From:	Harrison, Jennifer
То:	Hoc, HOO X
Cc:	Harrison, Jennifer; Hover, Margie
Subject:	[External_Sender] Curtiss-Wright Transmittal DT226571 (PO# N/A): Response required [#EEERGRCSGRCJBJC#]
Date:	Wednesday, November 30, 2022 1:53:31 PM
Attachments:	Eaton TRM5 Timing Relays.pdf

Document Control Workflow Notification

Dear Customer,

Please confirm receipt of attached documentation by replying Yes to this email.

Responding Yes not only confirms your receipt, but also initiates an update of our Submittal/Tracking Transmittal Database.

Thank you.

NOTICE: The documents listed in the DT below will be delivered via attachments to this email.



Nuclear Division 4600 East Tech Drive, Cincinnati, OH 45245 T: 513.528.7900   F: 513.528.4537	Number DT226571				stomer/Vendor ase Order Number N/A		
Originated By Hover, Margie		iginated Date /22/2022		Project 10CFR P	Project 10CFR Part 21 Notifica		
Name		Company			Email		
Headquarters Operat Officer	ion	U.S. Nuclear Commission	Regulatory hoo.hoc@nrc.gov				@nrc.gov
Document Number			Rev	Document Type	:	Qty	For
Interim Report for 10 Notification	CFF	R Part 21	N/A	Report		1	Final Record

Remarks				
Contact Information fo Notification: TIM FRANCHUK Curtiss-Wright Nuclea Director of Quality (513) 201-2176, tfranchuk@curtisswrig		ACKNOWLEDGMENT: Please confirm receipt of the referenced documentation by replying "YES" to the email you received. The referenced documentation will default to a status of UNCONTROLLED if your "YES" reply is not received within 30 days.		
Interim Report for 100 for QualTech NP suppl Relays. U.S. Nuclear Regulato ATTN: NRC Document Washington, DC 2055 Phone: (301) 816-510 Fax: (301) 816-5151				
Document Control Use	1			
Transmitted By Harrison, Jennifer	Transmitted Date 11/30/2022			

020-07-91 Rev. 6

For simplicity, EasyResponse is enabled. You can simply reply with a valid outcome such as yes or no on a line by itself at the top of the return email.

This e-mail and any files transmitted with it are proprietary and intended solely for the use of the individual or entity to whom they are addressed. If you have reason to believe that you have received this e-mail in error, please notify the sender and destroy this e-mail and any attached files. Please note that any views or opinions presented in this e-mail are solely those of the author and do not necessarily represent those of the Curtiss-Wright Corporation or any of its subsidiaries. Documents attached hereto may contain technology subject to government export regulations. Recipient is solely responsible for ensuring that any re-export, transfer or disclosure of this information is in accordance with applicable government export regulations. The recipient should check this e-mail and any attachments for the presence of viruses. Curtiss-Wright Corporation and its subsidiaries accept no liability for any damage caused by any virus transmitted by this e-mail.

For information about how we process personal data and monitor communications, please visit

https://www.curtisswright.com/privacy-notice/default.aspx

QualTech NP Curtiss-Wright Nuclear Division 4600 East Tech Drive, Cincinnati, OH 45245 Phone: 513.528.7900 | F: 513.528.9292 www.qualtechnp.cwfc.com



November 28, 2022

Document Control Desk U.S. Nuclear Regulatory Commission Washington, DC 20555-0001

Subject: Interim Report for 10CFR Part 21 Notification for QualTech NP supplied Eaton TRM5 timing relays

Dear Sir or Madam:

This notification is being provided as a potential 10 CFR Part 21 issue. During dedication of Eaton time delay relays TMR5N22120 for Energy Harbor Purchase Order 45676362 QualTech NP discovered the presence of a programmable logic device, specifically Microchip P/N 12F615 I/SN2114, which is a flash-based CMOS microcontroller. A review of data from past Energy Harbor orders for this family of relays was performed and showed that this same logic device was also present but was not identified.

The QualTech NP qualification for this family of relays is a Mild Environment, Seismic only application, reference SQURTS Report S1807.0, Revision 1.

The affected orders are attached along with Manufacturer cutsheets on the chip in question. No QualTech NP customer other than Energy Harbor is affected by this notice. As the specific application(s) at Energy Harbor is unknown, QualTech NP cannot determine if the programmable logic device could affect the safety related function of this relay. The plant should evaluate whether the installed relays are subjected to unevaluated EMI/RFI conditions when installed in the plant.

QualTech NP investigation with this issue is ongoing.

Please phone (513) 528-7900 if you should have any questions.

Sincerely 03 Franch **Tim Franchul** 

Quality Assurance Director QualTech NP, Curtiss-Wright Nuclear Division Office: 513-528-7900, ext. 176

QualTech NP Curtiss-Wright Nuclear Division 4600 East Tech Drive, Cincinnati, OH 45245 Phone: 513.528.7900 | F: 513.528.9292 www.qualtechnp.cvfc.com



Customer	Plant	PO #	Mfg. Part #	QualTech NP Job #
Energy Harbor	Perry 1	45529688	TMR5N15120	CJ14538
			TMR5N04120	
Energy Harbor	Perry 1	45537060	TMR5N08120	CJ14941
			TMR5N22120	
	Perry 1		TMR5N04120	
Energy Harbor		45546965	TMR5N08120	CJ15428
			TMR5N22120	
Energy Harbor	Perry 1	45565421 R1	TMR5N04120	CJ16439
Energy Harbor	Perry 1	45565487 R1	TMR5N08120	CJ16441
			TMR5N22120	
Energy Harbor	Perry 1	45664144	TMR5N04120	CJ17918
Energy Harbor	Perry 1	45676362	TMR5N22120	CJ18824

#### **Affected Orders**

\* PO # 45676362 is current order, parts have not shipped to customer



# PIC12F609/615/617 PIC12HV609/615

## **Data Sheet**

8-Pin, Flash-Based 8-Bit

**CMOS** Microcontrollers

\*8-bit, 8-pin Devices Protected by Microchip's Low Pin Count Patent: U.S. Patent No. 5,847,450. Additional U.S. and foreign patents and applications may be issued or pending.

© 2010 Microchip Technology Inc.

#### Note the following details of the code protection feature on Microchip devices:

- Microchip products meet the specification contained in their particular Microchip Data Sheet.
- Microchip believes that its family of products is one of the most secure families of its kind on the market today, when used in the intended manner and under normal conditions.
- There are dishonest and possibly illegal methods used to breach the code protection feature. All of these methods, to our knowledge, require using the Microchip products in a manner outside the operating specifications contained in Microchip's Data Sheets. Most likely, the person doing so is engaged in theft of intellectual property.
- Microchip is willing to work with the customer who is concerned about the integrity of their code.
- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of their code. Code protection does not mean that we are guaranteeing the product as "unbreakable."

Code protection is constantly evolving. We at Microchip are committed to continuously improving the code protection features of our products. Attempts to break Microchip's code protection feature may be a violation of the Digital Millennium Copyright Act. If such acts allow unauthorized access to your software or other copyrighted work, you may have a right to sue for relief under that Act.

Information contained in this publication regarding device applications and the like is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that your application meets with your specifications. MICROCHIP MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, STATUTORY OR OTHERWISE, RELATED TO THE INFORMATION, INCLUDING BUT NOT LIMITED TO ITS CONDITION, QUALITY, PERFORMANCE, MERCHANTABILITY OR FITNESS FOR PURPOSE. Microchip disclaims all liability arising from this information and its use. Use of Microchip devices in life support and/or safety applications is entirely at the buyer's risk, and the buyer agrees to defend, indemnify and hold harmless Microchip from any and all damages, claims, suits, or expenses resulting from such use. No licenses are conveyed, implicitly or otherwise, under any Microchip intellectual property rights.

#### Trademarks

The Microchip name and logo, the Microchip logo, dsPIC, KEELOQ, KEELOQ logo, MPLAB, PIC, PICmicro, PICSTART, rfPIC and UNI/O are registered trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

FilterLab, Hampshire, HI-TECH C, Linear Active Thermistor, MXDEV, MXLAB, SEEVAL and The Embedded Control Solutions Company are registered trademarks of Microchip Technology Incorporated in the U.S.A.

Analog-for-the-Digital Age, Application Maestro, CodeGuard, dsPICDEM, dsPICDEM.net, dsPICworks, dsSPEAK, ECAN, ECONOMONITOR, FanSense, HI-TIDE, In-Circuit Serial Programming, ICSP, Mindi, MiWi, MPASM, MPLAB Certified logo, MPLIB, MPLINK, mTouch, Octopus, Omniscient Code Generation, PICC, PICC-18, PICDEM, PICDEM.net, PICkit, PICtail, PIC<sup>32</sup> logo, REAL ICE, rfLAB, Select Mode, Total Endurance, TSHARC, UniWinDriver, WiperLock and ZENA are trademarks of Microchip Technology Incorporated in the U.S.A, and other countries.

SQTP is a service mark of Microchip Technology Incorporated in the U.S.A.

All other trademarks mentioned herein are property of their respective companies.

© 2010, Microchip Technology Incorporated, Printed in the U.S.A., All Rights Reserved.

Printed on recycled paper.

#### QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV ISO/TS 16949:2002

Microchip received ISO/TS-16949:2002 certification for its worldwide headquarters, design and wafer fabrication facilities in Chandler and Tempe, Arizona; Gresham, Oregon and design centers in California and India. The Company's quality system processes and procedures ere for its PIC® MCUs and dsPIC® DSCs, KEELOQ® code hopping devices, Serial EEPROMs, microperipherals, nonvolatile memory and analog products. In addition, Microchip's quality system for the design and manufacture of development systems is ISO 9001:2000 certified.

# Міскоснір PIC12F609/615/617/12HV609/615

#### 8-Pin Flash-Based, 8-Bit CMOS Microcontrollers

#### **High-Performance RISC CPU:**

- · Only 35 Instructions to Learn:
- All single-cycle instructions except branchesOperating Speed:
  - DC 20 MHz oscillator/clock input
- DC 200 ns instruction cycle
- Interrupt Capability
- 8-Level Deep Hardware Stack
- Direct, Indirect and Relative Addressing modes

#### **Special Microcontroller Features:**

- Precision Internal Oscillator:
  - Factory calibrated to ±1%, typical
- Software selectable frequency: 4 MHz or 8 MHz
- Power-Saving Sleep mode
- · Voltage Range:
  - PIC12F609/615/617: 2.0V to 5.5V
  - PIC12HV609/615: 2.0V to user defined maximum (see note)
- Industrial and Extended Temperature Range
- Power-on Reset (POR)
- Power-up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Brown-out Reset (BOR)
- Watchdog Timer (WDT) with independent Oscillator for Reliable Operation
- · Multiplexed Master Clear with Pull-up/Input Pin
- Programmable Code Protection
- High Endurance Flash:
  - 100,000 write Flash endurance
  - Flash retention: > 40 years
- Self Read/ Write Program Memory (PIC12F617 only)

#### Low-Power Features:

- Standby Current:
- 50 nA @ 2.0V, typical
- Operating Current:
- 11 μA @ 32 kHz, 2.0V, typical
- 260 μA @ 4 MHz, 2.0V, typical
- Watchdog Timer Current:
- 1 μA @ 2.0V, typical
- Note: Voltage across the shunt regulator should not exceed 5V.

#### **Peripheral Features:**

- Shunt Voltage Regulator (PIC12HV609/615 only):
  - 5 volt regulation
  - 4 mA to 50 mA shunt range
- 5 I/O Pins and 1 Input Only
- · High Current Source/Sink for Direct LED Drive
  - Interrupt-on-pin change or pins
  - Individually programmable weak pull-ups
- · Analog Comparator module with:
  - One analog comparator
  - Programmable on-chip voltage reference (CVREF) module (% of VDD)
  - Comparator inputs and output externally accessible
  - Built-In Hysteresis (software selectable)
- Timer0: 8-Bit Timer/Counter with 8-Bit Programmable Prescaler
- Enhanced Timer1:
  - 16-bit timer/counter with prescaler
  - External Timer1 Gate (count enable)
  - Option to use OSC1 and OSC2 in LP mode as Timer1 oscillator if INTOSC mode selected
  - Option to use system clock as Timer1
- In-Circuit Serial Programming<sup>™</sup> (ICSP<sup>™</sup>) via Two Pins

#### PIC12F615/617/HV615 ONLY:

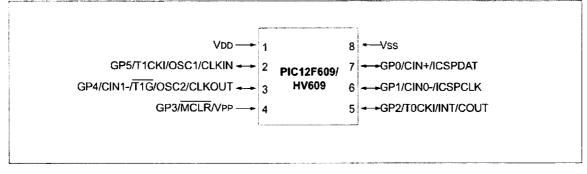
- · Enhanced Capture, Compare, PWM module:
  - 16-bit Capture, max. resolution 12.5 ns
  - Compare, max. resolution 200 ns
  - 10-bit PWM with 1 or 2 output channels, 1 output channel programmable "dead time," max. frequency 20 kHz, auto-shutdown
- A/D Converter:
  - 10-bit resolution and 4 channels, samples internal voltage references
- Timer2: 8-Bit Timer/Counter with 8-Bit Period Register, Prescaler and Postscaler

© 2010 Microchip Technology Inc.

## PIC12F609/615/617/12HV609/615

	Program Memory	Uata Memory	Self Read/		I/O 10-bit A/D (ch)	Comparators	ECCP	Timers 8/16-bit	Voltage Range
Device	Flash (words)	SRAM (bytes)	Self Write	1/0					
PIC12F609	1024	64	_	5	Ö	1	—	1/1	2.0V-5.5V
PIC12HV609	1024	64		5	0	1	_	1/1	2.0V-user defined
PIC12F615	1024	64	_	5	4	1	YES	2/1	2.0V-5.5V
PIC12HV615	1024	64		5	4	1	YES	2/1	2.0V-user defined
PIC12F617	2048	128	YES	5	4	1	YES	2/1	2.0V-5.5V

#### 8-Pin Diagram, PIC12F609/HV609 (PDIP, SOIC, MSOP, DFN)



#### TABLE 1: PIC12F609/HV609 PIN SUMMARY (PDIP, SOIC, MSOP, DFN)

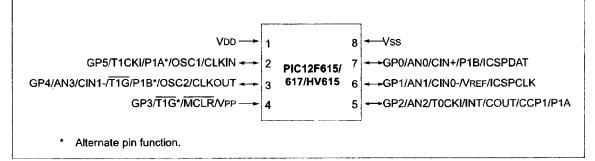
I/O	Pin	Comparators	Timer	Interrupts	Pull-ups	Basic
GP0	7	CIN+	_	100	Y	ICSPDAT
GP1	6	CINO-		IOC	Y	ICSPCLK
GP2	5	COUT	TOCKI	INT/IOC	Y	
GP3 <sup>(1)</sup>	4			IOC	Y <sup>(2)</sup>	MCLR/VPP
GP4	3	CIN1-	T1G	IOC	Y	OSC2/CLKOUT
GP5	2		T1CKI	IOC	Y	OSC1/CLKIN
_	1			_	-	VDD
	8					Vss

Note 1: Input only.

2: Only when pin is configured for external MCLR.

## PIC12F609/615/617/12HV609/615

#### 8-Pin Diagram, PIC12F615/617/HV615 (PDIP, SOIC, MSOP, DFN)



#### TABLE 2: PIC12F615/617/HV615 PIN SUMMARY (PDIP, SOIC, MSOP, DFN)

I/O	Pin	Analog	Comparator s	Timer	ССР	Interrupts	Pull-ups	Basic
GP0	7	AN0	CIN+	_	P1B	IOC	Y	ICSPDAT
GP1	6	AN1	CIN0-			IOC	Y	ICSPCLK/VREF
GP2	5	AN2	COUT	TOCKI	CCP1/P1A	INT/IOC	Y	_
GP3 <sup>(1)</sup>	4			T1G*		IOC	Y <sup>(2)</sup>	MCLR/VPP
GP4	3	AN3	CIN1-	T1G	P1B*	IOC	Y	OSC2/CLKOUT
GP5	2			T1CKI	P1A*	IOC	Y	OSC1/CLKIN
_	1					_	_	VDD
_	8	_				-		Vss

\* Alternate pin function.

Note 1: Input only.

2: Only when pin is configured for external MCLR.

#### **PRODUCT IDENTIFICATION SYSTEM**

To order or obtain information, e.g., on pricing or delivery, refer to the factory or the listed sales office.

PART NO.	<u>× 2xx xxx</u>	Examples:
Device	Temperature         Package         Pattern           Range         PIC12F609, PIC12F609T <sup>(1)</sup> , PIC12HV609, PIC12HV609T <sup>(1)</sup> , PIC12F615, PIC12F615T <sup>(1)</sup> , PIC12HV615, PIC12HV615T <sup>(1)</sup> , PIC12HV615T <sup>(1)</sup>	<ul> <li>a) PIC12F615-E/P 301 = Extended Temp., PDIP package, 20 MHz, QTP pattern #301</li> <li>b) PIC12F615-I/SN = Industrial Temp., SOIC package, 20 MHz</li> <li>c) PIC12F615T-E/MF = Tape and Reel, Extended Temp., 3x3 DFN, 20 MHz</li> <li>d) PIC12F609T-E/MF = Tape and Reel, Extended</li> </ul>
Temperature Range:	PIC12F617, PIC12F617T <sup>(1)</sup> H = -40°C to +150°C (High Temp) <sup>(3)</sup> I = -40°C to +85°C (Industrial) E = -40°C to +125°C (Extended)	Temp., 3x3 DFN, 20 MHz e) PIC12HV615T-E/MF = Tape and Reel, Extended Temp., 3x3 DFN, 20 MHz f) PIC12HV609T-E/MF = Tape and Reel, Extended Temp., 3x3 DFN, 20 MHz g) PIC12F617T-E/MF = Tape and Reel, Extended
Package:	P = Plastic DIP (PDIP) SN = 8-tead Small Outline (150 mil) (SOIC) MS = Micro Small Outline (MSOP)	<ul> <li>g) PIC12F6171-E/MF = Tape and Reel, Extended Temp., 3x3 DFN, 20 MHz</li> <li>h) PIC12F617-I/P = Industrial Temp., PDIP pack- age, 20 MHz</li> <li>i) PIC12F615-H/SN = High Temp., SOIC peck- age, 20 MHz</li> </ul>
	MF = 8-lead Plastic Dual Flat, No Lead (3x3) (DFN) MD = 8-lead Plastic Dual Flat, No Lead (4x4)(DFN) <sup>(1,2)</sup>	Note 1: T = in tape and reel for MSOP, SOIC and DFN packages only. 2: Not available for PIC12F617.
Pattern:	QTP, SQTP or ROM Code; Special Requirements (blank otherwise)	<ol> <li>High Temp. available for PIC12F615 only.</li> </ol>

© 2010 Microchip Technology Inc.