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Technical Note 034

# ACH580 Drive

## Firmware Release for GP1

The ACH580-01 and ACH580-31 latest firmware release starting with SN 2194704908 includes the GP1 fieldbus. This generic protocol will allow the ACH580 drive on a Siemens FLN network.

Just a few points on why we need to do this:

- 1) Siemens is moving away from the FLN protocol and has stopped issuing new application numbers for new products, such as the ACH580.
- 2) There is a significant install base of older drives on existing FLN networks. GP1 allows the ACH580 to replace those drives.

### GP1 fieldbus

The GP1 embedded fieldbus connection to the ACH580 drives is based on an industry standard RS-485 physical interface. For ease of retrofit, the ACH580 uses the same interface (Siemens 2734 application number) as the ACH550.

The ACH580 supports the majority of the FLN features that were previously supported in the ACH550.

There are a few points that lack the functionality of the 550 and always report 0:

- Point 18 – Revolution counter (not supported in 580)
- Point 39 – Reference 2 source (only Reference 1 source bit is supported in 580)
- Point 48 – Maintenance trigger (not supported in 580)
- Point 88 – Alarm word 1 (not supported in 580)
- Point 89 – Alarm word 2 (not supported in 580)

## Quick setup of GP1

Select GP1 in 58.01 by selecting it from the list.

|                              |                          |        |
|------------------------------|--------------------------|--------|
| Off                          | ACH580                   | 5.0 Hz |
| <b>58.01 Protocol enable</b> |                          |        |
| [1]                          | Modbus RTU               |        |
| [2]                          | BACnet MSTP              |        |
| [4]                          | None / IPC communication |        |
| [5]                          | N2                       |        |
| [7]                          | GP1                      |        |
| Cancel                       | 10:35 a.m.               | Save * |

58.03: Select the node address and change as required.

58.04: If required, Baud rate can be adjusted for network. Typical baud rates are either 4800 or 9600.

|                             |                 |          |
|-----------------------------|-----------------|----------|
| Off                         | ACH580          | 5.0 Hz   |
| <b>58 Embedded fieldbus</b> |                 |          |
| 58.01                       | Protocol enable | GP1      |
| 58.02                       | Protocol ID     | 7002 hex |
| 58.03                       | Node address    | 1        |
| 58.04                       | Baud rate       | 4.8 kbps |
| 58.05                       | Parity          | 8 NONE 1 |
| Back                        | 10:37 a.m.      | Edit     |

Group 58 offers additional troubleshooting and optional configuration parameters. Additional details on these parameters will be provided in future manual revisions.

|                             |                       |             |
|-----------------------------|-----------------------|-------------|
| Off                         | ACH580                | 5.0 Hz      |
| <b>58 Embedded fieldbus</b> |                       |             |
| 58.06                       | Communication control | Enabled     |
| 58.07                       | Communication d... .. | 1 1000 0000 |
| 58.08                       | Received packets      | 0           |
| 58.09                       | Transmitted packets   | 0           |
| 58.10                       | All packets           | 0           |
| Back                        | 10:37 a.m.            | Edit        |

|                             |                                |        |
|-----------------------------|--------------------------------|--------|
| Off                         | ACH580                         | 5.0 Hz |
| <b>58 Embedded fieldbus</b> |                                |        |
| 58.11                       | UART errors                    | 0      |
| 58.12                       | CRC errors                     | 0      |
| 58.14                       | Communication loss action      | No     |
| 58.15                       | Communication l... Any message |        |
| 58.16                       | Communication loss time        | 30.0 s |
| Back                        | 10:37 a.m.                     | Edit   |

## Point Database

The following table lists the point database for ACH580 GP1 embedded field bus.  
(FLN: ACH550 application 2734)

### FLN Point Database

| Point |      | Subpoint Name | Factory Default | Engr. Units           | Slope         | Intercept | On Text | Off Text |
|-------|------|---------------|-----------------|-----------------------|---------------|-----------|---------|----------|
| #     | Type |               |                 |                       |               |           |         |          |
| 01    | LAO  | CTLR ADDRESS  | 99              | -                     | 1             | 0         | -       | -        |
| 02    | LAO  | APPLICATION   | 2734            | -                     | 1             |           | -       | -        |
| {03}  | LAI  | FREQ OUTPUT   | 0               | Hz                    | 0.1           | 0         | -       | -        |
| {04}  | LAI  | PCT OUTPUT    | 0               | PCT                   | 0.1           | 0         | -       | -        |
| {05}  | LAI  | SPEED         | 0               | RPM                   | 1             | 0         | -       | -        |
| {06}  | LAI  | CURRENT       | 0               | A                     | 0.1           |           | -       | -        |
| {07}  | LAI  | TORQUE        | 0               | PCT                   | 0.1           | -200      | -       | -        |
| {08}  | LAI  | POWER         | 0<br>(0)        | HP (KW)               | 0.134<br>0.1  | 0<br>0    | -       | -        |
| {09}  | LAI  | DRIVE TEMP    | 77<br>(25)      | ° F (° C)             | 0.18<br>(0.1) | 32<br>0   | -       | -        |
| {10}  | LAI  | DRIVE KWH     | 0               | KWH                   | 1             |           | -       | -        |
| {11}  | LAI  | DRIVE MWH     | 0               | MWH                   | 1             |           | -       | -        |
| {12}  | LAI  | RUN TIME      | 0               | HRS                   | 1             |           | -       | -        |
| {13}  | LAI  | DC BUS VOLT   | 0               | V                     | 1             |           | -       | -        |
| {14}  | LAI  | OUTPUT VOLT   | 0               | V                     | 1             |           | -       | -        |
| {15}  | LAI  | PRC PID FBCK  | 0               | PCT                   | 0.1           |           | -       | -        |
| {16}  | LAI  | PRC PID DEV   | 0               | PCT                   | 0.1           |           | -       | -        |
| {17}  | LAI  | MOTOR TEMP    | 77(25)          | ° F (° C)             | 1.8 (1)       | 32 0      | -       | -        |
| {18}  | LAI  | MREV COUNTER  | 0               | NOT SUPPORTED FOR 580 |               |           |         |          |
| 20    | LAO  | OVRD TIME     | 1               | hrs                   | 1             | 0         | -       | -        |
| {21}  | LDI  | FWD.REV ACT   | FWD             | -                     | 1             | 0         | REV     | FWD      |
| {22}  | LDO  | FWD.REV CMD   | FWD             | -                     | 1             | 0         | REV     | FWD      |
| {23}  | LDI  | RUN.STOP ACT  | STOP            | -                     | 1             | 0         | RUN     | STOP     |
| {24}  | LDO  | RUN.STOP CMD  | STOP            | -                     | 1             | 0         | RUN     | STOP     |
| {25}  | LDI  | EXT1.2 ACT    | EXT1            | -                     | 1             | 0         | EXT2    | EXT1     |
| {26}  | LDO  | EXT1.2 CMD    | EXT1            | -                     | 1             | 0         | EXT2    | EXT1     |
| {27}  | LDI  | DRIVE READY   | NOTRDY          | -                     | 1             | 0         | READY   | NOTRDY   |
| {28}  | LDI  | AT SETPOINT   | NO              | -                     | 1             | 0         | YES     | NO       |
| 30    | LAO  | CURRENT LIM   | 0               | A                     | 0.1           | 0         | -       | -        |

| Point |      | Subpoint Name | Factory Default | Engr. Units           | Slope | Intercept | On Text | Off Text |
|-------|------|---------------|-----------------|-----------------------|-------|-----------|---------|----------|
| #     | Type |               |                 |                       |       |           |         |          |
| 31    | LAO  | ACCEL TIME 1  | 300             | sec                   | 0.1   | 0         | -       | -        |
| 32    | LAO  | DECEL TIME 1  | 300             | sec                   | 0.1   | 0         | -       | -        |
| {33}  | LDI  | HANDAUTO ACT  | AUTO            | -                     | 1     | 0         | HAND    | AUTO     |
| {34}  | LDI  | ENA.DIS ACT   | DISABL          | -                     | 1     | 0         | ENABLE  | DISABL   |
| {35}  | LDO  | ENA.DIS CMD   | DISABL          | -                     | 1     | 0         | ENABLE  | DISABL   |
| {36}  | LDI  | FLN LOC ACT   | AUTO            | -                     | 1     | 0         | FLN     | AUTO     |
| {37}  | LDI  | FLN CTL SRC   | NO              | -                     | 1     | 0         | YES     | NO       |
| {38}  | LDI  | FLN REF1 SRC  | NO              | -                     | 1     | 0         | YES     | NO       |
| {39}  | LDI  | FLN REF2 SRC  | NO              | NOT SUPPORTED FOR 580 |       |           |         |          |
| {40}  | LDO  | RO 1 COMMAND  | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {41}  | LDO  | RO 2 COMMAND  | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {42}  | LDO  | RO 3 COMMAND  | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {43}  | LDO  | RO 4 COMMAND  | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {44}  | LDO  | RO 5 COMMAND  | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {45}  | LDO  | RO 6 COMMAND  | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {46}  | LAO  | AO 1 COMMAND  | PCT             | PCT                   | 0.1   | 0         | -       | -        |
| {47}  | LAO  | AO 2 COMMAND  | PCT             | PCT                   | 0.1   | 0         | -       | -        |
| 48    | LDO  | RST RUN TIME  | NO              | NOT SUPPORTED FOR 580 |       |           |         |          |
| 49    | LDO  | RESET KWH     | NO              | -                     | 1     | 0         | RESET   | NO       |
| 50    | LAO  | PRC PID GAIN  | 10              | PCT                   | 0.1   | 0         | -       | -        |
| 51    | LAO  | PRC PID ITIM  | 600             | SEC                   | 0.1   | 0         | -       | -        |
| 52    | LAO  | PRC PID DTIM  | 0               | SEC                   | 0.1   | 0         | -       | -        |
| 53    | LAO  | PRC PID DFIL  | 10              | SEC                   | 0.1   | 0         | -       | -        |
| 54    | LDO  | PRC PID SEL   | SET1            | -                     | 1     | 0         | SET2    | SET1     |
| 55    | LAO  | EXT PID GAIN  | 10              | PCT                   | 0.1   | 0         | -       | -        |
| 56    | LAO  | EXT PID ITIM  | 600             | SEC                   | 0.1   | 0         | -       | -        |
| 57    | LAO  | EXT PID DTIM  | 0               | SEC                   | 0.1   | 0         | -       | -        |
| 58    | LAO  | EXT PID DFIL  | 10              | SEC                   | 0.1   | 0         | -       | -        |
| 59    | LDO  | LOCK PANEL    | UNLOCK          | -                     | 1     | 0         | LOCK    | UNLOCK   |
| {60}  | LAO  | INPUT REF 1   | 0               | PCT                   | 0.1   | 0         | -       | -        |
| {61}  | LAO  | INPUT REF 2   | 0               | PCT                   | 0.1   | 0         | -       | -        |
| {62}  | LAO  | EXT PID STPT  | 0               | PCT                   | 0.1   | 0         | -       | -        |
| {63}  | LAI  | EXT PID FBCK  | 0               | PCT                   | 0.1   | 0         | -       | -        |
| {64}  | LAI  | EXT PID DEV   | 0               | PCT                   | 0.1   | 0         | -       | -        |
| 66    | LDO  | SPD OUT MIN   | 0               | PCT                   | 0.1   | 0         | -       | -        |
| 67    | LDO  | SPD OUT MAX   | 1000            | PCT                   | 0.1   | 0         | -       | -        |
| {68}  | LDO  | FLN LOC CTL   | AUTO            | -                     | 1     | 0         | FLN     | AUTO     |
| {69}  | LDO  | FLN LOC REF   | AUTO            | -                     | 1     | 0         | FLN     | AUTO     |

| Point |      | Subpoint Name | Factory Default | Engr. Units           | Slope | Intercept | On Text | Off Text |
|-------|------|---------------|-----------------|-----------------------|-------|-----------|---------|----------|
| #     | Type |               | (SI Units)      |                       |       |           |         |          |
| {70}  | LDI  | DI 1 ACTUAL   | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {71}  | LDI  | DI 2 ACTUAL   | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {72}  | LDI  | DI 3 ACTUAL   | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {73}  | LDI  | DI 4 ACTUAL   | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {74}  | LDI  | DI 5 ACTUAL   | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {75}  | LDI  | DI 6 ACTUAL   | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {76}  | LDI  | RO 1 ACTUAL   | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {77}  | LDI  | RO 2 ACTUAL   | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {78}  | LDI  | RO 3 ACTUAL   | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {79}  | LDI  | RO 4 ACTUAL   | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {80}  | LDI  | RO 5 ACTUAL   | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {81}  | LDI  | RO 6 ACTUAL   | OFF             | -                     | 1     | 0         | ON      | OFF      |
| {82}  | LAI  | AI 1 ACTUAL   | 0               | PCT                   | 0.1   | 0         | -       | -        |
| {83}  | LAI  | AI 2 ACTUAL   | 0               | PCT                   | 0.1   | 0         | -       | -        |
| {84}  | LAI  | AO 1 ACTUAL   | 0               | MA                    | 0.1   | 0         | -       | -        |
| {85}  | LAI  | AO 2 ACTUAL   | 0               | MA                    | 0.1   | 0         | -       | -        |
| {86}  | LDI  | OK.ALARM      | OK              | -                     | 1     | 0         | ALARM   | OK       |
| {87}  | LDI  | OK.MAINT      | OK              | -                     | 1     | 0         | MAINT   | OK       |
| {88}  | LAI  | ALARM WORD 1  | -               | NOT SUPPORTED FOR 580 |       |           |         |          |
| {89}  | LAI  | ALARM WORD 2  | -               | NOT SUPPORTED FOR 580 |       |           |         |          |
| {90}  | LAI  | LAST FAULT    | -               | -                     | 1     | 0         | -       | -        |
| {91}  | LAI  | PREV FAULT 1  | -               | -                     | 1     | 0         | -       | -        |
| {92}  | LAI  | PREV FAULT 2  | -               | -                     | 1     | 0         | -       | -        |
| {93}  | LDI  | OK.FAULT      | OK              | -                     | 1     | 0         | FAULT   | OK       |
| {94}  | LDO  | RESET FAULT   | NO              | -                     | 1     | 0         | RESET   | NO       |
| {95}  | LAO  | MBOX PARAM    | -               | -                     | 1     | 0         | -       | -        |
| {96}  | LAO  | MBOX DATA     | -               | -                     | 1     | 0         | -       | -        |
| {98}  | LDO  | MBOX WRITE    | DONE            | -                     | 1     | 0         | WRITE   | DONE     |
| {99}  | LAO  | ERROR STATUS  | -               | -                     | 1     | 0         | -       | -        |

- Points not listed are not used in this application.
- A single value in a column means that the value is the same in English units and in SI units.
- Point numbers that appear in brackets { } may be unbundled at the field panel.