

M221 vs TWIDO

Twido → M221 Controller Substitution Path

- Substitute an existing Twido installation to M221 in 3 simple steps

- Step 1: Remove the existing Twido controller and plug out the TM2 modules



- Step 2: Add the New M221 Controller and plug in the TM2 modules



- Step 3: Open the existing Twido program in SoMachine Basic, convert & download the program to the new M221 Controller

» Now you are ready to Run the Machine Application

Substitution: Compact M221 vs Compact Twido



Embedded Functions in the Controller bases	Compact M221 M221C*	Compact Twido TWDLC*
Digital I/O	16/24/40/60	10/16/20/24/40
Analog I/O	2 Inputs 0-10V	-
Plug In Cartridge	1 or 2 ports	1 ports
Max I/Os (CPU + TM3)	316	248
Program Size	10 K inst. (RAM 96k, SRAM 256k, Flash 768k)	3K inst. (RAM 10k, SRAM 32k, Flash 128k)
Basic instruction Execution Time	< 0.2 μ s	1 μ s
Real Time Clock	Yes	Cartridge
Memory Expansion	SD Card	Cartridge
Serial Lines	2: RJ45 & TB port Modbus ASCII/RTU	1 mini DIN port & 1 mini DIN port in option
USB port	1: mini B type	-
Ethernet port	1 RJ45 port: only for M2xxCE-* in Modbus TCP/IP client/server Ethernet IP client	1 RJ45 port on TWCDC40DRF
High Speed Inputs HSC	4 x 100kHz	4 X 5kHz + 2 X 20kHz
High Speed Outputs PTO	2 x 100 kHz	-
Removable TB (xx pitch)	Screw 5.02mm pitch	No (3.81 mm pitch)

Machine Solutions – Aug 2014

Mechanical Compatibility:

- Same Width 70 mm & same Depth (Height) 90mm
- The M221 Length is higher due to TB in 5.08 mm pitch vs TB in 3.81mm pitch on Twido
- M221 can support TM2 Digital & Analog IO module
- All module & accessory TWD*** are not supported by M221 in particular CanOpen, Asi, Serial Interface & display module.
- Twido + CanOpen Module → M241 CanOpen
- Twido + Asi Module → M221 Eth + Eth/Asi Gateway

Software Compatibility:

- SoMachine Basic Software convert an application of Twido to M221.
- All Twido function will be support by M221 Controller.

Substitution: Modular M221 vs Modular Twido



Embedded Functions in the Controller bases	Modular M221 M221M*	Modular Twido TWDLM*
Digital I/O	16 in TB 32 in HE10	20 in TB or HE10 40 in HE10
Analog I/O	2 Inputs 0-10V	1 Inputs 0-10V
Plug In Cartridge	-	-
Max I/Os	288	248
Program Size	10 K inst. (RAM 96k, SRAM 256k, Flash 768k)	3K inst. (RAM 10k, SRAM 32k, Flash 128k)
Basic instruction Execution Time	< 0.2 μ s	1 μ s
Real Time Clock	Yes	Cartridge
Memory Expansion	SD Card	Cartridge
Serial Lines	2: RJ45 & TB (only on M2xxM-***-) port Modbus ASCII/RTU	1 mini DIN port
USB port	1: mini B type	-
Ethernet port	1 RJ45 port: only for M2xxME-* in Modbus TCP/IP client/server Ethernet IP client	-
High Speed Inputs HSC	4 x 100 kHz	2 X 5kHz + 2 X 20kHz
High Speed Outputs PTO	2 x 100 kHz	-

Mechanical Compatibility:

- Same Width 70 mm & same Depth (Height) 90mm
- The M221 Length is higher 70 mm vs 47.5 mm due to communication port.
- M221 can support TM2 Digital & Analog IO module
- All module & accessory TWD*** are not supported by M221 in particular CanOpen, Asi, Serial Interface & display module.

Twido + CanOpen Module → M241 CanOpen

Twido + Asi Module → M2xx Eth + Eth/Asi Gateway

Software Compatibility:

- SoMachine Basic Software could convert an application of Twido to M221 (except the function like Asi & CanOpen not supported by the M221)

Substitution: Cross ref Twido vs M221

Twido reference

TWDLCAA10DRF
TWDLCDA10DRF
TWDLCA10DRF
TWDLCAA16DRF
TWDLCDA16DRF
TWDLCA16DRF
TWDLCAA24DRF
TWDLCDA24DRF
TWDLCA24DRF
TWDLCAA40DRF
TWDLCDA40DRF
TWDLCA40DRF
TWDLCAE40DRF
TWDLCDE40DRF
TWDLCE40DRF
TWDLMDA20DTK
TWDLMDA20DUK
TWDLMDA20D-K
TWDLMDA20DRT
TWDLMDA40DTK
TWDLMDA40DUK
TWDLMDA40D-K

M221 reference

TM221C-16R
TM221C-16R
TM221C-16R
TM221C-16R
TM221C-16R
TM221C-16R
TM221C-24R
TM221C-24R
TM221C-24R
TM221C-40R
TM221C-40R
TM221C-40R
TM221CE40R
TM221CE40R
TM221CE40R
TM221M-16T
TM221M-16T
TM221M-16T
TM221M-16R
TM221M-32TK
TM221M-32TK
TM221M-32TK

Substitution Digital IO: Cross Ref TM2 vs TM3

TM3 DI	TM3DI8	TM3DI16	TM3DI16K	TM3DI32K	TM3DI8A
TM2 DO	<i>TM2DDI8DT</i>	<i>TM2DDI16DT</i>	<i>TM2DDI16DK</i>	<i>TM2DDI32DTK</i>	<i>TM2DAI8DT</i>

TM3 DO Source	TM3DQ8	TM3DQ16	TM3DQ16K	TM3DQ32K
TM2 DO Source	<i>TM2DDO8TT</i>	<i>No TM2</i>	<i>TM2DDO16TK</i>	<i>TM2DDO32TK</i>

TM3 DO Sink	TM3DQ8U	TM3DQ16U	TM3DQ16UK	TM3DQ32UK
TM2 DO Sink	<i>TM2DDO8UT</i>	<i>No TM2</i>	<i>TM2DDO16UK</i>	<i>TM2DDO32UK</i>



TM3 DO Relay 2A	TM3DQ8R	TM3DQ16R
TM2 DO Relay 2A	<i>TM2DRA8RT</i>	<i>TM2DRA16RT</i>


TM3 DI&DO	TM3DM8R	TM3DM24R
TM2 DI&DO	<i>TM2DMM8DRT</i>	<i>TM2DMM24DRF</i>

- 100% TM2 module substituted by TM3 module
- Same Width 70 mm & Same Depth (Height) 90mm
 - The Length could be change a little.
- TM3*8*T with 8 channel will have TB in 5.08 mm pitch vs TB in 3.81mm pitch on TM3
- TM3*16*T with 16 channel will have TB in 3.81 pitch equivalent of TM2 TB
- A TM2 could be plug on TM3 module & M2xx Controller

Substitution Analog IO: Cross Ref: TM2 vs TM3

TM3 AI HL	TM3AI2H	TM3AI4 	TM3AI8
TM2 AI HL	TM2AMI2HT	No TM2	TM2AMI8HT
M221 Cartridge M241 Cartridge	TMC2AI2 TMC4AI2 		

TM3 AO HL	TM3AQ2	TM3AQ4 
TM2 AO HL	TM2AMO1HT TM2AVO2HT	No TM2
M221 Cartridge M241 Cartridge	TMC2AQ2V or TMC2AQ2C 	TMC4AQ2

TM3 AI Temp	TM3TI4	TM3TI8T	2xTM3TI4
TM2 AI Temp	TM2AMI2LT TM2AMI4LT	TM2ARI8HT TM2ARI8LT for TC	TM2ARI8LRJ TM2ARI8LT
M221 Cartridge M241 Cartridge	TMC2TI2 TMC4TI2 		

TM3 AI/AO	TM3AM6	TM3TM3
TM2 AI/AO	TM2AMM6HT	TM2AMM3HT TM2ALM3LT

- All TM2 Analog module are substituted expect the TM2ARI8LRJ with RJ45 port
- Same Width 70 mm & Same Depth (Height) 90mm
- The Length could be change a little.
- Two type of TB in 5.08 & 3.81 mm pitch vs TB only in 3.81mm pitch on TM2
- TM2 could be plug on TM3 module & M2xx Controller

Substitution: Cross ref TM2 vs TM3

TM2 reference	TM3 reference	TM2 reference	TM3 reference
TM2 DDI 8DT	TM3DI8	TM2 AMI 2HT	TM3AI2H
TM2 DAI 8DT	TM3DI8A	TM2 AMI 2LT	TM3TI4
TWDD-I8DT	TM3DI8	TM2 AMI 4LT	TM3TI4
TM2 DDI 16DT	TM3DI16	TM2 AMI 8HT	TM3AI8
TM2 DDI 16DK	TM3DI16K	TM2 ARI 8HT	TM3TI8T
TWDDDI16D-	TM3DI16	TM2 ARI 8LT in TC mode	TM3TI8T
TM2 DDI 32DK	TM3DI32K	TM2 ARI 8LT in non TC mode	2x TM3TI4
TM2 DRA 8RT	TM3DQ8R	TM2 ARI 8LRJ	2x TM3TI4
TM2 DDO 8TT	TM3DQ8T	TM2 AMO 1HT	TM3AQ2
TM2 DDO 8UT	TM3DQ8U	TM2 AVO 2HT	TM3AQ2
TWDD--8-T	TM3DQ8R	TM2 AMM 3HT	TM3TM3
TM2 DRA 16RT	TM3DQ16R	TM2 ALM 3LT	TM3TM3
TM2 DDO 16TK	TM3DQ16TK	TM2 AMM 6HT	TM3AM6
TM2 DDO 16UK	TM3DQ16UK	TWD NOI 10M3	N/A
TWDD--16--	TM3DQ16R	TWD NCO 1M	N/A
TM2 DDO 32TK	TM3DQ32TK	TM2 VCM 14MT	N/A
TM2 DDO 32UK	TM3DQ32UK		
TWDDDO32-K	TM3DQ32TK		
TM2 DMM 8DRT	TM3DM8R		
TM2 DMM 24DRF	TM3DM24R		