	G11	G12	G13	G14	G15	0	1
Group 3	0	1	2	3	4	5	6	7	8	9	10
	Start	D0	D1	D2	D3	D4	D5	D6	D7	SIGN	STOP
		G0	G1	G2	G3	G4	G5	G6	G7	1	1

For group one, Sign bit is 0; X(D0,D1,D2)means decimal point (0~4); Y (D3) means sign(1 for negative while 0 for positive); Y (D4) for back up; G18,G17 and G16 is binary code;
For group two, Sign bit is 0; G15~G8 is binary code;
For group three, Sign bit is 1; G7~G0 is binary code;

From G0~G18 consists of 18 bit binary code, low prior to high, with content of weighing data

4.3 Connection to Printer



25-pin interface

PIN #	ASSIGNMENT	PIN #	ASSIGNMENT
1	ST	7	D5
2	D0	8	D6
3	D1	9	D7
4	D2	11	BUSY
5	D3	25	GND
6	D4		

Description for each pin is as listed in above table. Before print operation, first set up parameter for print function, then connect indicator to printer with printer cable. Please refer to followed table for parameter setting:

Step	Operation	Display	Note
1	Press [print set] Press [9] [7] Press [Input]	[P 00] [P 97]	Input Password 97
2	Press [1] Press [Input]	[Auto *] [Auto 1]	Select Auto/Manual Print 0- Manual 1- Auto
3	Press [3] Press [Input]	[Type *] [Type 3]	Select printer type: 0-Print invalid 1-TPup16(micro-printer] 2-TM800 printer 3-Panasonic KX-P1121 4-Epson LQ-1600K 5-Built in printer(For A9P)
4	Press [5] [0] Press [Input]	[HL **] [HL 50]	Print only when: 00-Back to zero 25-Back to <25% F.S. 50- Back to <50% F.S. 75- Back to <75% F.S. 99- Even it's F.S.
5	Press [3] Press [Input]	[Arr *] [Arr 3]	Select Print format: Arr= 0: record format 1: 1-page linked format 2: 2-page linked format 3: 3-page linked format