



Replacing a TTS DCA-10 amplifier

Easy - cross reference guide

Below is the OLD to NEW wiring connections

Then follow Loadcell Calibration on Page 4

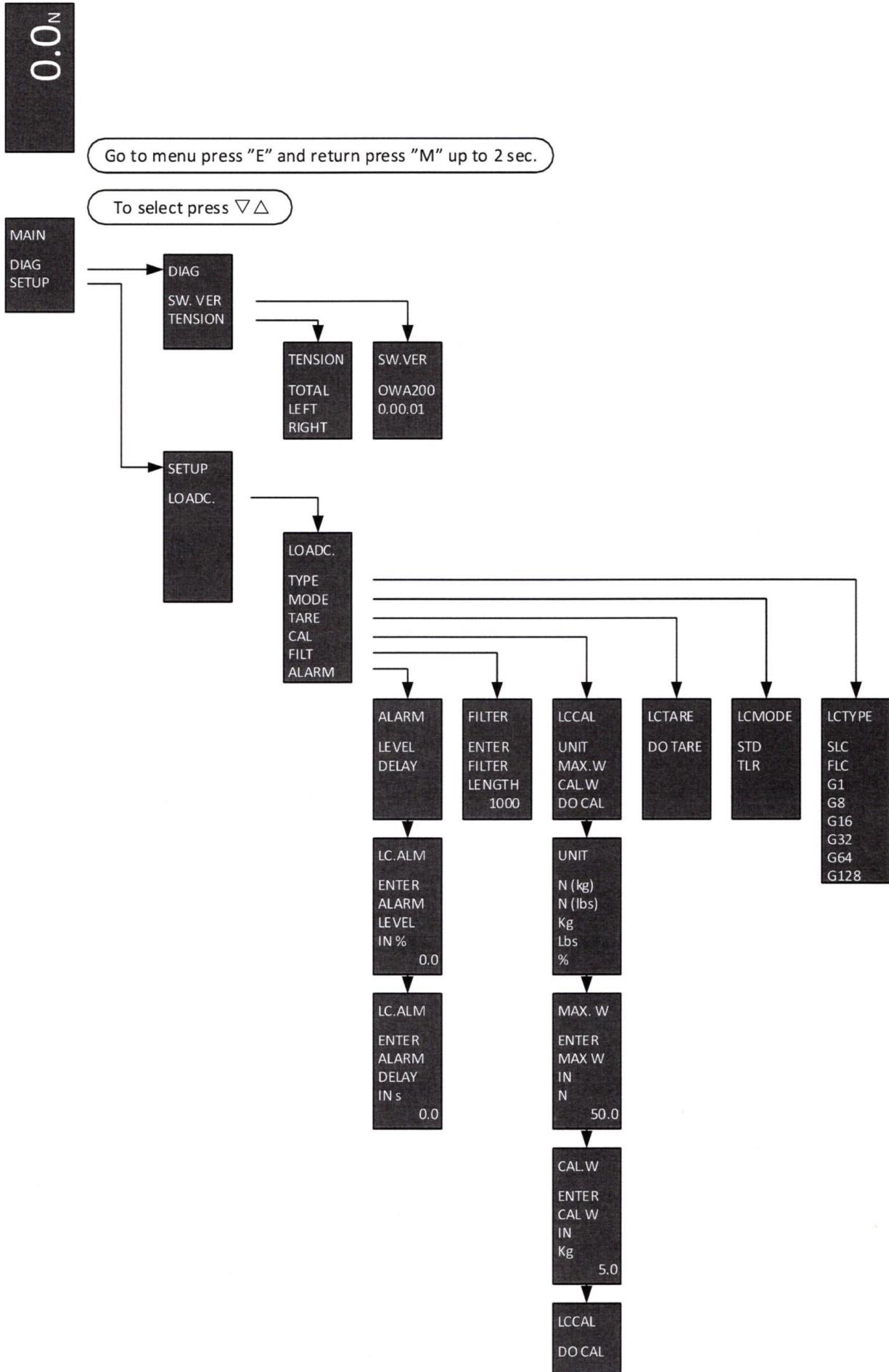
DCA-10 OLD	Function	DCA-22 NEW
1	Loadcell 1 + Exc	19
2	Loadcell 1 + Sig	21
3	Loadcell 1 - Sig	22
4	Loadcell 1 - Exc	24
5	Loadcell 2 + Exc	25
6	Loadcell 2 + Sig	27
7	Loadcell 2 - Sig	28
8	Loadcell 2 - Exc	30
31	Power + 24VDC	3
32	Power 0VDC	2
27	Output Total +ve	6
28	Output Total 0V	4
17	Output Left +ve	8
18	Output Left 0V	4
21	Output Right +ve	7
22	Output Right 0V	4

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TTS Systems offers a complete range of loadcells, amplifiers & controllers for web, wire and filament tension measurement.
Plus position and edge sensing, compact web guides and retro-fit.

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Setup and Calibration



Glossary

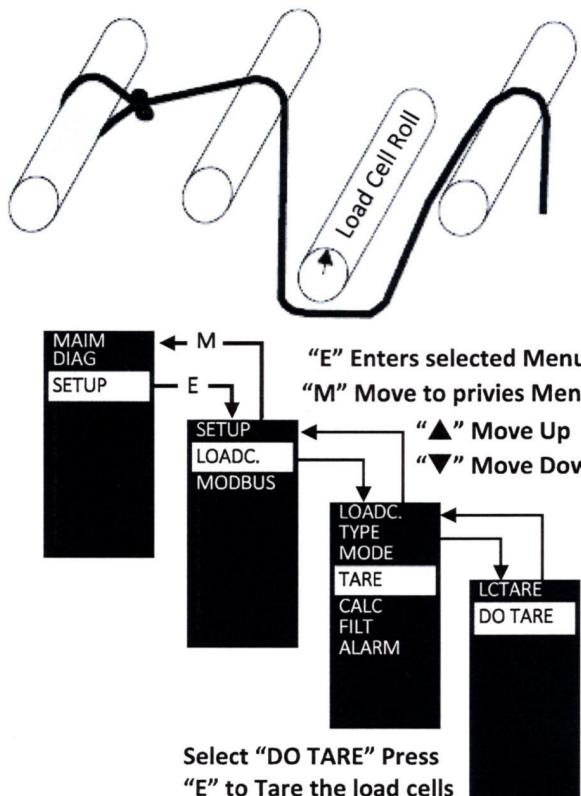
DIAG	:	Diagnostic
SW. VER	:	Software version; actual software version
LOADC.	:	Load Cell
LCTYPE	:	Load Cell type based on type of gauge
SLC	:	Strain gauge Load Cell 120 Ω semiconductor resistance
FLC	:	Foil gauge Load Cell 350 Ω resistance
G1-G128	:	Gain factor gives a selectable input range as follows: G1 : ± 4.9V G8 : ± 614 mV G16, SLC : ± 306 mV (Half Bridge 120 Ohm) G32 : ± 153 mV G64 : ± 76 mV G128, FLC : ± 38 mV (Full Bridge 350, 720, 1k Ohm)
LCMODE	:	How the Load Cell is connected
STD	:	Standard is giving an average reading if two Load Cells are connected
TLR	:	Total-Left-Right is giving separated reading on each of two Load Cells connected, so the "Total" average reading, the Left-side and Right-side reading is available
TARE	:	Zero calibration without tension on the Load Cell
CAL	:	Calibration; with an know weight giving tension to the Load Cell
UNIT	:	The selected display and calibration weighing unit
N (kg)	:	Actual tension displayed in N and the physical calibration weight given in Kg.
N (lbs)	:	Actual tension displayed in N and the physical calibration weight given in lbs.
Kg	:	Actual tension displayed in Kg and the physical calibration weight given in Kg.
Lbs	:	Actual tension displayed in lbs and the physical calibration weight given in lbs.
%	:	Actual tension displayed in % and the physical calibration weight given in % of max tension
MAX. W	:	Max weight = Tension to be entered in selected display unit
CAL. W	:	Calibration weight to be entered in the selected calibration unit
FILT	:	Filter is selectable for analog output "Ao1", "Ao2" and "Ao4", all in one, output "Ao3" has no filter. The filter is based on a sampling frequency of 1 KHz and the filter is the average reading of the selected number of samples.
Alarm level	:	Level in % of max. tension when alarm is activated. Connected to output "D0" and preset value is 5%.
Alarm delay	:	Select the delay in seconds before "Alarm" is activated.

Loadcell Calibration

SETUP		
LOADC.	LOADC.	
	TYPE	LCTYPE
		SLC
		FLC
		G1-G128
	MODE	LCMODE
		STD
		TLR
	TARE	LCTARE
		DO TARE
		Enter
	CAL	LCCAL.
		UNIT
		N
		MAX.W
		100.0
		CAL.W
		50.0
		DO CAL
		Enter
	FILT	FILTER
		1000
	ALARM	ALARM
		LEVEL
		0.0
		DELAY
		0.0

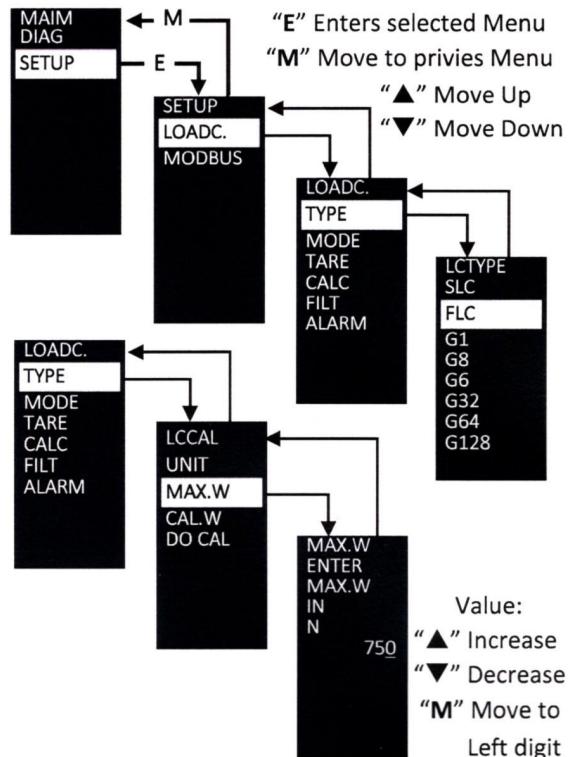
4.3.1 TARE the load cell roller

Tare the amplifier. Loosen or remove the web so no tension is applied to the Load cell roller.



Menu system:

use the [M, E, ▲ & ▼] buttons on the front



Press and hold "M" for 2sec to Abort change

Press "E" Safes new value

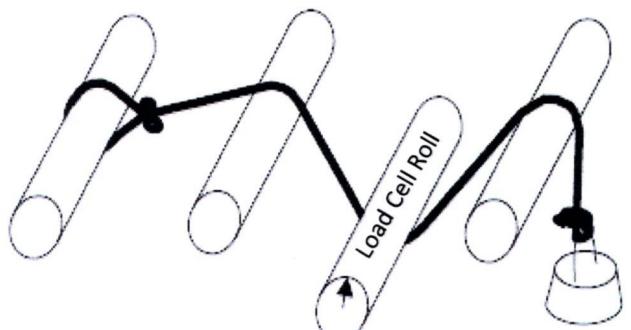
4.3.2 Calibrate the load cell roller

Under "TYPE" Select "SLC" (Semiconductor Half bridge load cells 50mV/V) or "FLC" (Foil Full Bridge Load cells 2mV/V)

Under "CAL."

"UNIT" Select the engineering unit for the display
 "MAX.W" Set the max web tension for the application
 "CAL.W" Use a known weight of min 20% of the max web tension.

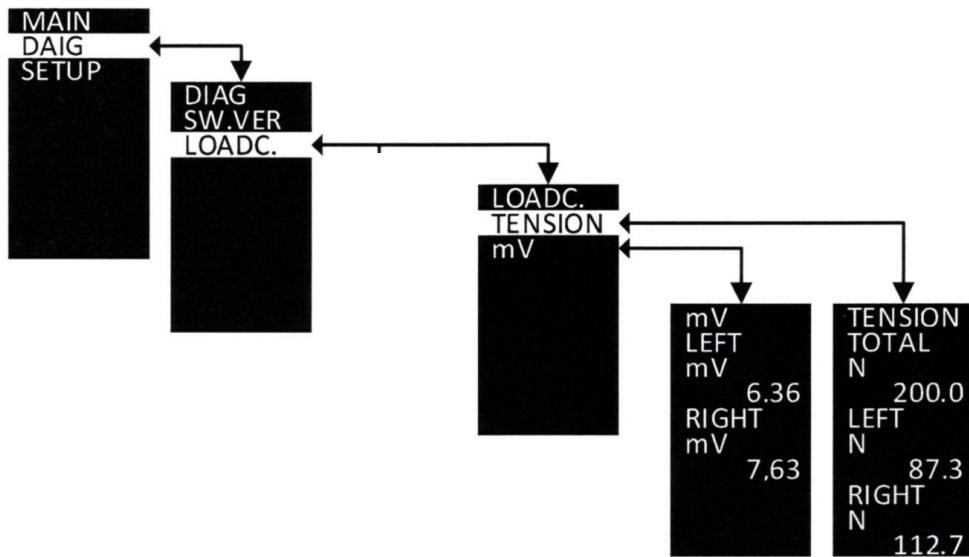
Thread a rope over the center of the Load cell roller following the path of the web. Fasten one end of the rope and apply known weight to the other end



Select "DO CAL." Press "E" to Calibrate the amplifier to the force on the load cell roller

Diagnostic

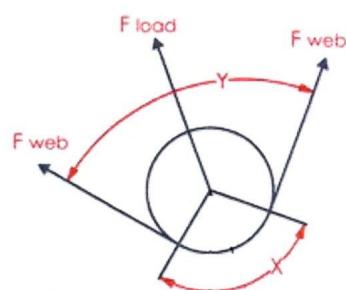
The diagnostic menu displays the actual tension from the loadcells and the mV directly on the input terminals from the loadcells.



Loadcell Force Table

The table below can be used to estimate the resulting Force on the loadcells.

If the loadcell output is too high at maximum tension, the measurement range can be changed under TYPE MENU.



Max Tension [Kg]	Wrap angle	Angle Force factor	total resultant force [kg]	Min Load cell Size [N]
50	180	2.00	100	1000
50	150	1.93	97	966
50	120	1.73	87	866
50	90	1.41	71	707
50	60	1.00	50	500
50	30	0.52	26	259

TYPE MENU:

- | | |
|------------|--|
| G1: | $\pm 4.9V$ |
| G8: | $\pm 614 \text{ mV}$ |
| G16, SLC: | $\pm 306 \text{ mV}$ (Half Bridge 120 Ohm) |
| G32: | $\pm 153 \text{ mV}$ |
| G64: | $\pm 76 \text{ mV}$ |
| G128, FLC: | $\pm 38 \text{ mV}$ (Full Bridge 350, 720, 1k Ohm) |