



# **Dimmer and Switch Modules**

### **INSTALLATION GUIDE**



WEB VERSION

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### SPECIFICATIONS

- For dimming Tungsten, High or Low Volt Cold-Cathode, Wire Wound or Dimmable Electronic LV Transformer loads of up to 3KW, DSI, DALI or 1-10V Dimmable Fluorescent Ballast as specified. And a 8 channel 16A per channel switch/curtain module. Load type varies by dimmer module, see chart below.
- Modular form factor allows for field-change outs.
- Totally self-contained with Driver PCB, SCR's and Choke mounted on the same interchangeable chassis which have 4 keyhole slots for fixing to cabinet to enable quick release and fitting. SCR's, Chokes or any of the dimmer power or control electronics not fixed directly to the cabinet members or use any of the cabinet members as a heat sink device.
- Fitted with an override switch and an output level mimic yellow LED indicator.
- Fitted with an automatic thermal overload shutdown control system and a thermal shutdown 'ON' red LED indicator.

Catalog No.	Input	Output	Min. Load	Module width
QTD07-004	220-240VAC, 50/60Hz 135mA Standby Current	2.5A/Channel Relay 1-10V 30mA Max	0A	4.5" (114mm)
QTG0D-004	220-240VAC, 50/60HZ, 135mA Standby Current	2.5A Unswitched Output DSI/DALI	N/A	4.5" (114mm)
QTD0T-014	220-240VAC, 50/60HZ, Output Load + 135mA Standby Current	1,000W/Channel, Incandescent/Tungsten	40W	6.125" (156mm)
QTD0T-024	220-240VAC, 50/60HZ, Output Load + 135mA Standby Current	2,000W/Channel, Incandescent/Tungsten	40W	6.125" (156mm)
QTD0T-032	220-240VAC, 50/60HZ, Output Load +135mA Standby Current	3,000W/Channel, Incandescent/Tungsten	40W	9.25" (235mm)
QTS00-008	220-240VAC, 50/60HZ, 135mA Standby Current	0-240VAC, 140uF; +2500W Incandescent/Tungsten +1200W Inductive Transformer +1500W Electronic Trnasformer +2000W Gas Discharge +Fluorescent (23) 18/24W lamps +Fluorescent (14) 36W lamps +Fluorescent (11) 58W lamps	0A	7.75" (197mm)
NPDLR-0QT*	+12-24Vdc, 1.25A	N/A		

\* The Cat. No. NPDLR is listed here for interconnectivity reference only.

# QTD07-004 FEATURES



### **QTG0D-004 FEATURES**



Configuration and Channel Status Button with Data and Configuration LED Status Indicator

DMX512 or MBus

# **QTD0T-014 FEATURES**



LED Mimic Level Per Channel

## **QTD0T-024 FEATURES**



# **QTD0T-032 FEATURES**



# **QTS00-008 FEATURES**

2.5mm Supply I/P & Load O/O Terminals Output is Dry Loop Closing Contact.



**ON-OFF Status & Manual Override** 



### QTG0D-004 WIRING DIAGRAM



### QTD0T-014 WIRING DIAGRAM







### COMMUNICATION PROTOCOLS

### DMX512

In DMX mode only the channel number is stored in the module. It is 1 way (simplex) communication from the controller to the dimmer modules. The controller continually transmits, in sequence, the 512 DMX channel numbers and the level each DMX channel should be at. There is no communication from the dimmer channels back to the controller. In the event of communication loss from the controller to the dimmer channels, the dimmer channels will stay set at the last level received.

NOTE: DMX512 is the communication default.

### MBus

In MBus mode the channel number (1-8), channel level for each scene (1-8), zone number/ area (1-8) and fade rate (1-16 seconds) are stored in each channel of the module. It is 2 way (duplex) communications between the dimmer modules and the control devices. Each control device is configured ONLY with its zone number - it has no knowledge of the channels, levels or fade rate in that zone. When a scene (1-8) is selected on a control device, it sends the zone number (1-8) and the scene number (1-8) to all the dimmer channels. All the channels in that zone will fade to their respective level, for the selected scene number, at the rate the fade rate is set to. Channel 1, in the zone addressed, sends back a signal to all the control devices to acknowledge the command has been received. All the control devices, configured in the zone, receive the acknowledgement and illuminate the selected scene LED.

NOTE: MBus protocol must be configured at time of commissioning.

**NOTE:** MBus is best suited for smaller projects (ie. meeting rooms, offices), where a small number of channels with simple programming is required. An ideal MBus system usually consists of 1 or 2 small cabinets.

### INSTALLATION

Output dimmer modules are built in their own protective metal housing. The metal housing is designed for mounting inside a dimming control system cabinet. Control devices are designed to be mounted into a standard flush, or, surface mounted back box.

### TERMINATIONS

### FIGURE 1



### Low Voltage

All modules have a low voltage control termination block as shown in **FIGURE 1**. Terminal function is as described in **FIGURE 2**.

All control terminations should be daisy chained together, following the requirements of each control protocol. All DC Commons in the system must be connected together. Shield should be connected to earth ground at one and no more than one point in the system.

### FIGURE 2

1	Data + (DMX or MBus)
2	Data - (DMX or MBus)
Α	DC Common
D	DC +V Output
S	Shield

### Line Voltage

Dimmer module terminal function and line voltage termination as per FIGURE 3.

			FIGURE 3			
TERMINAL LABEL	QTD0T-014 Quad/Tungsten	QTD0T-032 Quad/Tungsten	QTD0T-024 Quad/Tungsten	QTS00-008 Relay	QTD07-004 1-10V +	QTG0D-004 DSI/DALI
1 +/- 2 +/- 3 +/- 4 +/-		N/A		N/A	1-10V Control Outputs	DALI Control Outputs
L1-L4 or Supply (L)	Channel 1-4 Line Voltage Input	Channel 1-2 Line Voltage Input	Channel 1-4 Line Voltage Input	N/A	Channel 1-4 Line Voltage Input	Module Power
V1-V4 or Load 1-8	Channel 1-4 Dimmed Output	Channel 1-2 Dimmed Output	Channel 1-4 Dimmed Output	Relay 1-8 Output	Relay 1-4 Output	N/A
L		N/A		Line Voltage ir constant powe	nput, connect to er	
Supply (N)	Neutral					
E	Earth Ground					

NOTE: Not all products have all terminals, N/A indicates "Not Applicable".

### CONFIGURATION

### Termination

Data line "Termination" must always be made at each end of run during operation.

There should never be more or less than 2 terminate switches turned ON in a system.

During configuration, the dimmer module which you are currently configuring should be terminated.

Terminate the module by sliding the terminate button to the ON position.

FIGURE 4 Mode Button



OFF

FIGURE 5

**Terminate Button** 



### Configure module for DMX512 communication

This is the default communication protocol and if this protocol is desired, no changes need to be made.

Verification of the current communication protocol is done with the software configuration program.

# DMX512 Stand Alone (Manual) Configuration

Turn the Mode Button ON for all modules.

At the first module press the configuration button (FIGURE 6) once. Each press of the button will advance the channel based on the type of module.

Quad - each press advances the channel up by 4. Twin - advances the channel up by 2.

For example if your guad system has 24 channels;

MODULE	CONFIGURATION BUTTON	2CH	4CH	8CH
1	1 Press	1-2	1-4	1-8
2	2 Presses	3-4	5-8	9-16
3	3 Presses	5-6	9-12	17-24
4	4 Presses	7-8	13-16	25-32
5	5 Presses	9-10	17-20	33-40
6	6 Presses	11-12	21-24	41-48

NOTE: See chart and end of document for complete correlation between the number of button presses and the DMX address.

If a system includes both quad and twin modules it is recommended the twin module(s) are numbered at the end of the system to maintain channel sequence. The smaller number modules should be at the end of the sequence to maximum addressing capacity and prevent gaps.

NOTE: Configure each module by pressing the configuration button (FIGURE 6) to set the module to the desired channel sequence. Because the programming method requires careful coordination between button press and starting channel, manual programming is not recommended for more than a handful of modules at low starting channel numbers. Manual programming not available for QTS00-008.

**NOTE:** Once configuration is complete all module mode buttons must be slid to the OFF position (FIGURE 7).

To confirm that a module is set to the proper channel sequence; switch the modules Mode Button (FIGURE 7) to ON position and then to OFF position, the LED status (FIGURE 8) will flash the number of the channel it's assigned to.

For example if a quad module LED flashes once the module is assigned to Channels 1-4.

NOTE: If module is not set to the proper channel sequence; start configuration process from the beginning, existing programming will be replaced.

### FIGURE 6



0
5



### FIGURE 7 Mode Button



FIGURE 8

Channel LED Status

### DMX512 SOFTWARE ADDRESSING

Module communication protocol is defaulted to DMX512.

Use a USB-485 adaptor to connect a computer and the module to be configured.

Only a single dimmer module can be connected at a time for configuration, it is recommended that you plug directly in to the module you want to configure.

It is essential when using this method that the DMX source, ie. the QS Net Controller or DLR is disconnected from the system before the USB-485 adaptor is plugged in. When using the board shown in Figure 9 the DMX source is plugged into the socket opposite the configuration socket. The source can be disconnected either by simply unplugging it from this board or turning dip switches 1 and 2 to the off position.

When a system has multiple modules needing configuration connect a computer to a configuration socket (FIGURE 9) in the rack with a USB-485 adaptor.

This method allows system configuration without connecting/disconnecting the computer and each module. Simply turn ON/OFF the Mode Button (FIGURE 10) on each module as you move throughout system configuration.

The first time the USB-485 adaptor is plugged into a computer you must be connected to the internet so that the driver can be downloaded and installed.

If the driver does not automatically download and install, manually download and install the driver -CDM20814 Setup.exe.

To begin configuration of the first module; turn the module Mode button to ON.

Terminate the module by sliding the Terminate Button to ON (FIGURE 11).





FIGURE 10 Mode Button



FIGURE 11



# Install QS Configure Software

Open the program and click on start.



### **Protocol Configuration**

Once the program communicates with the module the selected Data Bus Type should be DMX512 (shown in program as QS512).

If DMX512 (QS512) is not selected, select it.

seconds online web Pages			
idule	Connect to QS USB Int	eface	Connec
a Bus Type O MBus O SBus o	Q\$512		
ress Output Settings Min Max Output	Levels		
Output 1	Output 2	Output 3	Output 4
Disable Output	Disable Output	Disable Output	Disable Output
SBus/QS512 Address	SBus/QS512 Address	SBus/QS512 Address	SBus/QS512 Address
Address 1 🔄	Address 2 🕀	Address 3 🚓	Address 4 🚓
Use Sequential Addressing			

### Address

This is where output channels are set.

Each output channel is set by using the address up and down arrows or by typing into the box.

Channel addresses can be set sequentially by setting output 1 to the desired start channel and then select the "Use Sequential Addressing box". This will automatically set output channels 2-4 in sequential order starting from the address set for output 1.

🖳 Quantran Sys	tems Ltd.	- D. I.		×
File Settings	Offline Web Pages			
Connect to Module		Connect to Q.S USB Interfac		Connect To Plate
Data Bus Typ	e MBus SBus e G put Settings Min Max Output Lev	S512		
Disable ( - SBus/QSS	Output 1 Dutput 12 Address	Output 2 Deable Output SBue/QSS12 Address	Output 3 Desble Output SBus/QS512 Address	Output 4 Deable Output SBus/QS512 Address
0	1 ÷	Address 2 💠	Address 3 🕀	Address 4 🔅
Not Connected	Type: Quad 2KW Dimmer	Version: DBL_01j-4UB		Version: 1.063

### **Output Settings**

This is where output is configured as dimmer or switch mode.

For switch mode the on slider sets the percentage from 0-100% of control signal required to turn the load on, the off slider sets the percentage to turn off. On must be higher than off.

seeings Omine web rages			
nnect to Rodule	Connect to QS USB Interface		Connect Plate
ata Bus Type OMBus OSBus ● QS51	2		
dress Output Settings Min Max Output Levels			
Output	Output 2	Output 3	Output 4
Dimmer O Switch Mode	O Dimmer O Switch Mode	Ommer     Switch Mode	O Dimmer     O Switch Mode
Smith a Levels	Switching Levels	Switching Levels	Switching Levels
Relay ON Relay OFF	Bat war where	Relay ON Relay OFF	Relay ON Relay OFF
100%	- 100%	- · 100% · ·	A - 100% - A
- 50% -	- 50% -	- 50% -	- 50% -
	0×	· . ·· · ·	
·			

Note: Output settings vary by module type.

### Min. Max. Output Levels

This is where the minimum and maximum default levels for each output are set.

Default minimum and maximum levels are set for each output channel by clicking the up and down arrows to reach the desired level.



### MBus SOFTWARE ADDRESSING

Module communication protocol is defaulted to DMX512; the protocol must be updated to MBus using the software configuration program.

Use a USB-485 adaptor to connect a computer and the module to be configured.

Only a single dimmer module can be connected at a time for configuration, it is recommended that you plug directly in to the module you want to configure.

When a system has multiple modules needing configuration connect a computer to a configuration socket (**FIGURE 12**) in the rack with a USB-485 adaptor.

This method allows system configuration without connecting/disconnecting the computer and module. Simply turn ON/OFF the Mode Button (**FIGURE 13**) on each module as you move throughout system configuration.

The first time the USB-485 adaptor is plugged into a computer it must be connected to the internet so that the driver can be downloaded and installed.

If the driver does not automatically download and install, manually download and install the driver - CDM20814\_Setup.exe.

To begin configuration of the first module; turn the Mode Button to ON.

Terminate the module by sliding the Terminate Button to ON (FIGURE 14).







FIGURE 14



# Install QS Configure Software

Open the program and click on start.



### **Protocol Configuration**

Once the program communicates with the module the selected Data Bus Type will default to DMX512 (QS512), MBus will need to be selected.

Connect to QS USB Int	erface	Connec Plat
05512		
Output 2	Output 3	Output 4
Daable Output	Disable Output	Daable Output
Merlin Address	Merlin Address	Merlin Address
Zone 1 🕀	Zone 1 💠	Zone 1 🚖
Channel 2 🚓	Channel 3 🕀	Channel 4 🕀
Fade rate 4 🕀	Fade rate 4 🕀	Fade rate 4
	Correct to Q5 USB int Q553 and Output 2 Deable Output Zone 0.04 Motion Address Zone 0.04 Address Zone 0.04 Address Address Zone 0.04 Address A	Correct to GS USB Herefoor

### Address

This is where output zone, channel and fade rates are set.

Each output zone is set by using the address up and down arrows or by typing into the box. Each output channel is set by using the address up and down arrows or by typing into the box. Each fade rate is set by using the fade rate up and down arrows or by typing into the box. The first channel in each zone must be set to 1 and designated as the master channel by selecting the master channel box. Only channel 1 should be set to master or communication faults and network instability will occur.

🖅 Quantran Systems Ltd.		
File Settings Offline Web Page	5	
Connect to Module	Connect to QS USB Interface	Connect To Plate
Data Bus Type 💿 MBus 🔿 SBus	O Q5512	
Address Light Levels Min Max Output	Levels	
Output 1	Output 2	
Disater Output	Disable Output	
Merlin Address	Mertin Address	
Channel 1 😨	Channel 2 G	
Fade rate 4 🗢	Fade rate 4 0-	
Master Channel O		
Not Connected Type: Twin 3KW	Version: DBI 01i-2UB	Version: 1.0.0.63

# **Light Levels**

This is where light levels for each output and scene are set.

Light levels are programmed to each channel for each scene.

These settings can be used to test the system programming before moving on to additional module configuration.

NOTE: Actual scenes are set at the control station.

Quantran Systems Ltd.	B. Lawrence and a second	_ O _ X
ile Settings Offline Web Pages		
Connect to Module	Connect to QS USB Interface	Connect To Flate
Data Bus Type 💿 MBus 🔿 SBus 🔿 Q	5512	
Address Light Levels Min Max Outruit Levels		
Output 1	Output 2	
Output I	Output 2	
Light Laure	Light Levels	
51	S1 ← → 100	
S2 + 64	52 ( ) 64	
53 • 30	S3 · 30	
S4 •	S4 ( ) 7	
S5 <	\$5 <	
S6 < - > 64	S6 < - > 64	
S7 ← → 30	\$7 < □ → 30	
S8 • 🖂 🕨 6	\$8 <	
t Connected Type: Twin 3KW	Version: DBI_01j-2UB	Version: 1.0.0.63

## Min. Max. Output Levels

This is where default minimum and maximum levels are set for each output.

Default minimum and maximum levels are set for each output channel by clicking the up and down arrows to reach the desired level.



### SCENE PROGRAMMING FROM A CONTROL STATION

### 5 Scene plate

The control plate can be set with any address from 1 to 16 however address 9 to 15 are not used in the MBus system. Address 16 is referred to as 0 and is a master. All modules in a system will respond to a command from a master control plate, the LED update on a master comes from Zone 1, ie. a master control plate will always show the status in Zone 1.





### There are 3 user settings.

- Backlight brightness 1 to 15.
- Scene selected brightness 1 to 15.
- Zone number 1 to 16.

### View Settings

- 1. Press and hold the OFF button releasing the OFF button ends the setup procedure.
- 2. Scene selected brightness press the raise button read LED status.
- **3.** Backlight level Press lower button read LED status.
- 4. Zone number Press raise and lower button read LED status.
- 5. Compare the LED status indications on buttons 1 to 4 to FIGURE 15.
- 6. Release OFF button to exit setup.

### Set backlight and scene selected brightness

- 1. Press and hold the OFF button plus raise (scene selected) or lower (backlight).
- 2. Release the raise or lower button not the OFF button all LEDs will turn off.
- 3. From FIGURE 15 press buttons individually in sequence for the level required.
- 4. Release OFF button to exit setup the required level is stored in memory.

### Set zone number

- 1. Un-clip front face plate.
- 2. Set Mode switch M+ON LEDs will display current zone as per FIGURE 15.
- **3.** If zone number is correct go to Step 5.
- To set/change zone number from FIGURE 15 press buttons individually in sequence - for the zone number required.
- 5. To store the new zone number press and hold the OFF button until all 4 LEDs start flashing approx. 3 seconds.
- 6. Set Mode switch M=OFF re-fit front face plate.

	FIGURE 15															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
B1	X		X		X		X		X		X		X		X	
B2		Х	X			X	X			X	X			X	X	
<b>B</b> 3				X	X	X	X					X	X	X	X	
<b>B</b> 4								X	X	X	X	X	X	X	X	

## 9 Scene plate

The control plate can be set with any address from 1 to 16 however address 9 to 15 are not used in the MBus system. Address 16 is referred to as 0 and is a master. All modules in a system will respond to a command from a master control plate, the LED update on a master comes from Zone 1, ie. a master control plate will always show the status in Zone 1.



### There are 3 user settings.

- Backlight brightness 1 to 15.
- Scene selected brightness 1 to 15.
- Zone number 1 to 16.

### **View Settings**

- 1. Press and hold the OFF button releasing the OFF button ends the setup procedure.
- 2. Scene selected brightness press the raise button read LED status.
- 3. Backlight level Press lower button read LED status.
- 4. Zone number Press raise and lower button read LED status.
- 5. Compare the LED status indications on buttons 1 to 4 to FIGURE 16.
- 6. Release OFF button to exit setup.

### Set backlight and scene selected brightness.

- 1. Press and hold the OFF button plus raise (scene selected) or lower (backlight).
- 2. Release the raise or lower button not the OFF button all LEDs will turn off.
- 3. From FIGURE 16 press buttons individually in sequence for the level required.
- 4. Release OFF button to exit setup the required level is stored in memory.

### Set zone number

- 1. Un-clip the front cover plate.
- Using a small screwdriver through the small round hole just to the left of the center of the plate, press and hold the small button. LEDs will display zone as per FIGURE 16.
- 3. If zone number is correct go to Step 6.
- To set/change zone number from FIGURE 16 press buttons individually in sequence - for the zone number required - if you make a mistake release all buttons and return to step 2.
- To store the new zone number press and hold the OFF button until all 4 LEDs start flashing approx. 3 seconds.
- 6. Release all buttons zone number is now stored in memory.

FIGURE 16

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
B1	X		X		Χ		X		X		X		X		X	
B2		X	X			X	X			X	X			X	X	
<b>B</b> 3				X	Х	X	X					X	X	X	X	
<b>B</b> 4								X	X	X	X	X	X	X	X	

## Fault indications

There are 2 types of fault indications.

- LED 2 & 3 flashing, indicated that the plate has power but is not detecting a valid data bus.
- LED 2 flashing, indicates that the plate is receiving data from a valid data bus but is not receiving a LED update for the current zone.

**NOTE:** All levels are displayed in binary on LEDs 1-4, **FIGURE 17** converts from binary to level.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
B1	X		Х		Х		X		Х		X		X		X	
B2		Х	Х			Х	X			Х	X			Х	X	
<b>B</b> 3				X	Х	X	Х					Х	Х	X	X	
<b>B</b> 4								X	Х	Х	Х	X	X	X	X	



NOTE: LED brightness and backlight brightness can be set from 1 to 15.

NOTE: Zone can be set from 0 to 8 on MBus.

NOTE: When setting levels buttons act as toggle.

# MANUAL DMX ADDRESS EQUIVALENCY CHART

CONFIG BUTTON PRESS COUNT	2	4	8	CONFIG BUTTON PRESS COUNT	2	4	8
1 Press	1-2	1-4	1-8	36 Presses	71-72	141-144	281-288
2 Presses	3-4	5-8	9-16	37 Presses	73-74	145-148	289-296
3 Presses	5-6	9-12	17-24	38 Presses	75-76	149-152	297-304
4 Presses	7-8	13-16	25-32	39 Presses	77-78	153-156	305-312
5 Presses	9-10	17-20	33-40	40 Presses	79-80	157-160	313-320
6 Presses	11-12	21-24	41-48	41 Presses	81-82	161-164	321-328
7 Presses	13-14	25-28	49-56	42 Presses	83-84	165-168	329-336
8 Presses	15-16	29-32	57-64	43 Presses	85-86	169-172	337-344
9 Presses	17-18	33-36	65-72	44 Presses	87-88	173-176	345-352
10 Presses	19-20	37-40	73-80	45 Presses	89-90	177-180	353-360
11 Presses	21-22	41-44	81-88	46 Presses	91-92	181-184	361-368
12 Presses	23-24	45-48	89-96	47 Presses	93-94	185-188	369-376
13 Presses	25-26	49-52	97-104	48 Presses	95-96	189-192	377-384
14 Presses	27-28	53-56	105-112	49 Presses	97-98	193-196	385-392
15 Presses	29-30	57-60	113-120	50 Presses	99-100	197-200	393-400
16 Presses	31-32	61-64	121-128	51 Presses	101-102	21-204	401-408
17 Presses	33-34	65-68	129-136	52 Presses	103-104	205-208	409-416
18 Presses	35-36	69-72	137-144	53 Presses	105-106	209-212	417-424
19 Presses	37-38	73-76	145-152	54 Presses	107-108	213-216	425-432
20 Presses	39-40	77-80	153-160	55 Presses	109-110	217-220	433-440
21 Presses	41-42	81-84	161-168	56 Presses	111-112	221-224	441-448
22 Presses	43-44	85-88	169-176	57 Presses	113-114	225-228	449-456
23 Presses	45-46	89-92	177-184	58 Presses	115-116	229-232	457-464
24 Presses	47-48	93-96	185-192	59 Presses	117-118	233-236	465-472
25 Presses	49-50	97-100	193-200	60 Presses	119-120	237-240	473-480
26 Presses	51-52	101-104	201-208	61 Presses	121-122	241-244	481-488
27 Presses	53-54	105-108	209-216	62 Presses	123-124	245-248	489-496
28 Presses	55-56	109-112	217-224	63 Presses	125-126	249-252	497-504
29 Presses	57-58	113-116	225-232	64 Presses	127-128	253-256	505-512
30 Presses	59-60	117-120	233-240	65 Presses	129-130	257-260	
31 Presses	61-62	121-124	241-248	66 Presses	131-132	261-264	
32 Presses	63-64	125-128	249-256	67 Presses	133-134	265-268	Max.
33 Presses	65-66	129-132	257-264	68 Presses	135-136	269-272	is 512
34 Presses	67-68	133-136	265-272	69 Presses	137-138	273-276	
35 Presses	69-70	137-140	273-280	70 Presses	139-140	277-280	

# MANUAL DMX ADDRESS EQUIVALENCY CHART

CONFIG BUTTON PRESS COUNT	2	4	8	CONFIG BUTTON PRESS COUNT	2	4	8
71 Presses	141-142	281-284		106 Presses	211-212	421-424	
72 Presses	143-144	285-288		107 Presses	213-214	425-428	
73 Presses	145-146	298-292		108 Presses	215-216	429-432	
74 Presses	147-148	293-296		109 Presses	217-218	433-436	
75 Presses	149-150	297-300		110 Presses	219-220	437-440	
76 Presses	151-152	301-304	1	111 Presses	221-222	441-444	
77 Presses	153-154	305-308		112 Presses	223-224	445-448	
78 Presses	155-156	309-312		113 Presses	225-226	449-452	
79 Presses	157-158	313-316	1	114 Presses	227-228	453-456	
80 Presses	159-160	317-320		115 Presses	229-230	457-460	
81 Presses	161-162	321-324		116 Presses	231-232	461-464	Max.
82 Presses	163-164	325-328		117 Presses	233-234	465-468	Address
83 Presses	165-166	329-332		118 Presses	235-236	469-472	is 512
84 Presses	167-168	333-336		119 Presses	237-238	473-476	
85 Presses	169-170	337-340		120 Presses	239-240	477-480	
86 Presses	171-172	341-344		121 Presses	241-242	481-484	
87 Presses	173-174	345-348	Max.	122 Presses	234-244	485-488	
88 Presses	175-176	349-352	Address	123 Presses	245-246	498-492	
89 Presses	177-178	353-356	is 512	124 Presses	247-248	493-496	
90 Presses	179-180	357-360		125 Presses	249-250	497-500	
91 Presses	181-182	361-364		126 Presses	251-252	501-504	
92 Presses	183-184	365-368		127 Presses	253-254	505-508	
93 Presses	185-186	369-372		128 Presses	255-256	509-512	
94 Presses	187-188	373-376					
95 Presses	189-190	377-380					
96 Presses	191-192	381-384					
97 Presses	193-194	385-388					
98 Presses	195-196	389-392					
99 Presses	197-198	393-396					
100 Presses	199-200	397-400					
101 Presses	201-202	401-404					
102 Presses	203-204	405-408					
103 Presses	205-206	409-412					
104 Presses	207-208	413-416					
105 Presses	209-210	417-420					

# NOTES

# Quantran™



### LIMITED 2 YEAR WARRANTY AND EXCLUSIONS

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Leviton is free of defects in materials and workmanship under normal and proper use for two years from the purchase date. Leviton's only obligation is to correct such defects by repair or replacement, at its option. For details visit www.leviton.com or call 1-800-824-3005. This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose, but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to two years. Leviton is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment, lost sales or profits or delay or failure to perform this warranty obligation. The remedies provided herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.

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