

INDEX

A	page	
A/D	21-2	
A/D calibration data	21-5	
A/D calibration procedure	21-5	
A/D conversion rate	C-1	
A/D Converter	21-1, 21-5	
abort a transmission	4-12	
absolute accuracy	7-6	
access code (main)	3-1, 4-1, 4-2, 23-1	
access code (quick cal)	4-1, 4-3, 7-1, 7-3	
accumulation	4-10	
accumulation (performing)	13-1, 13-2	
accumulation (reset)	13-2	
accumulation (setup)	13-1	
accumulation count parameter	13-2	
accumulation counter	13-2, 20-2	
accumulation mode	1-5, 13-1	
accumulation operation	10-2, 13-1	
accumulation parameters	13-2, 20-2	
accumulation registers	13-2	
accuracy displayed	27-6	
achieved accuracy	27-2, 27-3	
activate	14-3, 15-1	
additional memory	17-1	
addressing capabilities	25-8	
adjusting zero	7-2	
advanced features	4-1	
advanced setup parameters	4-1	
aliphatic	2-2, 2-3	
alpha character entry	8-5	
alpha-numeric	8-7	
alpha-numeric code	7-7	
alpha-numeric display	3-1	
alpha-numeric entry	4-3, 7-7, 8-16, 23-1	
alpha-numeric input	3-1, 4-1	
alpha-numeric keypad	24-5	
alphabetic	4-3	
amount of E2 memory	4-36	
amount of EEPROM	20-1	
Analog/Digital conversion	3-	
application files	22-1	
aromatic hydrocarbons	2-2, 2-3	
arrow keys	24-3, 24-5	
ASCII	1-2, 8-7	
ASCII characters	6-2, 8-6, 8-8, 23-1	
ASCII codes	8-1, 8-5	
ASCII control codes	8-8, D-1	
ASCII file	5-2	
ASCII Setup File	A-1	
ASCII table	D-1	
ASCII to hexadecimal	D-1	
ASCII to hexadecimal conversion chart	D-1	
ASCII transmission	20-7	
audit trail	20-1, 20-3	
audit trail number	4-36, 20-4	
auto-enhance	27-1, 27-2, 27-6	
auto tare	5-	
2, 5-3, 5-	5,	
11-1, 9-3		
auto zero range	C-1	
auto-increment	24-5	
auto-incrementing registers	8-1, 24-1, 24-2, 24-3	
auto-tare	5-	
2, 5-3, 5-	5	
auto-tare operation	4-10	
automatic zero track	C-1	
auxiliary display	5-2	
available options	1-3	
average piece weight	27-1	
B		
back EMF	15-2	
bad A/D	25-5	
basic operations	3-1, 3-2	
basic setup	4-1	
basic setup parameters	3-1, 3-2, 4-1, 4-2	
batch (ingredients)	4-6, 14-1	
batching operation	14-17	
battery backed time-date option	16-1, 16-2	
baud rate	8-1, 21-4, C-1	
bi-directional	8-3	
bi-directional connections	8-	
3		
bits per second	8-1	
board serial number	20-4	
both fill and empty	14-1	

INDEX

braided shield	2-7, 8-2	16,	23-1, 24-4
buffer	8-5	character listing	6-2, 8-16
bytes	17-1	character type	8-15
		character width	8-1
		check weigh operation	14-1, 14-2, 4-21, 4-33
		check weighing	4-21, 4-33, 14-1
Cable Connection Information	8-2	check weighing-absolute	14-1
cable connections	2-	check-sums	8-13, 26-2, 26-3
7, 8-2,	19-1	checksum codes	8-14
Cable Options	1-5, 19-1	checksum format	8-14
Cal Reset	7-4	clock	4-1, 16-1
calculated factors	20-	coarse gain	4-37, 20-5, 20-6
7		coarse zero	4-37, 20-5, 20-6,
calculating a specific type of checksum	8-14	coarse zero adjustments	20-6
calibration	1-2, 4-2, 7- 4, 20-5	color wiring code	2-8
calibration (establish new zero only)	7-2	comm port	4-11, 8-1, 3
calibration (quick cal.)	7-1	COMM Port Connections	8-3
calibration (re-cal without est. new zero)	7-2, 7-3	comm port handshake	8-3
calibration (standard)	7-1	command language	8-5
calibration (weight already applied)	7-2	common weighing applications	1-2
calibration check	7-2	communication cable connections	8-2, 8-3
calibration error messages	21-	communication port	C-1
1, 21-3		Communication Port Connections	8-3
calibration event counter	20-4	Communication Protocol	8-1
calibration factor	4-1, 7-2, 5, 20-6, 20- 7	communications	8-1, 8-2
Calibration mode	1-5, 7-1, 7- 2, 7-3, 7-4	communications error messages	21-4
calibration points	7-5	Compatible Peripheral Options	1-5
calibration procedure	7-4, 20-6	compensation for the coarse gain	4-38
Calibration Re-zeroing	7-3	compensation for the coarse zero	4-37, 4-38
calibration reset	20-6	compensation of Reference Voltage	4-38
calibration routine	7-4	conductor color code	19-1
calibration selections	7-1	continuous print	8-14, 8-15
calibration units	4-8, 6-1, 7- 3	continuous transmits	3-3
calibration weight	3-1, 7-2, 7- 3, 7-4, 7-5	control code table	8-9
calibration zero	7-2, 7-3, 7- 4	control codes	8-7, 8-8, 8- 9, D-1
capacity (full scale)	3-2, 3-4, 4- 6, 7-2	control connections (relays)	15-3, 15-5
CE labeling	26-1	conversion factor	4-
center zero	3-1, 5-1, 5- 2	10, 6-1	
center zero condition	1-3	converted units	6-1
character entry	4-4, 5-4, 6- 2, 7-7, 8-	copyright parameter	20-1
		correct date	4-17
		count-by	4-
		6, 4-14	
		counting mode	27-6
		CRC's	8-14

current limit	15-1	display	1-3
cursor keys	4-42, 6-2,	display update	3-1, 4-8
6-	3	display update rate	4-8, C-1
custom configuration	20-4	displayed resolution	C-1
Custom Transmit	4-3, 4-20,	division setup	3-1, 4-1
8-	5, 8-6, 8-	divisions	3-2
14		dot matrix	4-3
Custom Transmit Setup	4-20, 8-6,	dot matrix display	1-3, 4-2
8-	8, 8-10	double accumulation prevention	13-2
Custom Transmit Table	8-6, 8-7	double accumulations	13-2
Custom Transmits	1-4	download and upload	20-7
Custom Units	4-10, 5-1,	download setup	20-7
6-	1	dual range	4-14, 7-8
		dual range application	7-8
		dual range feature	7-8
D			
data bits	4-11, 8-1	E	
data bits setup	8-1	E2	17-1
data buffer	8-5	E2 memory space	20-1
data field	24-1, 24-5	echo master unit	25-5
data registers	24-1, C-1	EEPROM	17-1, 17-2 20-1, 21-3, 21-4
data stream	8-1	EEPROM full	17-1
date and time parameters	24-1	elastomeric	C-1
date at power up	16-1	electrical damage	2-5
date code	4-36	EMI (electromagnetic interference)	2-
date code software	20-1	3, 2-5, 2-	9,
date format	8-11	8-2, 8-16, 5	15-
date option	4-3, 16-1, 16-2, 16-3	emptying operation	4-28, 4-30, 14-1, 14-
date parameters	4-3, 16-2	22,	14-25, 14- 29
DC or AC power	1-2	enable transmissions	8-5
de-asserted handshake	21-4	enclosure	C-1
deactivate	14-10, 15-2	enclosure cutout	2-4
dead load	7-2, 21-1	End character	4-12
debug	4-1, 20-8	Enter correct time	4-17
debug mode	20-8	entering date	16-1
decrementing the transmitted number	8-13	entering time	16-1
decrementing values	8-13	EOS	21-5
default parameters	12-1, 20-8	exploded views (model 450)	E
default parameters listing	4-2, A-1	EPROM	20-1
default sample size	27-6	Epson	8-13
default settings	A-1	Epson standard	26-2
default unit (factory settings)	4-2, 20-8	error count	20-8
delimiters	8-18	error counter	20-8
diagnostic information parameters	20-3	error messages	20-8, 21-1,
diagnostic parameters	20-3		
dimensions	2-2, 2-4, 2- 5, 2-6, C-3, C-4, C-5		
disabling the input interpreter	8-17		
disassembly	2-2		

INDEX

error occurred	21-3, 21-4, 21-5	full scale mv/V functions	20-4 5-1
ESD	20-8 2-3, 2-5, 2- 9, 8-2, 8- 16, 15-5	fuse fuse (relays)	15-6, C-1 15-6
ESD discharge	21-5		
European specific modifications	26-1		
excessive loading	21-		
1			
excitation leads	2-7		
excitation voltage	2-6		
excitation wiring	2-7		
expanding a special code	8-7		
exploded views	E-1		
extended codes	8-7, 8-8		
F			
faulty A/D	25-5		
FCC Compliance	B-1		
FCC Rules	B-1		
features	1-2		
FET	15-1		
filling / emptying operation	4-30, 14-1		
filling and emptying	4-30		
filling operation	4-25, 4-30, 14-1, 14- 12		
filling the buffer	8-1		
filter	27-4		
filter selections	3-3, 1-1		
filtering	3-3		
fine calibration	4-37		
fine gain	4-		
37			
firmware release	20-1		
firmware revision code	20-1		
fixed text	8-7		
fixed text portion of a transmission	8-7		
foil shield	8-2		
format codes (parameters)	8-		
10			
front panel	E		
front panel keys	8-5		
full scale	3-4		
full scale capacity	3-4, 4-6, 7- 1, C-1		
full scale load	3-3		
G			
gain (coarse)	4-37, 4-38, 20-5, 20-6		
gain (fine)	4-37, 4-38, 20-5, 20-6		
gain adjust	4-37, 20-6		
gasket	2-4		
general purpose registers	24-5, 24-6		
gross weigh accumulation	4-20		
gross weight entry	5-4		
Ground	8-3		
H			
handshake	4-11, 8-1, 2, 8-3		
handshake output has been de-asserted	8-6		
hardware error messages	21-2		
hardware problem	21-2		
harmful interference	B-1		
hazardous voltage	2-4, 8-5		
holding current	15-5		
I			
IBM compatible computer	22-		
1			
identification parameters	20-1		
inbound truck	9-3		
incorrect access code	21-1		
increment	21-3		
incrementing registers	24-5		
incrementing the transmitted number	8-13		
incrementing values	8-13		
indicator display	3-1		
information mode	20-1		
Information Mode parameters	7-6		
information on memory	20-1		
information parameters	20-1		
input interpreter	4-3, 4-20,		

8-	15, 8-19
instability	3-2
installation	2-1
Instrument gain	7-4
instrument setup	4-1
interface	8-
2, 15-3	
interference	B-1
internal resolution	C-1
international	2-3
international characters	4-15, 26-2
international date	16-2

K

key disabling	5-1, 5-5,
11-	1
keyboard	1-3, 1-4
keyboard select operation	4-10
keyboard selectable modes	1-4
keyboard tare	5-3, 11-1
keyboard tare operation	4-10
keyed in tare	9-3
keypad	1-4, 1-5
keypad ribbon cable	2-5
keypad type	5-1

L

last sampled amount	27-7
leakage current	15-5
learn mode	14-29
LED	14-23, 15-4
lever connector	2-8
line type	8-
15	
linear hydrocarbons	2-2, 2-3
linearity	7-6
linearization	1-2, 3-3, 4-
3	
linearization (enable)	3-3, 4-37,
4-	39
linearization data	20-7
linearization data parameters	7-7, 20-7
linearization factor	7-6
linearization process	7-6
load cell connections	2-5, 2-7
load cell current	C-1
load cell excitation	C-1

load cell leads	2-5
load cell shield	2-8
load cell simulation	22-4
loading in a setup file	22-5
logic output	15-2
logic output operations	15-1, 15-2
low capacitance rated cabling	10-1
low range	7-8
lower-case letters	4-3

M

main board (PCB)	17-3, 17-4,
17-5, 17-6,	
21-6, 21-7,	
21-8, 21-9	
main board serial number	20-1
main boards	F-1
master unit	25-1, 25-4
manual	1-1
manual tare entry	4-16
manufactured cables	19-1
manufacturer default code	3-2
maximum enhance amount	27-3
maximum excitation	2-6
maximum specifications	C-1
maximum specifications (relays)	15-3
memory expansion	17-1
memory expansion option	1-5, 17-1
memory information parameters	20-1
memory installation	17-1
memory replacement	17-1
memory storage	17-1
memory storage space	17-1
minimum accuracy selections	27-1, 27-2,
27-4	
minimum enhanceable piece weight	27-2
minimum width	8-10
mode selection parameters	5-3
model 450 indicator	1-1, 1-2
model type	20-1
model type indication	20-1
modifications	4-2
momentary switch closure	10-
1, 10-2	
monochrome monitor	22-1
motion	3-2, 4-7
motion (print)	3-2, 4-7
motion delay	3-2, 4-7, 4-
12, 8-14	

INDEX

mounting	2-2, 2-6	OIML	26-1, 26-2
mounting nut	2-8	OIML keypad	26-1
Multi-Point Linearization	4-8, 4-37,	OIML parameter	4-3, 26-1
4-	39, 7-5, C-1	OIML specifications	4-15
multi-point linearization information	20-5	one ingredient emptying	4-28
multiple accumulations	13-1	one ingredient filling	4-23, 4-24, 14-8
multiple functions	1-4	one item check weighing	4-33, 14-4
multiplication factor (units)	6-2	Only Zero?	7-4
N			
namable weight parameters	26-2	open collector type logic outputs	15-2
name field	24-1	open drain outputs	15-1
naming parameters	4-17	operating mode	4-13, 5-2
naming registers	24-1, 24-2	operating mode parameters	4-1, 12-1
negative numbers	4-10	operating temperature	C-1
negative sampling	27-1, 27-2	optically isolated	15-4
negative tare	5-4, 21-1	optimum shielding	2-8
NEMA 4X	C-1	options	1-1, 18-1
NEMA 4X (relays)	15-3	output connections (relays)	15-2, 15-3
NEMA 4X rating	15-3	over-load	21-1, 26-1
net weight accumulation	4-20		
NIST	20-3	P	
NIST approved	5-3	packaging material (M450)	E-4, E-9, E-20
NIST H-44	3-2	panel mount	2-3, 2-5
NIST officials	20-4	parameter	8-7
NIST standards	20-4	parameter download	20-7
no load	7-2	parameter listing (complete)	4-6
NO LOAD condition	7-2	parameter number	3-1
nominal specifications	C-1	parameter setup	3-1, 4-1
non-battery backed	16-1	parameter table	8-8, 8-9
non-linear	7-6, C-1	parameter types	4-6, 12-1, 24-2
non-numeric characters	4-3, 24-3	parameter upload	20-7
non-ratiometric offset	4-38	parity	4-11, 8-1
NOT H-44!	20-3, 20-4	parity setup	8-1
not preset	4-16	part number (tech manual)	back cover
NTEP	20-1, 20-2	parts counting mode	27-1
NTEP compliance	4-16	parts listing	E-5, E-10, E-13, E-16, E-21
NTEP conformance	20-4		F-1
NTEP parameter	4-3, 13-1	parts listing (Electrical)	E-
numeric entries	4-2, 5-4,	parts listings (Mechanical)	
24-	5	1	
numeric field width	8-10	pass through capability	25-7
numeric keyboard	1-4, 1-5	password	3-1, 4-1, 7-1, 23-1
Numeric parameter format selections	8-10	performing accumulations	4-
numeric parameters	8-10	16, 13-1, 2	20-
O			

peripheral devices	8-3
peripheral equipment options	18-1
peripheral options	18-1
permanent mounting	2-1, 2-3
Personal Access 2	3-1
personal identification number (PIN)	4-2, 4-3, 4-15, 23-1
physical	2-5
piece weight	27-7
piece weight x 1000	27-7
piece weight accuracy	27-6
polar solvents	2-2
polycarbonate	2-1
Polyethylene foam	2-2
PORON cellular urethane	2-3
post-cal zero mv/V	20-6
power input (AC)	C-1
power input (DC)	C-
1	
power module	C-1
power-up units	4-9, 6-1, 7-2
pre-act	14-9
pre-named	24-2
pre-setable parameters	11-1, 26-2
preset	4-16, 26-1
preset parameter	4-3
print operation	4-20, 10-2
printers (GSE recommended)	18-1
printing	8-14
printing accumulation parameters	13-2
printing operations	8-14
program jumper	21-2
programmable parameters	4-3
programmed operation mode	1-4
programming code	4-1
programming security	3-1, 4-1
protocol	C-
1	
PTB approved	8-13
punctuation symbols	4-3

Q

quantity	27-7
quantity displayed	27-3
quantity mode	27-1
quantity total	27-7
Quick Cal access code	4-15, 7-7
quick calibration	4-15, 7-6

Quick Calibration Personal Access Code 7-7

R

radio communications	B-1
radio frequency	B-1
RAM	20-1, 21-3
rated platform	3-2
re-cal (weight already applied)	7-2
re-cal (without establishing new zero)	7-2, 7-3
re-calibration	7-2, 7-4, 7-5
re-zeroing (re-establish zero only)	7-2
rear panel	2-3, E-1
receive buffer	21-4
receive communications	8-5
reference voltage	4-
38, 20-6	
register type parameters	24-3
registers, naming	24-1
relay contact protection circuits	15-7
relay module option	15-3
relay modules (relays)	15-3
relay output connections	15-3, 15-4,
relay power connections	15-5
relay protection circuits	15-6
remote display	25-1
remote display cascading	25-2
remote display connections	25-5, 25-6, 25-7, 25-8
remote display parameters	25-1
remote display setup	25-1
remote display (remote keys)	25-3
remote key connections	10-1
Remote Key Input	4-3
Remote Key operation	4-20, 10-1
remote keyboard	4-1
remote keypad keys	4-13
remote keys	4-1, 10-1, 25-3
renaming parameters	24-6
reset unit (factory default settings)	4-1, 20-2
resolution	3-2
response time	4-8
RFI	2-3, 2-5, 2-9, 8-2
ring terminal	2-8
round off tare values	4-10
rounding	24-5

INDEX

rounding parameters	24-6	shield	2-8
RS-232 communications	8-3, 8-5	shield lead	2-7, 2-8
RS-232 input	8-3	shield termination	8-5
RS-232 output	C-1	shielded cables	B-1
RS232 receiver	8-1	signal connections	2-7
rubber boot	2-7	signal connections (relays)	
		15-3	
		signal leads	2-7
S		signal range	C-1
sample size	27-1	silicon rubber	2-1
sampling operation	27-1	simulated input signal	22-4
schematic drawings	19-2, E-1	simulator software (GSE 450 software)	22-1
sealing design	20-3	single ingredient filling operation	4-23
sealing method (traditional)	20-3	single-speed filling	14-1
seconds elapsed	8-13	sink output	15-4
security code	3-1, 4-2	six lead cables	2-7
security seal	20-3	software copyright	20-1
selectable operating mode parameters	4-2, 4-3,	software map	4-4
12-	1	software revision	4-36
Selectable Operating modes	24-4	software revision code	20-1
selectable parameters	4-2	Software Security Code	8-6
selecting a parameter to be transmitted	8-7	soldering iron	2-8
selecting the format for the selected parameter	8-7	special characters	8-
		7	
send setup	20-7	specifications (450)	C-1
sense leads	2-7	spreadsheet application	8-13
serial number	20-1	stability	3-3
service	21-1	stainless steel enclosure	2-3
setpoint error messages	21-5	Stainless Steel Washdown Enclosure	1-2
setpoint inputs	15-2	standard 450 programs	14-1
setpoint operation	14-3, 15-1	standard calibration	7-5, 7-6
setpoint output connections	15-4	standard keypad keys	5-1
setpoint output specifications	15-2	Standard Programming Operations	1-2
setpoint outputs	15-4	standard programs	4-3, 14-1
setpoint parameters	4-1, 15-1	Standard Selectable Programs	4-21
setpoint power connections	15-5	Start character	4-12
setpoint protection circuits		status bit	8-
15-6		19	
setpoint status	14-2, 15-1,	status parameter	8-13, 8-14,
	22-6		12-1
setpoint target values	24-2	stop bits	4-11, 8-1
setpoint targets (front panel entry)	12-1, 14-1,	storage memory	17-1
	24-4	strain relief (back panel)	2-8
setpoint window	22-5	strain relief (relay module)	
setpoints		15-4	
15-1		strain-gage	2-6
Setup mode	1-5, 3-1, 4-	surge current	15-5
2		switch panel controls	C-1
setup parameter	3-1	switch panel type	C-1
setup, advanced	4-1	swivel bracket	2-1
		swivel stand	1-2
		system gain	20-5

T

table top mounting	2-1
tank weighing	5-3, 14-31
tank weighing applications	7-3
tare (auto)	5-2, 5-3, 5-5
tare clear (automatic)	
tare negative	
tare operation	4-20, 10-3
tare rounding	
tare save (power removed)	
tare weight	
target mode	14-1
target setting	12-1, 14-1
target variables	24-4
Temp Zero?	7-3
terminal block	15-4
terminal connections (comm port)	8-3
terminal connections (remote key)	10-1
terminating character	8-5, 8-15,
8-	17, 8-18
test mode parameter	20-7
text (fixed character text)	8-7
Time and Date	1-2
time and date operations	16-1, 16-3
time and date parameter setup	16-2
time date option	4-3, 16-1
time date parameters	4-2, 16-1
time format	8-10, 8-11
time parameter	4-3, 16-1
time stamp	9-2, 9-3
time/date parameter	8-10
transducer excitation	2-6
transmission of current settings	20-7
transmission protocol	4-1
transmissions	8-1
transmit buffer	4-12, 8-1, 8-2, 21-4
transmit communications	8-6
transmit control codes	8-8
transmit fixed (custom) text	8-8
transmit once per weighment	8-1
transmit parameters	8-5
transmit the checksum	8-14, 26-4
transmitted data	8-10
troubleshooting	21-1
Truck I/O	1-6
Truck time register	9-1, 9-2

Truck Weighing	9-1
Truck Mode operation	9-2
TTL	15-2
TTL input	8-3
two ingredient batching	4-25, 14-1, 14-17
two ingredient filling	4-25, 14-4
Two ingredient, single speed	14-4
two speed filling	4-30, 14-1, 14-4
Two-speed, emptying operation	4-28

U

U.S.A.	2-3
umbilical cables	2-5
underload	21-1, 26-1
uni-directional connections	8-3
unit conversion table	6-1
unit resetting (factory defaults)	4-3, 20-8
units (custom)	6-1
units parameter	6-1
units setup	6-1
units, calibration	6-1
UNIX computer standard	16-1
unshielded	8-2
update rates	4-3
upload setup	5-1
upper-case	4-3
utility parameters	4-
1, 20-1,	20-8

V

variable parameters	24-2
variables	24-1
voltage level logic circuits	15-
1	
voltage reference	20-
6	

W

washdown	C-1
weigh platform	2-7, 2-8
weigh units	C-1
weighing applications	1-2

INDEX

