

# Index

## A

About This Manual.....	1
AC Power Supply Wiring.....	21
access code .....	328
<b>access code entry</b> .....	269
access code level.....	78
access code restrictions.....	78
access enable/disable .....	77
address .....	153
address assignment .....	154
alarm.....	190, 328
Analog Multimeters.....	<b>315</b>
anemometer .....	159, 328
arrow keys .....	11
assembly layout .....	20
at water limit.....	41
at water limits options.....	46
auto limits.....	<b>52, 63, 205, 256</b> , 300, 328
auto limits options .....	64
automatic mode .....	12

## B

base screen.....	328
base screen central .....	153
base screen user prompts .....	13
base screen valid PGM .....	12
<b>beep responses</b> .....	<b>17</b>

## C

<b>Cable Checkout Procedure</b> .....	318
<b>calibration tables</b> .....	235
offset and K values.....	248
Canceling and Continuing Watering Programs .....	<b>266</b>
central computer .....	109, 153
Central Control .....	153
central control mode .....	153, 328
Central User.....	329
clear program definition .....	116
<b>clear program procedure</b> .....	116
clear warning report.....	144, 163
comm status.....	124

Comm Status.....	124
commercial sensor devices .....	230
common connections .....	19
common interrupt devices.....	230
communication board .....	19, 280
communication options.....	19, 153, 154
communications failure.....	206
Condemned station .....	329
configuration.....	80
configuration screen.....	307
<b>connections</b>	
<b>master valve/station</b> .....	22
continue watering.....	46
continuous cycle .....	42, 94
Continuous Cycle.....	329
contrast keys .....	12
control devices.....	230
control panel features.....	10
controller.....	328
Controller.....	329
Controller Address.....	329
controller configuration .....	79
controller enclosure .....	20
controller face panel .....	10
controller initialization.....	23
Controller Initialization.....	329
controller keys .....	15
Controller Keys.....	329
controller logs .....	158
controller options .....	67, 69
controller specifications .....	4
controller submaster.....	154
count-down clock.....	64, 257
<b>create a program</b> .....	28
current checking	
enable/disable .....	258
current limit	
maximum.....	57
minimum .....	57
options .....	54
<b>current limit detection</b> .....	255
current limit setup .....	259
Current Limits.....	329
current measurement.....	64, 257
<b>Current Monitor</b> .....	254
current monitor overview.....	254
current monitor setup .....	254

current value	
maximum .....	261
minimum .....	261
cycle mode.....	41, 42
Cycle Mode .....	329

**D**

day keypad.....	329
default values.....	35, 330
delay flow limit.....	239
delay limit.....	71
delay time .....	49, 71
Delay Time.....	330, 335
device .....	<b>190, 325, 328</b>
Device.....	330
diagnostic	
see troubleshooting.....	158
station procedure .....	142
diagnostic procedure.....	142
diagnostics	
communications .....	158
<b>digital multimeters</b> .....	317
direct connection .....	153
disable	
access code .....	77
current .....	53
flow .....	53
limit checking.....	53
lower limit .....	54
moisture limit .....	83
upper limit .....	54
Down Arrow.....	330
Download .....	330
downloading .....	155
Downloading .....	330

**E**

enable	
access codes .....	78
access level.....	78
current .....	53
current limits .....	54
flow .....	53
flow limits .....	54
moisture sensor.....	83

omit by date .....	44
upper limit .....	54
enable/disable current checking .....	258
enable/disable station flow limit .....	239
Enter Key .....	330
entering an access code.....	269
ET 159	
ET readings.....	127
evapotranspiration.....	159
EvapoTranspiration.....	330
EV-CAB-COM .....	330
Evolution .....	4
Evolution DX2.....	4, 9
example current limit violations .....	262

## F

factory defaults .....	35
<b>features and capabilities</b> .....	<b>4</b>
fertilizer station .....	59
Field Wiring.....	330
flow check delay .....	68, 239, 279
flow checking	
see enable flow .....	53
flow detection .....	244
flow feature.....	275
flow features .....	232
flow limit	
automatic .....	64
checking .....	234
options.....	53
delay .....	68
detection .....	244
enabling/disabling.....	53, 239
main flow.....	62, 237
maximum.....	57
minimum .....	57
monthly.....	69
options .....	53
overflow warning.....	246
sensor selection.....	69
station lower .....	58, 237
station upper .....	58, 236
under flow warning.....	246
<b>violation examples</b> .....	245
water limit .....	246
Flow Limit Violation .....	244

Flow Max .....	275, 330
devices.....	277
hardwire configuration .....	280
<b>limitations</b> .....	279
main flow limits .....	279
overview.....	276
participants .....	276
shared devices .....	81
<b>Flow Max Communications Failure</b> .....	311
Flow Max Lower Limit Violation .....	<b>309</b>
Flow Max Main Flow .....	<b>312</b>
Flow Max Setup Procedure .....	<b>285</b>
Flow Max Upper Limit Violation.....	<b>310</b>
Flow Max Warnings and Exception Conditions .....	<b>309</b>
Flow Max Worksheet .....	<b>301</b>
flow meter	
rates .....	241
<b>Flow Meters</b> .....	232
Flow Rate Delay .....	331
flow sensor	
calibration tables .....	248
compare limits.....	69
delay limit .....	71
hardware.....	19
<b>installation</b> .....	253
K and offset value .....	234
options.....	84
overview.....	233
setup .....	84
Flow Sensor.....	331
Flow Sensors .....	<b>278</b>
flow warning	
see warning .....	163
FM warning	
see warning .....	163
freeze sensors .....	230
Function (F1-F6) keys .....	331
function keys .....	10
fuse .....	18

## G

gallons per minute .....	58
<b>Getting Started</b> .....	<b>23</b>
GFI .....	18
give warning	
watering.....	46

global	
settings.....	23
Global Settings .....	331
GPM .....	126, 232
ground fault interrupter.....	18

## H

hardwire	
<b>connections</b> .....	283
Link .....	280
hardwire configuration.....	276
hardwire data .....	311
host computer .....	153
Host Computer.....	331
hourly rain limit.....	177

## I

Icon .....	1, 331
<b>individual station control</b> .....	120
Initialization.....	331
injector	
delay time .....	60
fertilizer .....	60
injector station .....	60
Injector Station .....	331
internal assemblies.....	17
invalid entry .....	17
irrigation program .....	41, 43, <b>328</b>
options .....	43
Irrigation Program .....	331
ISC .....	331
definition .....	120
options .....	50, 122
setup options.....	50

## K

K and offset values .....	85, 234, 235
<b>K and Offset values</b> .....	86
K Value.....	332
key	
contrast .....	16
controller .....	15
down arrow.....	15
enter.....	16

function .....	15
invalid entry .....	17
language .....	16
program on/off .....	16
<b>up arrow</b> .....	<b>14</b> , 15
key pad .....	10
keyboard main panel.....	17
keypad	
days .....	15
numeric.....	15

**L**

<b>language</b>	
<b>options</b> .....	<b>24</b>
lighting .....	44, 120
limit	
current .....	57
flow .....	57
options.....	57
limit checking .....	53, 239
options.....	52, 259
Limit Checking .....	<b>236</b> , <b>241</b> , 332
Limit Exceeded.....	<b>184</b> , 246
limits/type.....	52
procedure.....	55
line break	
station .....	245

**M**

main board .....	17
main flow	
main line break .....	245
operation.....	237
procedure.....	61
unscheduled.....	238
Main Flow .....	332
<b>main line limits (Flow Max)</b> .....	<b>279</b>
main menu .....	14
Main Menu .....	332
<b>main power switch box</b> .....	<b>18</b>
Main Power Switch Box .....	<b>18</b>
manual control	
menu.....	133
multi-station .....	137
options.....	133

station .....	145
test .....	33, 134
Manual Control .....	332
Manual Station .....	332
Manual System Control .....	133
Manual Test Mode .....	332
master valve	
board .....	18
initialization .....	25
limits .....	55, 260
<b>normally closed</b> .....	22, 47, 244
normally open .....	47, 244
on/off .....	137
program setup .....	47
<b>Master Valve</b> .....	<b>198, 199</b>
Master Valve Delay Turn On .....	332
Master Valve Output .....	332
maximum controller current .....	263
measurements	
ET readings .....	127
flow readings .....	126
moisture readings .....	127
options .....	125
procedure .....	126
rain/wind readings .....	128
Menu .....	332
modem .....	153
modify program .....	30, 92
options .....	92
Moisture Sensor .....	332
Moisture Sensor Trip Point .....	333
Monitor Setup .....	<b>254</b>
monthly flow limit .....	69, 238
Monthly Water Totals .....	<b>243</b>
multiple stations	
non-overlap .....	262
non-overlap protection .....	247, 262
multi-station	
clear all .....	141
diagnostics .....	142
station on concurrently .....	138
valve/pump setup .....	140
Multi-Station	
procedure .....	137, 143
<b>multi-station diagnostics</b> .....	142
mv/pump/power board .....	18

**N**

new program	
procedure.....	111
New Program.....	<b>111, 112</b>
no water window .....	149, 150
No Water Window.....	333
Non-volatile Memory .....	333
normally closed master valve	
see master valve .....	47
Normally Closed Valve.....	333
normally open master valve	
see master valve .....	47
Normally Open Valve.....	333
Numeric Keypad.....	333

**O**

Off-line.....	157, 333
offset and K values .....	84, 85, 235
calibration tables .....	235, 248
Offset Value .....	333
omit by date	
enable .....	41, 44
options.....	45
procedure.....	71
Omit By Date.....	333
on-line.....	157
On-line.....	333
Over Current.....	333
Overflow.....	<b>245, 246</b>
overlap protection.....	41, 43
<b>Overlap Protection .....</b>	<b>247, 333</b>

**P**

<b>percent</b>	
example .....	108
<b>procedure</b> .....	107
Percent Run Time .....	334
phone communication.....	281
<b>physical configuration</b> .....	280, 306
Polarity Checkout Procedure .....	<b>321, 324</b>
power board.....	18
<b>Power Failure/Recovery</b> .....	265
Power Glitch.....	334
problem report .....	158

<b>problem reporting.....</b>	<b>157, 265</b>
procedure	
access code entry .....	269
access code, using.....	272
auto limits.....	63
clear program.....	116
controller configuration .....	80
controller flow options .....	68
current checking .....	258
<b>current setup .....</b>	<b>259</b>
diagnostics.....	142
<b>Flow Max review.....</b>	<b>306</b>
Flow Max satellites.....	294
Flow Max setup .....	285
Flow Max submaster .....	286
flow meter .....	84
FM main flow limit .....	61, 292
initialization.....	23
ISC.....	50
limit checking .....	53
limits/type.....	55
main flow.....	61, 292
measurements .....	126
moisture sensor.....	83
multi-station diagnostics.....	142
multi-station, manual .....	137
new program.....	111
omit by date .....	71
percentage run time .....	107
program on/off.....	119
program setup .....	42
program start time.....	93
quick manual test.....	33
quick modify program .....	30
quick new program .....	28
quick program on/off .....	32
<i>quick rain shutdown .....</i>	<i>34</i>
quick station .....	105
rain off .....	149
reading flow meter rates .....	243
reading flow water totals .....	241
real time flow.....	304
review all .....	131
review moisture sensor .....	83
review program.....	113
send .....	109
single station.....	145

---

start time.....	93
station number.....	51
stations run time .....	102
test, manual .....	134
upload.....	155
user options .....	73
water days, 31 day cycle.....	100
<b>water days, skip by day .....</b>	<b>98</b>
water total.....	129
watering, 14 days.....	96
program .....	41, 89
clear.....	116
example .....	90
execution.....	91
main menu.....	91
modify .....	92
new program.....	111
options.....	41
review.....	113
setup .....	41
starting.....	117
stopping.....	117
Program .....	334
Program Entry .....	<b>89</b>
program on/off.....	32, 117
program on/off key .....	11
Program On/Off Key .....	334
program transfer .....	155
program upload.....	155
programmable rain shutdown .....	151
pump	
initialization.....	26
manual turn on.....	137
<b>multiple</b> .....	<b>196</b>
setup .....	48
pump board.....	18

## Q

### Quick Setup

create new program .....	28
manual test .....	33
modify program.....	30
program on/off .....	32
rain shutdown.....	34
<b>quick station option .....</b>	<b>105</b>
Quit key .....	11

Quit Key .....	334
----------------	-----

## R

radio.....	153
radio frequency .....	280
rain gauge .....	128, 159
Rain Gauge .....	334
RAIN MASTER LIMITED WARRANTY .....	355
<b>rain off</b> .....	149
rain sensors .....	230
<i>rain shutdown</i>	
enable .....	43
<i>on/off</i> .....	34
procedure.....	149
Rain Shutdown .....	334
rain/wind.....	128
RAM .....	<b>334</b>
reading flow meter rates .....	241
reading flow water totals.....	243
<b>real time flow monitor</b> .....	304
reset switch .....	18
Resistance Scale.....	<b>316</b>
review all	
procedure.....	131
Review All .....	<b>131</b>
review program	
overview .....	113
review Program	
procedure.....	114
Run Time .....	334

## S

Satellite .....	153, 334
Satellite Address .....	335
satellite address display .....	154
Satellite Controllers .....	<b>294</b>
screen display .....	10
Screen Display .....	335
security gates .....	44
<b>send</b> .....	109
Sensor .....	335
sensor terminal board.....	17
sensors	
see flow .....	19
see moisture sensors .....	19

setup .....	42, <b>269</b> , <b>330</b>
<b>Setup</b> .....	<b>35</b> , <b>39</b> , <b>335</b>
Setup Configuration	
communications type.....	81
operational modes .....	79
submaster .....	82
Setup Controller	
access code enable.....	77
access code level .....	78
access codes .....	77
Date .....	75
flow delay time.....	71
flow meter comparisons .....	69
flow options.....	68
irrigation.....	43
language .....	76
monthly water limit .....	69
omit by date .....	71
program on/off .....	118
shared devices .....	82
time .....	74
unscheduled flow.....	71
Setup ISC	
see setup program.....	50
setup overview.....	35
Setup Program	
cycle mode .....	42
master valve .....	47
MV delay turn on time .....	49
MV on between stations.....	48
omit by date .....	44
overlap protection.....	43
pump .....	48
station delay time .....	45
time format.....	46
water limit .....	46
<b>Setup Quick</b>	
<b>create new program</b> .....	<b>28</b>
K and offset values .....	84
manual test .....	33
modify program.....	30
program on/off .....	32
rain shutdown.....	34
Setup Sensors	
flow 1 K and offset.....	84
flow 2 K and offset.....	84
flow sensor .....	84

main flow limit .....	61
moisture sensor.....	83
station type .....	59
Setup Stations	
auto limits.....	63
enable/disable limit Check.....	53
low limit current .....	57
maximum flow limit.....	58
minimum flow limit.....	58
upper limit current .....	57
shared devices.....	275
short circuit.....	142
Short Circuit .....	335
shutdown	
rain.....	149
wind.....	184
single station procedure .....	145
Skip By Day.....	335
solenoid.....	227
Solenoid.....	335, 336
specifications	
electrical .....	9
features .....	4
Standard Flow Warnings .....	166
start time .....	42, 93
Start Time .....	335
Starting a Program .....	119
station	
current limit setup.....	260
delay time .....	41, 45
enable/disable .....	53
lower limit .....	58, 237
number.....	50, 51, 55
options .....	52
output board.....	18
overflow warning.....	246
overview .....	102
rain off.....	149
run time .....	103
under flow warning.....	246
upper limit .....	58, 237
Station and Station Number.....	335
<b>Station Delay Time .....</b>	<b>45</b>
station lower limit .....	237
Station Number Procedure.....	51
Stations .....	28, 102, 227, 247
status options	

comm. status.....	123
measurements.....	123
review all.....	123
water total.....	123
stop watering .....	46
submaster.....	81, 153, <b>194, 292</b>
Submaster.....	<b>335</b>
Submaster Setup Procedure .....	<b>286</b>
system configuration.....	17
system defaults .....	35
system status.....	123

## T

telephone .....	153
test switch.....	18
time format .....	41
Time Format.....	336
time/date setup.....	74
time-out .....	12
tipping bucket.....	128
total monthly flow limit.....	238
Touch Key .....	336
touch tone .....	11
<b>transferring programs.</b> .....	<b>155</b>
Transient Protection.....	336
Trip Point.....	336
troubleshooting	
multiple lights on.....	227
multiple stations do not water.....	227
<b>troubleshooting (flow charts)</b>	
<b>controller emits tone.</b> .....	<b>222</b>
<b>display is blank .....</b>	<b>220</b>
<b>flow sensor reads zero .....</b>	<b>214</b>
<b>monthly flow violation.....</b>	<b>226</b>
<b>program does not start.....</b>	<b>212</b>
<b>program does not water .....</b>	<b>223</b>
<b>station does not water.....</b>	<b>217</b>
stations shut off .....	224
troubleshooting (warnings).....	163
troubleshooting basics	
analog meter .....	315
cable checkout .....	318
continuity .....	314
continuity checker .....	314
digital meter .....	317
multimeter .....	314

ohmmeter.....	314
trunk.....	154

**U**

<b>under flow.....</b>	<b>246</b>
unscheduled flow .....	71
unscheduled Flow .....	238
Unscheduled Flow .....	336
Up Arrow .....	336
Upload .....	336
upload procedure .....	155
User Interface .....	336
user's manual.....	1
using access codes .....	272
Using Access Codes .....	<b>272</b>

**V**

valid program.....	12, 102
valve	
configuration .....	25
options .....	25
viewing the list.....	163
violations	
flow limit.....	245
Voltage Scale.....	<b>316</b>

**W**

warning	
AC power .....	186
comm. failure.....	181
current lower limit .....	174
current upper limit .....	172
daily rain limit .....	189
flow lower limit .....	166
flow max.....	191
flow upper limit .....	168
FM comm restored .....	208
FM comm. failure .....	206
FM flow lower limit .....	191
FM flow upper limit .....	193
FM limits aborted .....	205
FM main flow.....	209
FM multiple flow meter 1 assign.....	194
FM multiple flow meter 2 assign.....	195

FM multiple MV1 assign .....	198
FM multiple MV2 assignment.....	199
FM Multiple N.O. assignment.....	201
FM multiple pump.....	196
FM station advance .....	203
FM stop water .....	204
hardwire communications restored.....	178
hourly rain limit.....	177
main line break.....	176
monthly water limit .....	170
off line .....	179
power.....	185
short circuit .....	190
unscheduled limit .....	188
upload request .....	187
wind lower limit .....	183
wind upper limit .....	184
warning list.....	163
warning report .....	157, 162
Warning/report .....	337
Warranty.....	355
Water Days.....	337
Water Days Procedure (14 Day Cycle).....	<b>95</b>
Water Days Procedure (31 Day Cycle).....	<b>100</b>
water days procedure (skip by day) .....	<b>98</b>
<b>water total</b> .....	129
Water Window.....	337
Watering Day Options.....	<b>95</b>
Weather Center Sensors.....	<b>159</b>