

| TM90 Shared Memory Mailbox Usage Conventions | | | | | | | |
|--|-----------------|---|----------|------------------------------------|--------------|------------|----------|
| Revised: | | 8/17/2004 11:29 | | | | | |
| Revision History: | | | | | | | |
| 10/1/2002 | | Added AutoTrakRecalculated flag | | | | | |
| 1/23/2003 | | Added definitions for registers 20-29 for Web Server usage | | | | | |
| 5/2/2003 | | Added Modbus Register column | | | | | |
| | | | | Applicable interfaces and versions | | | |
| Word # | Modbus Register | Description | Footnote | TM90 | Remote I/O | ControlNet | Ethernet |
| 0 | 40501 | "xx" of Tool Number "Txx-yzzz" | 1 | L | 0.14 & later | | |
| 1 | 40502 | "yy" of Tool Number "Txx-yzzz" | 1 | L | 0.14 & later | | |
| 2 | 40503 | "zzz" of Tool Number "Txx-yzzz" | 1 | L | 0.14 & later | | |
| 3 | 40504 | Die Closed Height, 1/10's mm (Low word) | 1 | L | 0.14 & later | | |
| 4 | 40505 | Die Closed Height, 1/10's mm (High word) | 1 | L | 0.14 & later | | |
| 5 | 40506 | Linear Transducer Gradient (from PLC data table) | 1 | L | 0.14 & later | | |
| 6 | 40507 | PLCDieDownload Flag: PLC -> 1 to initiate download, FactIS clears it when it starts processing the download | 2 | C,E | | | |
| 7 | 40508 | PLCDieID: Requested Recipe Number (16-bit unsigned int) | 2 | C,E | | | |
| 8 | 40509 | DieDownloadResult: cleared by FactIS when process starts, | 2 | C,E | | | |
| 9 | 40510 | Slide1DownloadResult: 0=ok,-1=no data, -2=compare failed | 2 | C,E | | | |
| 10 | 40511 | Slide2DownloadResult: 0=ok,-1=no data, -2=compare failed | 2 | C,E | | | |
| 11 | 40512 | Slide3DownloadResult: 0=ok,-1=no data, -2=compare failed | 2 | C,E | | | |
| 12 | 40513 | LineControl Requested Die Code | 4 | C,E,L | | | X |
| 13 | 40514 | LineControl Download Request Flag | 5 | C,E,L | | | X |
| 14 | 40515 | WebServer Die Code Response | 4 | C,E,L | | | X |
| 15 | 40516 | AutoTrak Recalculated (set by TM90 when recalculation occurs) | 6 | C,E,L | X | X | X |
| 16 | 40517 | | | | | | |
| 17 | 40518 | | | | | | |
| 18 | 40519 | | | | | | |
| 19 | 40520 | | | | | | |

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|----|-------|--|---|-------|---|---|---|
| | | NOTE: the following 10 variables are assumed to be provided by a line control PLC: they will be initialized to 0 when the TM90 starts up. The locations are standardized for the GM Web Server system. These should be reserved for variables that are expected to relate to signature characteristics. | | | | | |
| 20 | 40521 | Slide 1 Counterbalance Pressure | 7 | C,E,L | X | X | X |
| 21 | 40522 | Slide 1 Nitrogen/Cushion pressure | 7 | C,E,L | X | X | X |
| 22 | 40523 | Slide 1 Part Present (bit field: LSB = 1st station) | 7 | C,E,L | X | X | X |
| 23 | 40524 | MailBox23 | 7 | C,E,L | X | X | X |
| 24 | 40525 | MailBox24 | 7 | C,E,L | X | X | X |
| 25 | 40526 | Slide 2 Counterbalance pressure | 7 | C,E,L | X | X | X |
| 26 | 40527 | Slide 2 Nitrogen/Cushion pressure | 7 | C,E,L | X | X | X |
| 27 | 40528 | Slide 2 Part Present (Bit Field: LSB = 1st station) | 7 | C,E,L | X | X | X |
| 28 | 40529 | MailBox28 | 7 | C,E,L | X | X | X |
| 29 | 40530 | MailBox29 | 7 | C,E,L | X | X | X |
| 30 | 40531 | | | | | | |
| 31 | 40532 | | | | | | |
| 32 | 40533 | | | | | | |
| 33 | 40534 | | | | | | |
| 34 | 40535 | | | | | | |
| 35 | 40536 | | | | | | |
| 36 | 40537 | | | | | | |
| 37 | 40538 | | | | | | |
| 38 | 40539 | | | | | | |
| 39 | 40540 | | | | | | |

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|----|-------|--|---|--|--|-----------|
| 40 | 40541 | | | | | |
| 41 | 40542 | | | | | |
| 42 | 40543 | | | | | |
| 43 | 40544 | | | | | |
| 44 | 40545 | | | | | |
| 45 | 40546 | | | | | |
| 46 | 40547 | | | | | |
| 47 | 40548 | | | | | |
| 48 | 40549 | | | | | |
| 49 | 40550 | | | | | |
| 50 | 40551 | | | | | |
| 51 | 40552 | | | | | |
| 52 | 40553 | | | | | |
| 53 | 40554 | | | | | |
| 54 | 40555 | | | | | |
| 55 | 40556 | | | | | |
| 56 | 40557 | | | | | |
| 57 | 40558 | | | | | |
| 58 | 40559 | TM90 clock time: low byte=minutes, high byte = hours | 3 | | | 0.15 & up |
| 59 | 40560 | TM90 clock time: low byte=1/100's sec, high byte = seconds | 3 | | | 0.15 & up |
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| Footnotes | | | | | | | |
|-----------|--|--|--|--|--|--|--|
| 1 | These parameters are used together with the TM90L's Encoder Bits and Motion Table prompts in the Schuler SMG Die Verification Cells to permit the graphical display program to generate an appropriate distance scale for the signature. The Die code is used to generate directories for storing setups and signatures on the line supervisor computer. | | | | | | |
| 2 | These parameters are used with 3-slide transfer presses to allow a line supervisor program to download and confirm Tonnage Monitor recipes to all 3 TM90's on command from a single line control PLC (recipes must have been saved manually at the Line Supervisor) | | | | | | |
| 3 | The purpose of this is to allow a supervisory PLC to detect that the ControlNet interface program and its connection with the TM90 CPU board is alive and well: the clock is written to TM90 ram memory continuously, and read back by a separate section of code when Function 50 is executed. The "clock" value is from start of execution, not time of day. | | | | | | |
| 4 | Range of these numbers is 0-9999. The Request will be written by the line controller via ControlNet, ModbusTCP or Remote I/O. The response from the web server will be written via ModbusTCP upon completion and confirmation of the download of the requested recipe (see note 5) | | | | | | |
| 5 | PLC writes 1 to request. Server writes 0 to acknowledge request. | | | | | | |
| 6 | TM90 writes 1 to flag new AutoTrak data. Display/recipe server should upload the new data, then clear the flag. Applicable beginning with TM90 version X039 | | | | | | |
| 7 | Screen names for these are assignable on a per-press basis via a database entry on the TMConfig screen, and the assigned label will be used for on-screen display on the "Live Graph" screen (and graphs generated by the History table lookup). To avoid excessive database hits while scanning, the values are stored in the database as simple integers, and the name is assigned in the DISPLAY program. | | | | | | |